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# REGULARIZATION OF FIXED CAPITAL INVESTMENT BY THE INDIVIDUAL FIRM

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## *Is Private Action Necessary?*

THE Keynesian and post-Keynesian emphasis on aggregate market demand in maintaining high levels of productive employment has made it popular to look primarily, if not exclusively, to government for reaching this desired economic goal. The practical efficacy of government fiscal policy (supported by appropriate monetary policy) to maintain the full productive power of a private enterprise economy has been exaggerated by the abnormal conditions of the postwar period. American industry finished the war with a huge (and only gradually recognized) backlog of urgent needs for new plant and equipment. Gross underinvestment in the myopic thirties had not been overcome when the demands of war froze plans for modernization and expansion of civilian facilities and slowed even normal replacement of run-down equipment. At the war's end, accumulated needs reflected technological advances of more than a decade, locational obsolescence resulting from geographic shifts accelerated by war, and a substantial increment of consumer demand based on an expanded population and sustained "full employment" of resources. Distribution "pipelines" were nearly empty and consumption, released from rationing and price control, was practically insatiable for both soft and hard goods but especially for the durable goods which the market had long been denied. To this underestimated surge of domestic sales was added the urgent demands of war-ravaged and war-isolated areas, financed from foreign funds and, increasingly, through our foreign aid program. Only a pervasive fear of imminent collapse in the unbelievable volume of sales, coupled with recurrent shortages of key materials and labor abetted by strikes, slowed the pace and lengthened the impact of the boom. At the price of substantial inflation, we maintained an unexpected level of productive employment over an unparalleled period of time.

To some, this experience is the key to maintaining high productive employment in a private enterprise economy. Certainly, in the kind of world in which we have lived since the war, government monetary-fiscal policies are of paramount concern. With a government

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budget of upward of 25 per cent of the gross national product, the impact of these policies on the business community is crucial. Where, in addition, government is committed by law to employ its resources to maintain full domestic employment and where foreign trade and investment are increasingly an expression of political purpose within policy limitations governed by international agreements, these policies become a vital element in any countercyclical strategy.

Today the dominance of government in the planning and execution of business policy is again apparent. Mobilization, even more inevitably than the economic conditions of the past few years, injects an excess of purchasing power that neither monetary nor fiscal policy is likely to neutralize. Prospective shortages of civilian goods and equipment over an indefinite future of artificially sustained demand lower the risk of current investment; expectations of shortages of labor and equipment enhance its urgency; marginal corporate tax levels appear to reduce the cost of tax-allowed expenditures. The experiences of the last few years have revealed the inadequacy of even postwar conceptions of full-employment markets and the failure of the initial burst of capital expansion to catch up with the underinvestment of prior years. The level of corporation income taxes, especially where defense needs can be used to justify accelerated depreciation, provides an artificial stimulus to investment. The new capacity provided will be a boon during the prospective shortages resulting from peak defense requirements, and a relatively low-cost step in the scrapping of less modern plant when, and if, aggregate capacity proves excessive for nonmilitary needs. As long as mobilization lasts, there is little danger of a serious deflation. And who can tell in the present state of the world how long mobilization will endure, or what new politically motivated programs will be developed to supplement and extend its impact indefinitely under the aegis of the now nebulous but potentially vast Point Four Program?

There may indeed be, in this situation, a complex of forces that will render our current concern for private regularization of investment quite academic during the near future. A progressive tax structure that bears heavily on savings, a program of mobilization at home and military and civilian assistance abroad, a monetary-fiscal policy that, in practice if not by design, maintains a good head of inflationary steam under the economic boilers, a farm policy that

prevents the exuberance of farmers or the lavishness of nature from seriously undermining the price structure, a labor policy politically weighted toward higher money wages and greater "fringe benefits"—such a system may be proof for years against the theory that "prosperity" is doomed by the frustrated desires of income receivers to save more than the market will absorb in new investment. If government, by taxation, can continue to siphon these potentially idle income increments into active, almost insatiable, demand for goods with no immediate depressing effect on the marginal efficiency of capital, the situation is indeed one not contemplated by traditional analysis. The anticipation that government, in pursuit of high productive employment, must extend its control of capital outlays beyond the traditional sphere of public works to important capital investing segments of the economy may be indefinitely deferred.

And yet so radical a departure from experience seems unlikely. Despite the rumbling of potential war drums, there is already substantial political concern over the tax-borne weight of our international munificence. If some semblance of peace should again be gained, it is doubtful whether government alone could maintain high levels of productive activity without greatly extending its control over important capital-using industries. The obvious political difficulties of reaching a balanced monetary-fiscal policy are not the sole source of doubt. Questions stem also from the growing range of discretionary expenditures in a country of high standards of living and from the lengthening time perspective from which many business firms, free of short-run financial pressures, can gauge the desirability of future capital outlays. A simple atomistic economy of small firms, whose actions must be geared to their current cash position, is most sensitive to the shifts in cost and market prospects that government can create through its monetary-fiscal policies. But in the actual setting within which these policies operate, there is no assurance that business firms, or even consumers, will respond appropriately to government action. Even the multiplier effect of added government expenditures can be reversed if business appraisals of market and investment prospects are chilled by the direction of such expenditures.

Quite apart from the uncertainties of the psychological climate, the mere mechanics of major capital projects, whether of government or of business, belie the assumption that capital outlays can be turned off and on like water in a spigot. If government is to

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cushion deflation by capital expenditures, plans must be brought to a blueprint and specifications stage many months before. If private business is to support the government lead, it must be prepared to carry on with plans that may well have been years in preparation. If the excesses of the boom have exhausted the prospects of substantial private investment in the face of weakening markets, government cannot hope to curb recession within a reasonable approximation of its employment objectives unless it is empowered to make or to direct capital outlays much beyond the traditional category of public works.

Despite the practically full-employment record of this country since the war and the prospect of continuing full employment under mobilization, I do not believe that the "business cycle problem" has been solved. The underlying economic conditions which gave (and continue to give) such apparent success to the policy of controlled inflationary pressure will eventually change. The apathy with which the subject is now widely regarded (in contrast with the lively concern of immediate postwar days) bodes ill for the alternatives we may face when deflation occurs. The demand for employment or income security seems wide and persistent, and its political strength is far greater than fear of the somewhat nebulous consequences of a further restriction of private enterprise.

This is the backdrop against which this conference is exploring the possibilities of greater regularization of private investment by the individual firm. To this author, at least, it points to an undesirable trend toward increasing government interference with traditional private functions, a trend likely to be accelerated by a failure of the economy to maintain high levels of productive employment. It therefore marks the urgency of private policies that may contribute toward the high-employment goal as a safeguard of our private enterprise system.

### *The Meaning and Significance of Regularization of Business Investment by the Individual Firm*

The regularization of business investment is regarded as an important step in reaching general employment stability. But the concept of general employment stability is itself so loaded with semantic overtones and the notion of stability is so contrary to our concept of a dynamic society that we must clarify our meaning before we can discuss even regularization of business investment.

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### ECONOMIC STABILITY IN A DYNAMIC ECONOMY

The quality above all others that we associate with a private enterprise economy is the dynamic character of competition. New products, new processes, new materials, new technologies—each industry and each firm should grow or decay in the ratio of its ability to adapt its products to consumer demand, to lower costs, and to improve quality. Obsolescence is the price of progress. While the cost, in retrospect, may sometimes seem high, there is no feasible way of modulating the process without threatening the source of our high and rising living standards.

In response to these dynamic forces (and to peculiarities in the character of goods produced or in the conditions of their production or use), some industries are generally expanding, some contracting. Some are subject to recurrent seasonal periods of concentrated production or sale while others produce or market their output with substantial regularity throughout the year. Some industries, especially those producing multiple-use goods, suffer wide shifts in sales as business conditions and prospects alter. Others are relatively invulnerable because continued new production of single-use products is required to satisfy customer needs. Thus industries do not fluctuate in the same rhythm, in the same amplitude, or even in the same general plane.

Some companies, by chance or by design, have been able to bridge the particular fluctuations common to firms in their general class. By production for stock, by unbalanced vertical integration of production processes and full use of owned facilities, by subcontracting, by purchasing and marketing stratagems to induce or force others to take a part of the burden of fluctuating production or sales, and, most commonly, by the production and marketing of multiple products with partially compensatory or complementary production or market characteristics, these firms have achieved a measure of annual, and even of cyclical and secular, freedom from major fluctuations in their aggregate operations. It is not possible to generalize the economic impact of these and other devices by which an alert management ferrets out ways of reducing costs by increasing use of overhead (whether plant and equipment; technical know-how; supervisory, administrative, or managerial ability; sales and advertising capacity; or general consumer acceptance), and of strengthening the long-run competitive status of the firm. Some methods will improve, some will worsen, and some will not affect,

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the ability of other firms inside and outside the industry to attain a similar end result; and, similarly, some will increase, some will decrease, and some will not affect, the stability of employment or income offered by the firm itself.

