

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Regularization of Business Investment

Volume Author/Editor: Universities-National Bureau Committee for
Economic Research

Volume Publisher: Princeton University Press/NBER

Volume ISBN: 0-87014-195-3

Volume URL: <http://www.nber.org/books/univ54-1>

Publication Date: 1954

Chapter Title: Inventory Policy and Business Stability

Chapter Author: Moses Abramovitz

Chapter URL: <http://www.nber.org/chapters/c3027>

Chapter pages in book: (p. 283 - 298)

Part 2

SELECTED FACTORS IMPORTANTLY AFFECTING REGULARIZATION OF BUSINESS INVESTMENT

INVENTORY POLICY AND BUSINESS STABILITY

MOSES ABRAMOVITZ

NATIONAL BUREAU OF ECONOMIC RESEARCH

THE scope of this paper is limited even with reference to its title. In the first place, the writer assumes that the regularization policies here in question are those intended to deal with general business cycle disturbances and not those arising from seasonal influences or from special sources of irregularity affecting particular industries or trades. Private stockpiling to reduce the size of seasonal peaks and troughs in production or other activity is widely practiced. In some industries, which produce staples relatively free from cyclical influences, it has been carried very far. And schemes to encourage stockpiling by customers, as well as producers, have been worked out and applied. Extending such practices to offset business cycle disturbances, however, meets very serious difficulties, some of which we notice below. As a result, the emphasis in matters of policy necessarily shifts from private to public action, although some scope for private action remains.

A second limitation is that the available public policies themselves raise far-reaching issues of feasibility and effectiveness. Price policies, monetary policies, and tax proposals open up areas for discussion that have been covered extensively in other connections. In the present paper, it is manifestly impossible to do more than point to the existence of problems. Their exploration, even in connection with inventories, must be left for other occasions.

Finally, the reader is asked to remember that the purpose of the meeting for which this paper was prepared was to exchange ideas and reports of experience and to advance proposals for discussion and further study. None of the policies described below is free of serious difficulties; all have implications that require more investigation. At the present time they merit serious consideration, but not adoption.

Background

A large part of the cyclical changes in total output normally takes the form of changes in the rate of inventory accumulation. In short phases, such as the cycles of the mid-twenties or the contraction of

INVENTORY POLICY AND BUSINESS STABILITY

1937-1938, a major part of the total change in output was due to inventory movements. But even in major movements like those of 1929-1932 and 1932-1937, inventory change was important. We may take it, therefore, that stabilization of inventory movements is of enough importance to justify the use of drastic measures if they promise to be effective.

Inventory movements occur for two principal reasons. The first is that the quantity of stocks business requires to produce and distribute goods rises and falls with the volume of business activity. Any expansion or contraction of business is, therefore, aggravated by the inventory accumulation or liquidation that inevitably accompanies it. Following a convenient and familiar terminology we may say that such changes are in response to changes in the "transactions motive."

The second reason is a speculative one: firms sometimes build inventories to make capital gains or to protect their position against the effects of rising or falling prices or against shortages of goods when the economy is operating under great strain. For most types of goods, though not for all, such speculative movements are probably not an important regular feature of ordinary business cycles. But some goods are normally affected by speculative influences, some business cycles are marked by periods of speculation affecting goods generally, and some general speculative episodes occur independently of the regular processes of business cycles, usually as a result of some major political development. Inventory movements in this category I shall call movements in response to "speculative motives."

The impact of inventory movements on the economy is proportionate to the vigor of the movements and to the volume of stocks subject to fluctuation. A 5 per cent increase in inventories during a given period will affect the economy less than a 10 per cent increase. But a 10 per cent increase affecting \$50 billion worth of inventories will disturb the economy less than a 10 per cent increase affecting \$70 billion worth of stocks. U.S. business carries a very large volume of stocks, and the fluctuation in these stocks amounts to substantial percentages. Thus inventory changes in this mass of goods mean substantial increases or declines in orders and in general production.

This points to three general ways in which inventory policy can assist the general stability of the economy. First, we may seek to eliminate or weaken the factors that influence transactions or speculative motives. Second, we may seek to reduce the sensitivity of

INVENTORY POLICY AND BUSINESS STABILITY

stocks to changes in the strength of these motives. And third, we may seek to reduce the volume of stocks subject to disturbance.

In addition to such measures, which would attempt to reduce the impact of inventory fluctuations by influencing the operations of private business, there is a fourth possibility: the government or some other public agency might seek to reduce instability in the volume of stocks by itself accumulating or liquidating commodities in such a way as to offset the movements of privately held inventories.