The smoothing out of unnecessary fluctuations in the employment offered by a firm is probably a net gain for the community in which it operates. Certainly the lengthening perspective of management decisions is likely to improve the quality of management action. But general economic stability will not be achieved within a dynamic society by stabilizing the operations of its component parts, either industries or firms. There are sources of fluctuation in the fortunes of both that we would not avoid even if we could. We would not insulate either industries or firms from those pressures which arise from competition and the shifts of consumer demand. For this reason, among others, government subsidy or industry cartelization is too high a price to pay for economic stability.

Economic stability, then, in a dynamic, private enterprise economy can only mean maintaining a total of employment opportunities that permits reasonably full employment. It cannot mean maintaining actual employment in established jobs, in given firms, or in specific locations. Individual firms may achieve stability for themselves—to their own profit and to the advantage of their community and their employees—but these activities may or may not contribute to the stability of the whole.

It is for this reason that regularization of capital outlays by the firm has particular importance for general economic stability. Unlike other stabilizing actions of the firm, greater regularization of capital outlays will *always* contribute positively to general economic stability.<sup>1</sup> A lower aggregate of capital outlays during the prosperity phase of the cycle and a higher aggregate following the upper turning point will lower inflationary pressures in the first period and help to sustain employment and incomes in the second. This is mere arithmetic. The contribution to stability may be increased by the multiplier effect of actual expenditures and by the pressure of competition and example on the actions of other firms.

### THE MEANING OF REGULARIZATION OF CAPITAL OUTLAYS

Although regularization of private capital outlays is intended to lower the volume of private investment when markets are strong

<sup>1</sup> Whatever the purpose of investment (and some purposes may not improve general economic stability), regularization will better, where procyclical expenditure would worsen, the cyclical impact.

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and to increase that volume when markets are weak, it cannot depend on a countercyclical investment policy by the individual firm. The attractions of a countercyclical policy are easily exaggerated by instances of successful low-cost procurement in past depressions. But a general policy of countercyclical capital outlays for the individual firm is probably not workable, and its effects would be inconsistent with the aim of preventing major fluctuations in productive activity. An appreciation of these defects is necessary if we are to understand the policy of regularization with which we are concerned.

Countercyclical investment policy is unworkable because there is no forecasting device adequate to predetermine the turning points in the general level of business activity. The predictable regularity of seasonal fluctuations permits management to develop off-season activities with some assurance of the aggregate effect. But the phases of the business cycle are too long and its turning points too uncertain to permit the individual firm to formulate needed capital projects for execution during some indefinite future depression.

Even though countercyclical projects might be developed, the cost advantage to the firm is probably exaggerated by price concessions expected on the basis of experience in the thirties. The growth of labor organization since that period, not to mention the price support program for agricultural products, strengthens the conviction that depression, even if it comes, will bring far less price weakness than in the past. Even where price weakness might appear, many construction contracts (especially where specialized labor and facilities are required) include escalator clauses which could rapidly wipe out initial advantages as other companies follow the leader. Furthermore, the policies that government is now prepared to take against the threat of major depression are calculated to reduce traditional cost advantages of countercyclical outlays.

More important than either of these considerations is the fact that a countercyclical capital outlay policy of the individual firm is basically inconsistent with the primary aim. Such a policy implies that the business cycle is a natural, inevitable phenomenon to which the business firm must adapt itself as best it may. Such a policy, if widely followed, would almost insure that a weakening market would deepen into depression. The deferment of capital outlays in expectation of still lower prices and costs would intensify the pace of deflation. True, such depression expenditures, once they began, would tend to lighten the impact of depression, but countercyclical



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capital outlays can help prevent the occurrence of depression only when they are timed to counter the weakening of markets. They are therefore more suitable for government, for which alone they are likely to prove feasible.

The individual firm cannot be expected to develop or initiate projects for the primary purpose of maintaining economic stability. Even though the management of a few leading firms might conceivably be persuaded to risk corporate resources for a social purpose, there is no assurance in a private enterprise system that the response would be great enough or speedy enough to succeed. Capital outlays must continue to be made in the amounts and at the times best calculated to serve the interests of the firm. But the interests of the firm, especially of the large firm, are much broader than the transitory revenue prospects of immediate markets; and it is doubtful if the best interests of the firm have been served by the traditional concentration of capital outlays during periods of general prosperity. A policy of regularization of capital outlays for the individual firm, therefore, means that those expenditures that are made primarily for long-run purposes rather than for short-term markets should be programmed and executed without regard to the behavior of short-term markets. It is a noncyclical, rather than a countercyclical, policy.

The scope of such a policy might well include expenditures which are not normally capitalized and, because of our primary concern for maintaining demand for newly produced goods, it will include replacement and modernization expenditures as well as capital outlays for new capacity. Only the secondhand purchase of existing facilities will have little importance for this purpose since the effect of such transfers on economic stability are secondary and contingent. Thus, repairs and maintenance (as, for example, the replacement of rails and maintenance of roadbed by railroads), and replacement and modernization of equipment offer promising opportunities for regularization. On the other hand, equipment expenditures specialized to particular models afford little prospect for regularization unless production itself is amenable to long-run scheduling.

The possibilities and the limitations of this somewhat revolutionary criterion for capital outlays will concern us later in this paper. But it is fairly obvious at the beginning that the hope for greater regularization (the development of a noncyclical capital program) by the individual firm rests on the willingness of management to reexamine traditional practices; its confidence in the effec-

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tiveness of government policy, with the support of business, to cope with major fluctuations in business activity; and the financial ability of the firm to continue programed investment in the face of weakening markets and reduced revenues.

In the initial stages at least, the large firm, with which this paper is primarily concerned, affords the most favorable opportunities for a policy of regularization of private investment. The reasons are almost self-evident. The large firm will generally have a stronger financial position, both in internal sources and in access to outside sources of funds. Long-run planning and long-run considerations of policy are likely to bulk larger in management decision. The impact of the firm's actions on the economy, both directly in its own capital outlays and indirectly through leadership and through the competitive leverage it exercises on other firms, will be greater. And there are fewer managements who must be convinced that a reexamination of traditional investment policy may prove advantageous both for the firm and for the economy. There is no clear dichotomy here—we are all aware that relative size varies widely among industries and that, in any one, there is far from perfect correlation between size and leadership and financial strength and far-sighted management. But the firm which is dependent on its current cash position for solvency can hardly be expected to regularize its capital outlays until market prospects are stabilized and combined government-business policy has demonstrated its ability to cope with major fluctuations.

### *Approaches to the Study of the Possibilities of Regularization*

Both as capital outlays and as orders for new equipment and facilities, investment decisions accelerate the pressures toward inflation or deflation when general market prospects change. If it proves possible to reduce the sensitivity of business investment decisions to alterations in immediate market prospects, it should prove easier for government monetary-fiscal policies to snub or reverse undesirable fluctuations in aggregate business activity and employment.

It is the purpose of this paper to try to define the problem from the viewpoint of the individual firm, to indicate the major obstacles to the realization of such a policy, and to suggest fruitful areas for further research. Before proceeding, it may be well to summarize the main parameters of the problem as they appear from the preceding discussion:

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1. Since business investment in a private enterprise economy is incurred in the expectation of profit and in response to market opportunities, greater regularization will occur only as market prospects are stabilized or as long-run considerations come to outweigh short-run market results in business decisions. The former is not impossible; indeed, as government-business policies improve the prospects of general market stability, the strongest possible pressures for noncyclical capital outlays are created. But to assume such an eventuality is to assume the solution of the problem. We are therefore primarily concerned with exploring the long-run perspective of business investment decisions.

2. Since no individual firm has unlimited financial resources, regularization of capital outlays must be limited in time as well as by type of investment. A business investment specialized to a short-term market will be governed by the earning prospects of that market. An investment not so limited may be advantageously incurred even in the face of short-term contraction of sales, but no firm can continue indefinitely to make capital outlays in the presence of losses. Thus regularization implies the maintenance of planned long-term investment, unmodified by current market changes, for a limited period of time. It is not possible for an outsider to fix the time during which such a policy may prove feasible.

3. This proposed regularization of long-term capital outlays calls for an innovation in managerial thinking with respect to the costs, advantages, and criteria of capital investments. In a private enterprise economy, the basis for regularization must be found, if at all, in its advantage to the individual firm. Few firms have ever subjected their customary practices to critical examination; fewer still have explored the comparative costs and advantages of alternative policies.

These characteristics of the problem pose important obstacles to significant generalization about the quantitative impact of feasible regularization. To assume a uniform distribution of actual aggregate investment by an industry or a firm over a period of years may prove highly unrealistic.<sup>2</sup> Not all investment can be regularized and

<sup>2</sup> It is not impossible for all types of investment, however. An executive of a very large, well-established firm emphasized that a company like his own, having lived through several generations of equipment, required annual expenditures for replacement and modernization that were independent of the volume of business. He showed by example how his firm could have saved substantially—through greater efficiency in planning, ordering, and installation; less interference with production schedules; greater protection against obsolescence; and

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much of that which can be "lumpy." Self-interest may permit initiation of a project at a time of poor sales but efficiency may not permit uniform expenditures from year to year. Indeed, in a dynamic society, uniformity of capital outlays by the individual firm is not desired; rather, the goal is randomness in the initiation of outlays with respect to the business cycle. A private firm cannot be expected, in the interest of general economic stability, to imperil its competitive position by foregoing investment in a perfected product or process because a boom is on. But management may be expected, in the interests of the firm as well as the economy, to maintain product and process research and development throughout a period of easy business and to forward investment in such products as they are perfected even though immediate business prospects are uncertain.

The strongest impression conveyed by a field study of this problem<sup>3</sup> was the practical impossibility of generalizing the feasibility of regularization of investment even within a given industry. Economic, political, and psychological influences impinging on management decisions vary widely among firms of different size and age and with multiple products and market patterns. Perhaps because of the unique situation in the immediate postwar period, there was little to be gleaned from a study of then-current investment plans about the feasibility or probability of regularization. True, many firms had well-formulated programs for expansion and modernization, plans for several years ahead which were alleged to be independent of current market prospects even though they were generally budgeted on an annual rather than a project basis. Some had much longer (and less well-defined) programs for up to twenty years in advance, admittedly little more than directional guides for development to be successively altered as specific projects were perfected and authorized. But the conditions that generated such plans—thwarted normal development during the war, the urge to get the jump on rivals as soon as barriers were lifted, the cumulation of liquid assets to finance rehabilitation—were exceptional; and

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more adequate capacity—by the adoption of such a policy even during the depressed period of the thirties.

<sup>3</sup> Between 1946 and 1948, the author undertook an exploratory study of what businessmen believed their firms could or could not do through their own operations and policies to maintain a high level of productive employment. Some forty-nine firms, of widely varying size and industry classification, were visited and interviews varied from a single contact to contact with practically all members of the top management staff. While this paper is not a report on that study, opinions expressed herein are largely derived from it.

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there was no assurance that this planning policy would be continued.

The important fact is that none of the firms interviewed had consciously followed a policy of investment regularization. Many of the programs authorized were actually being built on a conservative, fairly uniform schedule despite the urgency of the catching-up process; but the speed of capital expenditures was governed by deliveries of key equipment, limited availability of labor and materials, and lack of proper supervisory and management talent. With market demand generally in excess of productive capacity, anticipated returns on capital outlays far exceeded cost of capital, "pay-out periods" were much foreshortened, capital was in effect rationed. Only for buildings not currently needed for manufacturing were there instances of conscious deferment of expenditures, usually on the premise (since proved erroneous) that construction costs would decline.

There were good reasons for urgency—long overdue replacements, removal of bottlenecks, satisfaction of important customers who might otherwise be lost to rivals. But the skeptic may well ponder whether the firm is ever in a "normal" situation, ever free of the pressures engendered by its past cyclical behavior. The special circumstances of the time were buttressed by a market that promised abnormally short "pay-out periods" even at high equipment prices, and adequate funds for investment were at hand. Are these circumstances more special than those of any boom market? And if the investment consequences are the same, is there much hope for maintenance of private investment when markets turn sour?

The author found it very difficult to explore this matter with management. The issue was an "iffy" sort of question and the conditions which might affect the desirability or feasibility of a given investment at any given point in time were so diverse, so weighted with judgment factors, that there could be little definition of how the decision would turn in the absence of a particular case. But actual current decisions, as indicated above, were skewed by overriding considerations. The recent past was dominated by war, and the prewar period was too far removed for intelligent analysis. Moreover, written records were much too scanty, memories were uncertain, and key personnel were often no longer available.

Yet it is only in the particular case, more especially in a current case, that the possibilities of regularization of private investment can be studied. It has been noted above that a policy of regularization calls for an innovation in management thinking. It is a necessary

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condition of such an innovation that the alternatives be examined, that comparative costs and advantages be weighed, that the decisions be recorded in a manner subject to continuing check and appraisal. Until something of this sort is achieved, investment decisions are likely to be made in a "crisis" rather than a policy atmosphere, and management, not to mention the outside investigator, will be unable to judge the merits of regularization or to appraise actual investment policy.

### *The Case against Regularization*

The improbability (to some, the impossibility) of an effective policy of regularization of capital investment in a private enterprise economy follows from the admitted inability of the individual firm to stem the forces of deflation (or inflation) by its own actions, the theory of derived demand for capital equipment, and the accelerated shifts in the apparent value of new equipment and facilities with small changes in demand for product.

The position of the skeptics is strong and there is no doubt that it is supported by the actual behavior of most private investment in the past. Certainly no private firm is so large, its product and market coverage so broad, and its financial resources so unlimited that it could hope to maintain its own sales volume, let alone to counter general deflation, by its own actions. The contribution which its own expenditures would make toward the maintenance of general incomes and aggregate demand would be so dissipated in consumer savings and in outside purchases that continued efforts in this direction could lead only to bankruptcy.

Furthermore, it is apparent that, in dealing with regularization of fixed capital investment, we are emphasizing only one aspect of a highly integrated management decision. There is hardly any aspect of a firm's operations that could not affect its investment requirements and plans. Both the amount and the timing of capital outlays will be importantly affected by judgments, decisions, and policies taken with respect to these other matters. Thus regularization of gross capital outlays might seem more logically to reflect the regularization of the other operations of the firm than to constitute an independent aspect of management policy.

This position is sometimes parlayed into a conviction that there is no escape from the traditional cyclical fluctuation of capital outlays. When demand for product is weak relative to production capacity, incentives to new capital outlays are dulled to the point

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of extinction. Maintenance and repair are less urgent with idle and underutilized equipment. Replacement and modernization are slowed because only the most efficient units of equipment need be used to meet production requirements, and the apparent cost advantages of their replacement are narrowed both by the increased efficiency of labor in the face of unemployment and by the lower volume of production and the smaller margin of operational advantage of a new over a relatively new item of equipment. The risk of marketing new models that might require substantial amounts of specialized tools cautions minor rather than major changes. To expand capacity in the face of idle plant facilities and a weak, uncertain market demands a faith and confidence in the future seldom realized. And new-product prospects wither rapidly in a sickly market. Overhanging and intensifying the gloom are the conventional "realities" of business prudence. A firm must preserve and strengthen its "liquidity" in a weakening market. With current net income curtailed, it must husband its cash receipts from inventory liquidation. And to go to the capital market for funds (either for debt or equity capital) in the face of curtailed earnings would be to increase the cost of capital, to jeopardize the freedom of management, and to violate the judgment of directors and financial advisors. Thus capital outlay commitments are abrogated as far as industry custom and sunk costs will permit, new orders are canceled, plans are deferred, standards for new capital outlays (e.g., "pay-out periods") are tightened and even internal requests for replacement dry up. Only as sales prospects improve and projected output begins to press on capacity, as revenues rise, as labor costs begin to creep up, and as general optimism pervades both the firm and the capital market are these anticipations reversed into a mounting flood of new investment.

This traditional pattern is sometimes violated—in the case of a project that has gone so far that it must be completed, a change in technology or processing that forces replacement and modernization to maintain one's competitive position in the market, an occasional firm with sufficient financial strength and confidence in the future to take advantage of lower equipment and construction costs in a depressed market, a new product whose market promises to counter the general trend—but there is no denying that it has been characteristic. The real question with which we are concerned is whether it is inevitable.

While this approach cannot be proved erroneous as a market

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generalization, there is reason to believe that it is a gross oversimplification of the investment process in the large firm which may easily lead us into error. In the first place, postwar management is more aware than management ever was before of the vital importance of doing something about the business cycle within the framework of a private enterprise economy. This awakening, as is so often true in the business world, is premised less on the prospective profits of continued high-employment operations than it is rooted in the prospective costs of a failure to achieve this goal. The organized power of labor unions has increased the pressure, directly through collective bargaining and indirectly through legislation, for greater security and greater continuity of employment (or at least of income). Extended work or pay guarantees, pensions, employment insurance with merit rating, and other fringe benefits alter the costs of fluctuating employment. The political commitments of government, accompanied by aroused public concern with business policies under the veiled threat of direct interference, undermine the relative complacency with which an earlier generation of executives could assume personal impotence and no responsibility for general swings in business activity and employment. Managers, like the ordinary run of mortals, are no doubt generally disposed to follow the path of least resistance. In the absence of compelling pressures to the contrary—whether stemming from social and communal expectations, government political forces, or contractual labor commitments—the path of least resistance in the face of a weakening market was to contract output and employment and to curtail business expenditures. With newly developing responsibilities, it is premature to judge what businesses can or cannot do.

Secondly, it is doubtful if the traditional analysis of the investment process in terms of short-run derived demand is an accurate or even a realistic picture of the important determinants of investment among firms which have gained a measure of financial independence from short-run market revenues. The ultimate test of survival and the acid test of management are still profitable operations, but the immediate behavior of sales is no longer the necessary focus of decision. We are familiar with the apparent contradictions that discretion in pricing policy can create for the simple theory of profit maximization. Postwar inflation has again provided many examples of sticky administered prices. Despite gray markets at distributor levels, many manufacturers chose voluntary rationing rather than prices high enough to balance supply and demand. The motives do



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not concern us here. Whether it was to retain customer good will, to placate government, to damp labor demands, to ward off potential competitors, or even to frustrate the Bureau of Internal Revenue, the important fact is that higher short-run profits were avoided presumably in the expectation of greater (but probably incalculable) strategic benefits in the long run. Long-term concepts of profit complicated by noneconomic ideas of "fairness" or strategy rob the theory of maximization of profit of its value as a guide to managerial pricing policy. Similar long-term considerations, if used as a guide in planning capital outlay programs, may be equally devastating for the theory of derived demand and the marginal efficiency of capital in the field of private investment.

The stubborn resistance of businessmen to "scientific" economic formulas for the timing of capital outlays may well have deeper roots than mere ignorance of the economic verities. The comparable flow of future incomes and costs from alternative types of durable equipment is even more uncertain than the forecasting of turning points in the business cycle on which both depend. The competitive reaction of rivals and the risks of obsolescence add to the uncertainties of general shifts in demand. The present value of so uncertain a future net income flow may count for little in the replacement decision. To attempt to appraise in dollars the many ways in which a new item of equipment may add to revenue or reduce costs—through closer tolerances, lower material and processing losses, improved labor morale, increased salability, better integration of facilities, less down time, etc.—in addition to the more obvious saving in labor, is a laudable and always revealing exercise in business analysis. But it may still leave out of account more important intangibles which can hardly be reduced to dollars and cents. The firm's long-run competitive position and leadership in new products, new processes, even new safety records; the predevelopment or preemption of research, raw material, location or market position in order to discourage actual or potential competitors; the adaptation of company policy to public demands in order to woo public approval or to ward off undesirable political action—there are many economic, political, and psychological objectives in which investment partakes more of strategy than of narrow economic calculus. Immediate market prospects may be secondary to these broader purposes.

Whatever the confusion that may be injected into the classroom projection of the impact of economic forces on business action, these

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long-run considerations raise the presumption that the historical coincidence of profitable markets and capital outlays is not inviolable for the large firm. Through leadership, competitive leverage, and the direct impact of the large firms' expenditures, this potential breach in traditional practice can be widened to an increasing number of firms which would not (or could not) initiate such policies on their own.

### *The Possibilities of Regularization*

It has been suggested that the peculiar competitive position of the large firm improves the possibilities of greater regularization of capital outlays. The fixed investment stake of the firm (largely a sunk cost) lengthens the time perspective of management decision. Actual investment in physical plant, though important, may be less compelling than the firm's stake in other assets. Options on raw material or locational sites; the maintenance of an effective working organization; specialized know-how in research, engineering, or management; consumer acceptance or the good will of customers and distributors—these are values that can be preserved only by use and by growth. The reputation of the firm in the areas it serves may slow the rate of advance—new products may add to or subtract from the aggregate far more than their direct net receipts—but growth is the law of survival and the firm is always in the process of becoming. New opportunities must be created for its developing staff of young executives and supervisory personnel. New outlets must be found for the products of its research and engineering staff. Customers must be assured of continuity of the product and service standards they have come to expect. Thus management must think of markets not merely in terms of months, but in terms of years. And where raw materials are subject to depletion, it may have to plan for decades. When such market goals require investment with an expected life beyond the span of an ordinary cycle, short-run earning prospects may become a minor factor in the timing of the capital outlay.

Some types of capital outlays lend themselves more readily to regularization than others. The purchase of specialized machines and other equipment, for example, is usually closely related to current production schedules. Regularization of such expenditures will depend on the stabilization of other activities of the firm. On the other hand, repairs and maintenance can often be carried out on a regular anticipatory schedule. One outstanding example has

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been mentioned—the replacement of rails and maintenance of the roadbed of railroads. Age, the speed and weight of trains, and testing for fissures and other defects, rather than actual volume of traffic, are the important criteria of desirable replacement. Both safety and cost considerations would argue for regularization of such outlays.

Replacement and modernization of general equipment and facilities promise major opportunities for greater regularization. Free of the induced rhythm of special models, general purpose equipment is required for basic production processes in a firm's established lines of product. Here one is concerned with the core of the firm's business, the quality and efficiency of which will importantly affect its competitive position and the course of its future development. Here it is feasible to establish standards of efficient operation which will subject existing facilities to the continuing challenge of new equipment and processes. Here the funds required for replacement are currently being provided from internal sources by appropriate charges to operation for depreciation. And here a long-term pattern of production and sales may be determinable. To schedule replacement according to the normal trend in such sales rather than the pressure of current sales volume on capacity promises substantial long-run advantages to the firm. The entire process of analysis, specification, order placement, delivery, and installation can be conducted more effectively and with less interference with actual production. The risk of technological stagnation is materially reduced where, as is commonly the case, improvements in equipment and processing are gradual and not revolutionary. High-quality output, high labor morale, low processing costs, and the ability to take full advantage of short-run upturns in business are among the rewards of the firm whose facilities are continually modernized.

Expansion of capacity for existing products or even for newly developed products also offers important opportunities for greater regularization. True, it more commonly calls for outside financing, which may raise problems in a weak market, and it certainly creates psychological hazards graver than those associated with regularization of replacement and modernization. But expansion of capacity for established products will generally be undertaken by the large firm in terms of the anticipated long-term trend in market requirements. And most newly perfected products and processes have not sprung full-blown from the laboratory but have matured through a gestation period often measured in years rather than months. In the

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long period of adaptation and redesign—through laboratory, pilot plant, internal and selected-customer trial under various conditions of use, comparative breakdown analysis, market testing, etc.—the normal prospects of the perfected product or process have been pretty well marked out by the time it is ready for full-scale commercial production. If at this point the current and near-term market seems to be weak, the decision to build or not build (funds being available) will probably turn on the character of the product, more especially on the probability that delay may permit rivals to duplicate or to eclipse the firm's brain child.

That there may be possibilities for greater regularization of capital outlays in these areas, with advantage to the individual firm, is no assurance that they will be explored or realized in practice. Few of the top executives interviewed recognized spontaneously that the greater regularization of their own capital outlays would be a significant contribution to the maintenance of high productive employment. As sellers, either of production materials and components or of capital equipment, they were quick to see the advantages that would follow if their customers adopted more stable purchasing policies. But a disconcertingly large proportion of businessmen apparently confine their thinking on this problem to the internal operations of the firm—production scheduling, production for stock, shifting of work among employees or of workers among jobs, development of compensatory products and markets. Very few had assigned continuing responsibility for checking the adequacy and cost efficiency of existing equipment against the potential advantages of replacement; fewer yet had explored the possible advantages of greater regularization of capital outlays for expansion of capacity.

### THE HAZARDS OF REGULARIZATION OF CAPITAL OUTLAYS

The exploration of probable barriers to a policy that has not been tried or even seriously considered is extremely baffling. An attempt was made to find out what considerations, criteria, and procedures characterize the actual determination of the amount and timing of capital outlays. The probable obstacles to regularization—the cost and availability of funds; the threat of technological change; the development and introduction of new products and processes; the action of important competitors; the tax levels, regulations, and policies of government—were then examined as they might be expected to modify either standards or policies.

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### CRITERIA OF CAPITAL OUTLAYS

In this area there is little to add to the descriptions already published by Ruth Mack, George Terborgh, Walter Heller, Michael Gort, and others.<sup>4</sup> Indeed, there is little ground for significant generalization on the results of a process so studded with potential vetoes of undefined force. Capital outlays, far more than production expenditures, are weighted with policy considerations. Traditionally, they reflect a new dimension in the firm's growth, a departure which may entail continuing and expanding commitments that progressively limit the area of discretion as they are made. Out of some such sense of responsibility to the firm's owners, managers have developed an exaggerated caution in the formal procedures concerning capital expenditures. Not only must the proposed expenditure run the gantlet of an ascending series of potential vetoes, but executives who may commit the firm to other purchases and sales involving many thousands of dollars have a niggardly freedom of action in this area. Executive authorization, even for the president of a large corporation, is extremely restricted—\$5,000—\$10,000 was a not uncommon limit, and in one leading firm in its field, projects requiring more than \$500 could not be initiated without the approval of the board of directors. While limits such as these are not to be interpreted as domination of policy by the board—they are often imposed primarily for control and accounting purposes at varying levels of management—they do reflect a general conservatism in capital expenditures. Coupled with annual budgeting of capital expenditures, which is characteristic, they insure close and continuing review of such projects.

On the other hand, the attempt to discover what minimum criteria were required for the approval of a capital outlay was inconclusive. True, one could elicit opinions on a reasonable anticipated rate of return on investment or a reasonable pay-out period for investment of different types. But the sources of calculated probable gains from new equipment were generally so limited, the unquantified imponderables so great, and the criteria so variable over time that there was little to be gleaned from the analysis. As the investment

<sup>4</sup> Ruth Mack, *The Flow of Business Funds and Consumer Purchasing Power*, Columbia University Press, 1941; George Terborgh, *Dynamic Equipment Policy*, McGraw-Hill, 1949; Walter Heller, "The Anatomy of Investment Decisions," *Harvard Business Review*, March 1951; Michael Gort, "The Planning of Investment: A Study of Capital Budgeting in the Electric Power Industry," *Journal of Business of the University of Chicago*, April and July 1951.

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became larger and more important, the weight of imponderables in the decision was usually greater, and the available records were likely to be less useful. Smaller projects cannot be known and appraised directly by top management. They must be culled by formula and their justification must be documented. But important projects will usually have been evolved, studied, and worked over for years. They will be generally familiar to management and their final authorization may carry no more detailed written justification than "needed to meet competition."

Nor could I ascertain with any assurance the considerations which govern the aggregate amount of capital a firm might expend in any given year, excepting only the negative conclusion that it seemed not to be governed by the cost of new capital to the firm. Capital outlays, especially those for important expansion or modernization, are likely to be "lumpy"; they do not split up readily into small increments. With a strong management bias against the use of external funds, projects which might force such financing may be deferred, even though they promise higher net returns than the cost of new capital, unless they are urgently needed to activate even more important sunk costs or to meet a critical competitive threat. Uncertainty about market trends, about the ability to get needed deliveries or installations on credit, or about the availability of talent to absorb the new project effectively in the operating organization may strengthen this conservative bias.

With minor qualification for relatively unimportant projects, I could not avoid the conclusion that generally there is no objective standard of a minimum net return required to induce investment. Alternative projects might conceivably be arranged in some schedule of declining anticipated profitability (according to some arbitrary and probably inadequate measure of profitability), but seldom are projects authorized, or aggregate capital outlays determined, on the basis of such a schedule. The really governing considerations are much less tangible and much more variable. As the firm grows in size and complexity, the imponderables of over-all strategy are increased. Even the screening of minor proposals, for which some standard is presumably applied, is subject to highly qualitative changes in the mesh of vetoes through which they are filtered.

### COST AND AVAILABILITY OF FUNDS

The particular factors that may alter screening tolerances proved almost equally elusive. Prominent among these in economic discus-

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sion are the cost and, perhaps more important, the availability of funds. For the small firm, these are probably controlling factors, and qualitative standards of credit extension may impose far greater restriction than the nominal interest rate would imply. But for most of the firms interviewed, excepting railroads and electric utilities, the cost of capital was alleged to be an insignificant factor in capital outlay decisions. Most firms denied that availability of funds had ever been a limit on decision and several executives asserted that interest rates had never even been discussed throughout their managerial experience. This was no doubt a function of the sample of companies interviewed. The predominance of internal funds in capital financing, the strong cash position of the firms, the possibilities of advance financing for contemplated projects, the high profit margins anticipated on capital outlays (i.e., capital rationing), and, perhaps most important, the fact that none of these firms had wanted to embark on important capital projects in a weakening market seemed to account for the apparent unimportance attributed to this factor.

### TECHNOLOGICAL CHANGE AND NEW-PRODUCT DEVELOPMENT

Next to cost and availability of funds among probable hazards of regularization looms the risk of obsolescence of process or product through technological change and the action of rivals. But, again, executive responses were equivocal. Most executives emphasized that emergent technological change usually casts a long shadow and that their best assurance against obsolescence was the work of their own engineering and research staff. Indeed, there was wide recognition that technological obsolescence could not be avoided by concentrating capital outlays in a booming market. Such concentration could handicap the firm at a later date when its "modern facilities" were undermined by new developments, and since the span of the boom is as difficult to forecast as the length of the depression, facilities installed in the boom may never come into use. For the replacement program, at least, regularization might well offer the best protection against technological change.

In the marketing of new products (including new types of equipment), the problem is complicated by the actual or potential action of rivals and the good will of customers. The hazard of advance commitment is probably greatest for the specialized tools and machinery required for new models of competitive durable goods. Here capital investment shares the market fate of the new model

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itself and a firm hesitates to show its hand well in advance of its competitors. As would be expected, the action of rivals is always a potent factor in capital outlay decisions. And when it threatens to undermine the status of the firm with important customers, it is a determining consideration. In the past, the failure of important firms to initiate new products in a declining market has neutralized what could have become a major factor in the maintenance of capital outlays.

No executive interviewed was willing to admit that his firm had consciously withheld from the market products or processes that had been perfected. It was alleged that such a policy would threaten the industrial leadership of the firm, its reputation and good will with customers, the wider profit margin to be gained on new items, and the morale of its own organization—factors more important in the aggregate than the temporary weakness of anticipated markets. These are no doubt weighty considerations. But the skeptic is also aware that “perfection of product” is a qualitative judgment that may be heavily weighted by the recognition that current sales of the new product may compete primarily with existing sales of the firm’s established products, that such sales may create major inventory problems for distributors and considerable ill will among customers who have just invested in the outmoded product, that to market the item in the face of a cyclical decline in sales may mean risking a current loss while showing one’s hand to rivals who may thereby be enabled to recover before markets begin to improve. In an industry like chemicals that has a strong upward secular momentum in which technical and product development is the law of survival, these considerations may count for little, but where this underlying drive is less strong there is an area of doubt.

The business executive has a different explanation for the past cyclical behavior of product and technological change. In the past, both facilities and staff for technical and product research have been so limited that, during a boom, technicians were increasingly diverted to customer service problems. And while these problems might stimulate ideas for improvement, the staff was not free to concentrate on new developments. In consequence, when the boom passed its peak, the firm had few, if any, new or improved products to market. Depressed sales, on this theory, permitted some catching-up in perfecting new products and processes even though staff might be somewhat curtailed at such times. Since the war, both facilities and technical staffs for research have been expanded sub-



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stantially. And many managements alleged that it was now their firm policy to prevent this customary diversion of research time and talents to customer problems. If this is indeed the practice of leading firms and if, in fact, the introduction of new products is little affected by short-term market prospects, there is here a potential force for a more random timing of capital outlays relative to the business cycle. Spearheaded by a few leading firms, the competitive leverage of such a policy could become a major factor in regularization.

### COST OF EQUIPMENT

Again, with partial exceptions among railroads and electric utilities, neither the price of equipment nor the installed cost of facilities was considered a controlling factor and seldom even an element in the timing of capital outlays. The quality of the equipment, the reputation of the firm for servicing, and the importance of delivery dates far outweighed the impact on production costs of the prices of durable equipment whose cost was capitalized and spread over time. Nor was the potential saving in labor cost through the use of more automatic machinery considered an important factor in *timing* capital outlays. Labor cost savings were always a significant element in machine replacement (often the only element that was quantified) but this element was considered more important in determining the trend of investment than in determining its cyclical manifestation. Since wage costs, as a portion of total costs, are likely to decline in depression even though wage rates are sticky, any focus on saving in labor cost would tend to obstruct a policy of regularization of capital outlays.

### TAXES

Except in industries subject to public control, few of the executives interviewed showed a sympathetic interest in the ways in which government tax and fiscal policy might be manipulated to encourage greater regularization of business investment. Many were wroth at the level of corporation taxes, at the persistence of discriminatory excise taxes and the double taxation of corporation earnings. Also many were concerned with the taxation of undistributed profits, not because it constituted a real barrier to reinvestment but because it subjected them to the necessity of justifying their financial plans to the representatives of the Bureau of Internal Revenue. Most businessmen apparently would like greater freedom in determining the

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rate at which durable assets are depreciated. (Were this freedom granted, it would, if anything, tend to concentrate capital outlays in years of high income.) Most would also favor a longer averaging of corporate income for tax purposes. Perhaps the most common desire is the one most difficult to satisfy—a stable tax rate to which competition and business policy could be adapted. Practically all were wary of special tax concessions for investment at particular times and shied away from such proposals as reserves allowable against tax liability in good years provided they were expended in poor years. They doubted that a tax allowance could become the governing factor in determining the desirable timing of investment, and they shunned the probable interference with business operations that would be the price of such a concession and feared the discrimination among industries that would inevitably result.

Businessmen will take advantage of tax loopholes and business judgment may be warped by tax considerations, especially in times like the present when income is high and corporations are boxed between high income taxes and excess profits taxes. Even at normal rates of depreciation, government may seem to be sharing in the cost of capital; the share is greater with accelerated depreciation, and a larger volume of interest-free depreciation funds adds to the inducement to invest. The risk that corporation taxes may rise even higher in the future seems remote in contrast. But the common judgment of business executives was against the manipulation of tax incentives as a means of combatting cyclical fluctuations.

### PSYCHOLOGICAL HAZARDS

The psychological risk of regularization of capital outlays—a composite of many tangible and intangible influences—seems to constitute the most important obstacle to such a policy. It has been observed that executives seem to have given little thought to the possibilities of regularization of capital outlays in their firms. This is not surprising. There has been nothing in their professional mores and nothing in the economic, political, or social pressures that bear on their decisions to force the exploration of such a policy. Indeed, tradition has opposed it and accounting can hardly be made to reveal the comparative success of varying policies. Managers, like ourselves, will take the easy way out. The “discovery” of labor turnover costs and the profitability of greater continuity of employment awaited the compulsion or the threat of some approach to the annual wage agreement.

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The manager who makes a capital outlay when sales and prospective sales are pressing on capacity does not create a risk; he merely accepts a risk incidental to a production decision. In such a state of the market, the firm's credit is more likely to be good; funds are likely to be available at reasonable rates; the general optimism of financial counselors, the investing public, and the manager's board of directors leads them to applaud his action. Should the bubble burst before his project has justified itself, or even before it has been brought into production, the fact is unfortunate but the competence of management is not impugned.

The manager who makes a capital outlay in the face of a weakening market does create a risk. The added capacity is required by neither current nor imminent market conditions and funds are committed against a prospective fall in income. Furthermore, such a manager acts contrary to the general pessimism of the market and probably against the advice of his financial counselors. He is a "smart aleck" and if business has not developed by the time the project is completed, he is not unfortunate; he is incompetent. Though large corporations may live forever, the professional reputation and the tenure of management are more vulnerable.

One of the leading companies interviewed completed its first major consolidation and expansion in the summer of 1929, its second in the middle of 1937. Its third took place during the war, and it was engaged in further expansion when I called. Management was not abashed by the apparently poor timing of its first two major investments even though facilities were grossly underutilized for more than two years after the first expansion. The changes achieved in 1929 and 1937 were basic to the long-run development of the firm and were incurred for that purpose. Had they not been initiated when its credit was good and its directors optimistic, there was substantial doubt that they would have been authorized and carried through in time to permit the firm to consolidate and strengthen its position in its field as markets revived. Short-term market prospects had been important in this case, not for economic but for psychological reasons. They were the catalyst that served to initiate investment undertaken for other reasons.

### *Regularization of Capital Outlays in Industries Subject to Public Control*

The economics of public utility operations suggest that regularization of capital outlays is basically more feasible here than in other

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industries, and the relative magnitude of their capital requirements emphasizes the general economic importance of the policy in this field. And yet the accomplishments to date have been insignificant. Fortunately, two papers in this volume, by Healy and Morehouse, deal with the complex issues that are raised by regularization in railroads and in electric power respectively. The following general comments will be in keeping with the less exhaustive study that I have made of these areas.

### RAILROADS

Railroads occupy a peculiar position among American industries. They reached their sprawling maturity while the economy was vitally dependent on their services. Vast amounts of capital were sunk in roadbeds, bridges, terminals, and rolling stock with little need to consider either the competition of other transport media or the amenities of community development. Industry and community alike adapted themselves to the presence of these crucial arteries of commerce. Today the situation is greatly altered and the railroads are still in the process of adapting their capital structures, their physical plants, and their policies to these changed and changing conditions. Not only must the individual firm meet the competition of other railroads at an increasing number of points, but it is harassed by the expanding competition of improved waterways, pipelines, trucks, buses, and private automobiles, and lately by air transport. The growth of cities requires new terminals, new approaches, smoke abatement, and a growing volume of costly commuter services; the development of highway transport forces elimination of dangerous grade crossings; and the new competition calls for speed and yet more speed with greater flexibility in transport and in terminals, greater comfort and convenience for passengers, and, always, greater investment for safety.

The capital requirements of this evolving revolution in railroad transport are vast and continuing. Long-range planning and programming are a necessity. It is not merely that, as the purveyor of a service, a railroad must order rolling stock sufficient to meet its annual peak load from twelve to eighteen months in advance to allow for production time. Indeed, this particular function is blurred by the possibilities of more intensive use of existing equipment and even more by the diversion of freight cars from the service of other lines to one's own during peaks. But the increasing speed and weight of trains require firmer roadbeds, heavier rails, the reduction

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of curvature and grades, improved repair and maintenance facilities, and better organization and handling of traffic between railroads and within terminals. Some expenditures will be undertaken by the railroad independently, some (such as those for certain terminal and access facilities) in cooperation with other railroads and with local authorities, and some (like those for grade crossings) will be programed with state and local authorities. Finally, the successful railroad must look much further into the future toward the development of a more efficient, more strategic system. The strategy of railroading is largely the strategy of effective capital expenditure.

The potential advantages of regularization of capital outlays for replacement, for modernization, and for system development are almost self-evident. Anticipatory investment for the service rendered and the disparate nature of railroad plant and equipment invite an orderly displacement from primary to secondary to tertiary functions. And orderly displacement is more consistent with competitive strength in the face of technological change. Despite the competition of other means of transport the railroad can project with some confidence a secular growth in its traffic load governed by the relatively slow forces of industrial and population growth in the areas it serves.

Major obstacles to greater regularization of capital outlays by railroads are primarily financial. The heavy debt structure of railroads and the fluctuation of their earnings with changes in the level of business activity over which they have no control have apparently made railroad managers extremely sensitive to the threat of insolvency. Although in the past the Interstate Commerce Commission has been slow to approve general rate revisions calculated to adjust revenues to changes in costs, an increasing number of railroad executives and experts are convinced that the solution of the net earnings problem is not to be found in higher *general* rate levels. The competition of other transport media sets low ceilings to the revenue that can be added by rate increases. The railroad must seek its salvation in lower costs and better service and in the vastly more complicated area of adaptation of individual rates to costs and to competitive value of service, an area in which initiative is dulled by strong vested interests in established rates and the need for integration and coordination of schedules with other railroads.

The cyclical vulnerability of railroad net revenue most restricts the regularization of replacements both of rails and of rolling stock. Rail replacements will be bunched in years when revenue assists

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cost absorption. A steel-frame freight car or a locomotive may have an indefinite life. Through maintenance and partial rebuilding, the original item may be so altered over time that only the number remains. Except in the case of revolutionary changes like the dieselization of locomotives, there is a strong temptation to patch up the old and avoid the capital cost of scrapping long beyond the point where improved materials and design would give much better and less costly operating performance. With freight cars this policy, which may be forced on the poor roads, is aggravated for the financially strong by the practice of diversion of cars to foreign roads at a per diem allowance less than compensatory. The inability to retain modernized equipment in the service of the owner and the reduced efficiency of operations with a mixture of old and new rolling stock are a major drag on the rate of modernization. True, the equipment trust certificate will permit even poorly placed railroads to finance new equipment at low interest cost. But the relatively short period of amortization generally required, the heavy withdrawal of cash into sinking funds, and the seniority of trust commitments impose a revenue burden that may strain the credit of the weak road and obstruct other financing required to maintain it as a going concern.

There is no easy solution to the problems of an industry for which receivership is the only safe basis for planning and executing a program of modernization. Management initiative has been dulled by the conservatism of powerful creditors, the operating strictures of a fully entrenched labor organization, the inertia of public control, the complexities of railroad integration and coordination, and the pervasive pressure of competition on revenues. It is probably not feasible politically to restore managerial discretion over rate making even though, apart from a few local areas, competition has importantly qualified the monopolistic characteristics that initially justified public control. To develop balanced operating systems through the merger of strong and weak roads has proven something less than a successful public policy. And financial reorganization has not been able to free managerial imagination from the drag of creditor interests in immediate income.

The social and economic advantages of a more adequate, less cyclical programming of railroad capital expenditures are so important that some way out of the dilemma must be found. But it is also important that it be found, if possible, by the railroad industry. To have government, or even some combination of insurance com-

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panies, assume the initiative in ordering and financing new rolling stock to be leased to the railroads might meet an immediate emergency—the need for a larger supply of modern equipment and a more stable cyclical load on the much harassed railroad equipment industry—but it would not assure a permanent solution and it would not stimulate more effective managerial planning. As already noted, management must find its major solution in cost reduction and more efficient operations. But it is appropriate that railroads, as an essential regulated industry, should receive some concession calculated to offset a cyclical fluctuation of net revenues (which regularization itself makes difficult to correct). Such a financial incentive could be provided by the permission to accumulate reserves in good years for expenditure in years of reduced revenues. Charges against revenues before taxes could be allowed to exceed established depreciation rates up to defined limits during prosperity, provided such funds were used to execute an approved long-range schedule of replacement and modernization in lean years. (For such a purpose, rail replacement should be reclassified to fall within this category.) True, such a concession would be a form of tax subsidy but for an essential public service in an industry that in one way or another must be maintained in effective operating order. True, also, both the acquisition and use of reserves would require careful checking and approval by public authority, but the industry's accounts are already subject to detailed public supervision. Added interference with management would be minimal while management would be induced to develop a longer-range view of its responsibilities.

## ELECTRIC POWER

The electric power industry affords admirable opportunities for regularization of important capital outlays. Few other industries enjoy so pronounced and so certain a secular trend in production and demand. And while the development of industrial power load has introduced considerable cyclical fluctuation into power generation, the impact on utility revenues is cushioned by the relative inelasticity of established domestic and commercial use and by a rate structure that varies the unit charge inversely with the volume of consumption. Furthermore, the size and durability of the generating equipment required and the need to provide capacity in advance to meet the annual integrated-system peak have forced management to plan and order heavy equipment from eighteen months to three years or more in advance. Thus a utility's planning will normally

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span the greater part of the usual duration of prosperity or of depression. While customer connections and distribution line extensions will vary with short-term levels of employment and economic well-being, major capital outlays—for generating plant and equipment, main transmission lines, and general system development—will reflect long-term development of load.

Why then has regularization of capital outlays not been widely developed by the companies themselves? Potential economies in such planning and construction were recognized by executives interviewed. Neither the economic risk of building in advance of demand nor the financial problem of building in a weak market was considered insuperable. The answer would seem to lie in two factors. First, like management in other industries, executives interviewed had not regarded the regularization of their own capital outlays as a contribution to general economic stability sufficiently important to justify the management problems entailed. In their own operations, apart from construction, which is often carried on by outside contractors, they were already offering almost perfect employment stability. Second, and more important, electric power like other utilities is subjected to a unique risk in capital outlay policy. Property not used may be excluded from the rate base by the regulatory commission in its determination of reasonable rates for service. Thus the management that builds ahead of demand may jeopardize the return on investment in the enterprise no matter how valuable such facilities may prove in the long run.

It is not possible properly to evaluate this threat here, especially since the principles of regulation are not at all uniform among state commissions. To the extent that the concept of "used and usable" property was employed to offset excessive valuations under the reproduction cost method of rate base construction, the Hope Natural Gas decision of the Supreme Court may offer some relief. But its use has not been confined to such cases; and certainly there has been no recognition by a utility commission of a public interest in the kind of capital outlay program implied by regularization. Until there is such recognition, until management can be assured that the utility will not be prejudiced *ex post* by arbitrary commission action, it is doubtful if greater regularization of electric power investment will be achieved. It is paradoxical that in this utility which offers, in the writer's opinion, greater opportunities for regularization than any other important capital outlay industry, the



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policy waits on one of the most difficult obstacles to overcome—recognition by established authority in the separate states.

### *Summary*

1. Of all the ways in which the individual firm might contribute to the maintenance of high productive employment, the greater regularization of capital outlays is most compatible with the preservation of a private enterprise system. It does not depend on industry agreement, which would threaten the competitive order with cartelization and preemption of market position by established firms. It does not depend on government direction or subsidization of "desirable" economic activity and it does not call for increased government surveillance of private accounts or private operations.

Regularization implies merely that the individual firm will program, schedule, and execute capital outlays that are in the long-run interests of the firm, without regard for the temporary state of the market. Given the characteristic behavior of capital markets, there are definite but variable time and quantity limits within which any firm could afford to tie up its liquid resources in durable, illiquid assets when revenues are declining. Such limits would have to be determined by each management for itself in terms of its own financial resources, the importance of the capital projects involved, and its confidence in the reversal of current market trends. But under such a policy, unfilled orders for capital equipment would not be canceled, projects in process or about to be initiated would not be put on the shelf, replacement and modernization would not be deferred at the first blush of a general market decline. The continuation of such projects would help to support the general market while government marshalled its countercyclical devices. As the combination of forces slowed or reversed the general decline, smaller firms unable to incur the costs of regularization would be tempted back into the market.

2. It is believed that the opportunities for such regularization are substantial in general manufacturing, in railroads, and in public utilities. While replacement and modernization of equipment and facilities seem to offer the greatest promise, the expansion of capacity for existing products and the installation of capacity for new products cannot be discounted in advance. Probably the most important economic forces operating in this direction are the postwar emphasis on industrial and commercial research, the apparent intention to free research personnel from customer service func-

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tions, and the alleged intent of management to market products and processes as they are perfected.

But the main hope for a regularization policy stems from the wide conviction of postwar managers that the so-called business cycle reflects avoidable waste for which they may have some responsibility, rather than a natural phenomenon which they must weather as best they can. The contrary conviction of the past has had much to do with the professional mores of management and the psychological hazard of a policy of regularization.

No attempt has been made in this paper, nor do I believe one could fruitfully be made, to estimate the quantitative impact of regularization on the volume of investment at various stages of the business cycle. Regularization does not imply a mathematical flattening of the firm's investment curve. Nor does it imply that the firm practicing it will be forced to forego markets for lack of production capacity in more prosperous periods. The unpopularity and relative inefficiency of multiple shifts have persuaded managers to plan for plant capacity that can supply normal market demand by a one- or at most a two-shift operation. The less desirable shifts are then available for expansion of production in case of need, and facilities built in a weak market are immediately available as demand strengthens. Where production processes are necessarily continuous or capacity must be provided to meet a peak requirement for which inventory is not feasible, adapting capacity to anticipated need is more difficult. But even here production is normally supplemented by secondary facilities, too inefficient for base loading but not so inefficient that scrapping is warranted. This flexibility in production potential would not be affected by regularization.

While the large, long-established firm might be expected to regularize its replacement-modernization expenditures to something approximating a uniform annual volume, no such uniformity is possible, or expected, with capital outlays for expansion. These are generally lumpy. But if need is governed primarily by long-run market trends, by technological progress, and by the fruits of research, capital outlays may be required when general markets are weak as well as when they are strong. Regularization does not require that such projects be deferred until markets are weak, nor that they be scheduled over so long a period that they burden the firm with higher costs. Thus there will continue to be fluctuation in the annual aggregate capital outlays of individual firms that follow a regularization policy. The goal is not to have uniform annual

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capital outlays by individual firms; it is rather to make these outlays more random relative to the aggregate behavior of business cycle investment. The impact of noncyclical capital outlays will be increased by the direct leverage of competition on the actions of rivals and by the indirect stimulus of leadership.

3. The presence of opportunities for regularization is no assurance that they will be exploited or even realistically explored. It is a temptation, therefore, to try to force their use by special inducements or punitive measures, usually some form of incentive tax. But, with the special exception of railroads, I believe such an approach is undesirable. Regularization of capital outlays is not equally feasible or equally advantageous for all industries or for all firms within a given industry. To establish some form of tax advantage for any definable scheduling of capital outlays would be to discriminate against those industries and firms for which such a policy is not economically sound. To subsidize uneconomic policies is to impair the quality of management decisions and further to weaken the strength of private enterprise. In a private enterprise system, any such proposal should be forced to meet the test of compatibility with the planning requirements of the individual firm. As a gadget to obtain a particular result at a particular time, its unintended consequences may undermine possibilities for private regularization of investment far more important to general economic stability than the immediate results obtained.

While the tax structure should not, in my opinion, be manipulated artificially to foster regularization, it should be reexamined with the view of avoiding discrimination against those that may otherwise find regularization a workable and desirable policy. An averaging of corporate income for tax purposes over a period longer than the usual span of prosperity or depression and the maintenance of stable corporate income tax rates would be important parts of a suitable business tax structure.

4. Greater regularization of capital outlays depends importantly on the actions of large firms which are financially able to assume the risks of capital outlay in weak markets. We have explored some of the conditions that would seem to make such a policy feasible, if not profitable. But they can only be appraised by management itself in the particular circumstances of the firm. To this end, the most important need is for managers to recognize the value of the policy as a contribution to general economic stability and as a defense of private enterprise against the encroachment of government. With-

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out this, there is little incentive to explore the possibilities of such a policy, even less to break with the customary mores of financial management. But to create such a conviction for individual action (apart from some form of cartelization) is very difficult. Any single industry (let alone any individual firm) is a small factor at best in the aggregate of private capital outlays and only a portion of its outlays could be affected by regularization. This is the familiar problem of a private enterprise economy—what bulks small to insignificant in individual action becomes through accretion a dominant force in the economy. This is the source of many encroachments of governmental authority that we would preclude if we could.

The hope for greater regularization, therefore, rests in the leadership of those managers who are sufficiently sensitive to its potentialities to examine it carefully in terms of the long-run interests of the firm. These long-run interests have long since transformed pricing policy; they now promise to modify the historical impact of technological change and product improvement. They have lengthened the perspective and altered the focus of capital expenditures, and they may well change the traditional timing of such capital outlays.

## C O M M E N T

JOHN W. BOATWRIGHT, Standard Oil Company of Indiana

Dr. de Chazeau's paper recognizes the desirability of greater regularization of investment provided it can be accomplished within the framework of our private enterprise economy. He cautions that the cost of regularization would be too great if the freedom of decision of the individual were circumscribed, if cartelization were brought about, or if regularization resulted primarily from government activity. In this I am sure we can all agree. He points out that, in the initial stages of progress, attention should be directed primarily to the policies of the large firm.

It is not my purpose to analyze the broad subject of regularization of investment but I would question this approach to its achievement. Studies of capital investment by size of firm, as prepared by the Department of Commerce and the Securities and Exchange Commission,<sup>1</sup> indicate that there is a much wider fluctuation of

<sup>1</sup> Dept. of Commerce, *Survey of Current Business*, April 1949, April 1951, and September 1951.

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capital investment among small than among large organizations.<sup>2</sup> Also, the larger firms seem much more accurate in their projections of investment than the smaller firms. Thus, I have serious doubts whether we can limit the discussion of the problem to the larger firm.

The consideration of long-range capital expansion by management must be based upon many judgment factors. The growth of the market, the rate of obsolescence or technological progress in the industry, probable price trends, tax and fiscal policies of the government, and availability of funds either from earnings or from loans must be weighed among many others. Many of these factors are beyond the control of management, but they still must have careful consideration. This brings me to a very perplexing problem inadequately treated in the papers. Where does the responsibility of the individual firm for regularization of investment end, where does the regularization of investment responsibility of government start, and how may these two responsibilities be best coordinated?

Availability of funds was mentioned as one important consideration of management when evaluating long-term growth. Not satisfied with the treatment of this subject in the papers available to me, I turned to published sources for data on earnings, dividends, and retained earnings by type of industry and by size of firm. I examined only data for the postwar years, an inadequate period for establishing definite principles. However, the four-year period does present a variety of business conditions. Nineteen forty-seven was a period of expansion of productive capacity to meet tremendous consumer demand, 1948 a year of filling supply pipelines as productive capacity reached a level adequate for meeting full market needs and for continuing the buildup of tremendous inventories, 1949 a year of inventory reductions, and 1950 a period of rapid expansion of productive capacity to meet mobilization needs.

Recognizing that retained earnings are only one source of investment capital, but an important one, let us see what happened by size of firm in terms of retained earnings (table on next page).

There is a suggestion even in this short time period that merits mention; namely, capital formation through retained earnings shows a far more consistent pattern for large firms than for small firms. This indicates that there is a more pronounced "preparation for regularization" in the larger organization.

<sup>2</sup> Editor's note: See, however, the analysis of investment by size of firm in Millard Hastay's paper, above.

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Size of Firm	PERCENTAGE OF NET EARNINGS RETAINED			
	1947	1948	1949	1950
Assets under \$250,000	75.7	62.6	40.7	75.4
\$250,000-\$1,000,000	75.3	73.4	57.5	68.8
\$1,000,000-\$5,000,000	74.4	67.3	52.1	64.9
\$5,000,000-\$100,000,000	63.6	61.2	48.2	58.6
\$100,000,000 and over	55.3	60.7	50.2	51.2

This analysis was also made for twenty-one classifications of industry. It revealed that there are different "rates" of capital formation from retained earnings for different industries. The industry exhibiting fast growth tends to conserve a greater proportion of earnings for future productive expansion. The mature industry pays out a greater proportion of its earnings as dividends. Also, the industry with small capital requirements would appear to pay out a larger proportion of earnings as dividends.

Even this superficial examination leads to two important questions. Would a detailed study of plant expansion, net earnings, and earnings retained over a longer period be useful in establishing the probable feasibility of a regularized rate of expansion for various types of industries?<sup>3</sup> Having studied each industry, how can management of individual firms in these industries be stimulated to make similar studies for their particular companies?

Management cannot always exercise freedom of choice. In today's economy there are undoubtedly many executives who would like to postpone certain expansions of capacity because of their judgment of future civilian needs. It is quite probable that some industries now under forced draft are overbuilding the future normal market. A day of reckoning will come when the abnormalities of the current market will cease. And yet this forced plant expansion must go on to meet the needs of a mobilization economy. The choice of the individual has been reduced to the alternatives of future economic difficulties or possible early destruction. This isn't freedom of choice at all. In thinking about desirable regularization of investment, changes in social pressures must be recognized.

International considerations play so important a role in decisions

<sup>3</sup> Editor's note: See studies herein by E. W. Morehouse, for electric utilities, and by Jacoby and Weston, for selected groupings of firms in which capital requirements of an assumed regularization policy are compared with available internal funds. For an analysis of retained earnings and capital expansion in manufacturing, see S. P. Dobrovolsky, *Corporate Income Retention, 1915-43*, NBER, 1951, chaps. 6-7.

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about the creation of productive capacity today that I question the possibility of achieving regularization of investment on a national basis. Periods of international unrest are associated with a surge of capital goods creation. Following such periods of international unrest and rapid expansion of productive capacity, there is a period of curtailed growth. Therefore, isn't the problem one of international scope?

All of the papers under discussion contribute to a clearer understanding of the problems of limiting business fluctuations. General discussions of this type among economists, businessmen, and spokesmen for government are an indication of a healthy economy.

LUDWIG S. HELLBORN, General Motors Corporation

It is a privilege to comment on papers as uniformly excellent as those presented here. The industry analyses have deepened our understanding of the problems of those industries and the question of what the individual firm can or cannot do toward regularizing its investment. I have been impressed by the quality of economic thinking in the companies concerned and can only hope that it is typical. Attitudes revealed in the industry analyses are colored by individual situations, as they should be, and I am willing to accept those on both sides of the fence since I believe that it is self-interest that must motivate business action and thinking in a free economy.

I want to comment particularly on Mr. de Chazeau's paper, primarily because I have had it for some time and am therefore more familiar with its contents. In general, it reflects a familiarity with the meanings, processes, and functions of the modern business concern and the private enterprise system that would be remarkable for an academic economist even if it were not as rare as it unfortunately is. The author's main point seems to be that in furthering the maintenance of high productive employment greater regularization of capital outlays by the individual firm is most compatible with the preservation of the private enterprise system. In this context: "Regularization implies merely that the individual firm will program, schedule, and execute capital outlays that are the long-run interests of the firm, without regard for the temporary state of the market." In other words, the author suggests that long-term planning, rather than short-term market considerations, should be the determining factor in scheduling capital outlays. As he puts it: "The hope is not to avoid fluctuations but to make them more random relative to the traditional behavior of business investment."

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Among the many other things I like in this paper is Mr. de Chazeau's firm stand against the use of so-called tax incentives to create inducements for the regularization of capital outlays. As he says: "To establish some form of tax advantage for any definable scheduling of capital outlays would be to discriminate against those industries and firms for which such a policy is not economically sound. To subsidize uneconomic policies is to impair the quality of management decisions and further to weaken the strength of private enterprise." I can only add, Amen.

I would like to emphasize one more thought that Mr. de Chazeau included in his paper. Speaking about the failure of some industrial managers to price their goods at the level required to equalize supply and demand during the postwar period, he concludes that "The injection of long-term concepts of profit complicated by non-economic ideas of 'fairness' or strategy rob the theory of maximization of profit of its probative value as a guide to managerial pricing policy. The injection of similar long-term considerations into the planning and execution of capital outlay programs may be equally devastating for the theory of derived demand and the marginal efficiency of capital in the field of private investment." I hope that Mr. de Chazeau will develop both lines of his thought further at some other time or place.

The general subject of this conference is regularization of business investment, and our session concerns itself with what the *individual firm* can or should do. To my mind, this is the crux of the whole problem, and if it is, I am not greatly worried because I believe strongly in the force of Mr. de Chazeau's thesis—that we do not hope to avoid fluctuations but should try to make them more random relative to the traditional behavior of business investment. But I am concerned whether we shall be able to keep the problem (if it is one) and the efforts toward its solution on this plane. Shall we be able to avoid the injection of collusive action by business firms or the further extension of government controls into this sector of normally free business operations? Frankly, I do not think we shall, and for that reason I am very uneasy about the whole proposition. I believe there is a danger that, having as economists raised or revived this question, we may have resurrected a ghost that may plague or even destroy us.

Perhaps I place too much faith in what we have learned since the days of the depression in the early 1930's, when it was last the professional fashion to blame irregularities in business investment



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for practically all our economic ills. Yet I do believe that we have learned how a stable economy, that is, a continuous high-employment economy, can be maintained (and our lessons significantly exclude manipulation of business investments). I do not say that we are doing it correctly, but we know better how to do it. I feel strongly that the use of proper fiscal and monetary measures alone can create the necessary conditions for continuous prosperity and that the independent actions of the individual members of a free enterprise system, operating in this setting under the motivations of self-interest for the long pull, will iron out the residual or localized fluctuations that are bound to remain under the application of any broad policy.

I shall not detail my apprehension—the virtual certainty, in my opinion, of governmental interference in, or absorption of, such a program even though it is privately or professionally initiated—since others will doubtless have something to say about it before this conference is over. Yet to illustrate my point, permit me one short excursion beyond the confines of the subject of our conference. Why should we narrow the scope of our considerations by the qualifying word “business”? Why should we not have included the regularization of *all* investment? Think what a utopian society could be achieved by regularizing not only business investment but also private investment, and even the borderline areas of investment, like consumer expenditures for automobiles, washing machines, and other more or less durable goods!

Believing there is some merit in the thought, just expressed somewhat facetiously, that regularization of one type of investment will be followed by, if not require, regularization of other types, I believe it is also necessary to remind some of my professional colleagues in the business world that while self-interest is still a perfectly respectable business motive, they should look ahead a little further into the possible future.

DAVID GORDON TYNDALL, American President Lines

Professor de Chazeau rejects as “unsound” any special incentive tax concessions designed to induce greater regularization of business investment (“with the special exception of the railroads”). The main supporting argument is that this would subsidize uneconomic policies and would weaken the strength of private enterprise. But this argument fails to consider the possibility of a divergence between

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private cost and social cost. This is not to imply that there are no social costs entailed in a tax-induced regularization of private investment. *Complete* regularization might well cost more than it is worth; but it seems evident that a much greater degree of stability than we have today, induced if necessary by tax incentives, would be eminently desirable. The point where marginal cost of greater regularization equals the marginal benefit therefrom may be somewhat difficult to determine with precision, but it does not follow that movement toward that point is undesirable.