Policies Affecting the Investment Motives

THE TRANSACTIONS MOTIVE

Since most inventories are carried mainly to aid the production and distribution of goods and are accumulated in rough proportion to changes in output and sales, any action leading to greater stability in economic activity will pay extra dividends by reducing inventory fluctuations. From the point of view of public policy, what is at issue is the general question of the control of business cycles and that is manifestly beyond the scope of this paper. From the viewpoint of private policy, the question is whether individual firms can do anything to encourage customers to increase purchases in slack times. Acting independently, they would have no incentive to discourage sales in good times, but if they could induce their customers to hold larger stocks when business is bad, this should carry with it some retarding effect on sales later when business is on the upgrade.

The inducements that private firms can offer are, of course, price reductions or collateral concessions in the way of favorable credit terms or delayed delivery and provision of storage. These are, mainly, speculative inducements, so the policy merges with those considered immediately below.

THE SPECULATIVE MOTIVE

Policy under this head comprises all those actions that may be effective in eliminating the kinds of price changes that lead to cocyclical inventory speculation and in encouraging the kinds of price changes that induce contracyclical speculation. Since price movements and business cycle movements are generally in the same direction, what is to be avoided is speculation in the same direction as price changes. What is to be sought is speculation in a direction opposite to the price changes.

The kinds of general price changes that lead to general waves of cocyclical speculation of the undesirable kind presumably are those that are rapid, or of considerable duration, or based on solid or spectacular causes justifying belief that they will continue in the same direction.

Extremely rapid changes are undesirable because capital gains or losses per time period are proportionate to the rapidity of price change. Hence the volume of investment or disinvestment set off is likely to vary with the speed of change.

Long-continued changes are to be avoided because they usually persuade businessmen that there will be further movement in the same direction.

Similarly, the appearance of other solid or spectacular reasons for expecting price changes is to be avoided. Examples are sudden and large changes in government expenditures, general changes in wage rates by government fiat (as under the NRA) or by over-all union action, and large changes in the gold or foreign exchange value of the dollar.

Both the government and the national banking system ought to use their influence to avoid price changes likely to precipitate speculation.

1. The government can act positively by its control of Treasury receipts and expenditures and negatively by its influence on the labor market.
2. The government can also act through the various federal lending agencies to alter the availability and the terms of credit when price movements threaten to set off speculation.
3. The banking system, controlled and led by the Federal Reserve System, ought to take parallel action through its own peculiar instruments.
4. The effectiveness of these actions would be enhanced to the extent that the government and the Federal Reserve System could specify in advance the kinds of actions they would take and the criteria by which the timing of such actions would be determined. To that extent, motives for price speculation in either direction would be weakened by anticipation and the occasions for actual public countermoves would occur less frequently.¹

Manifestly such proposals raise all the well-known problems of the timing, coordination, and effectiveness of fiscal and monetary

¹ This suggestion was contributed by Dean de Chazeau.

INVENTORY POLICY AND BUSINESS STABILITY

controls. There are many sound reasons for doubting whether satisfactory results can be achieved by these methods in the near future. The timing of public countermoves is especially troublesome since it requires the authorities to forecast the trend of private business at least some months in advance, something for which no reliable procedure has yet been devised. This tells particularly against suggestion 4, above. In addition, one may doubt whether interest rate changes and credit restrictions if confined within the limits to which we have grown accustomed in the last two decades can be effective in checking speculation. There is also the point that, for most purposes, credit is required only to finance speculative accumulation, not for speculative liquidation. It remains true, however, that credit controls are sufficiently powerful to check speculative accumulation if the authorities will go far enough and if they think such stabilization worth the possible derangement of their other policy objectives. So far as fiscal policy is concerned, one need only recall its notorious sluggishness, both in formulation and in application, to appreciate the fact that it is of limited use for this purpose.

Public policy in this area is presumably limited to negative objectives, to checking undesirable kinds of price changes so far as possible. Individual firms may be able to go somewhat further. Conceivably, they may be able to induce contracyclical speculation. They will have an incentive to do so in depression, not in prosperity, so that the indicated sphere of private action is depression, while the sphere of public action (insofar as it depends on credit control) is prosperity.

If contracyclical speculation is to be induced, customers must be convinced that prices are relatively low and that they are unlikely to fall much more in the near future. This suggests that, if possible, firms should cut prices severely when business falls off, but they should also avoid a policy of continuous price reductions. If possible, prices should be set to apply to all sales for a stated number of months. And customers would be encouraged to take advantage of such bargains if the selling firm offered to protect them against the possibility of subsequent price reductions within some specified time period.

It goes without saying that such policies could not be fully implemented in industries with many small producers because it would be impossible for sellers or buyers to have any assurance about the future course of prices. Even where firms are few, overt

INVENTORY POLICY AND BUSINESS STABILITY

agreement about the timing of price cuts would often be necessary, which raises all the familiar problems of encouragement of monopoly. It then becomes questionable whether the potential benefits outweigh the dangers of permitting such arrangements.

Policies Affecting the Sensitivity of Inventories to Changes in the Transactions and Speculative Motives

REDUCING SENSITIVITY TO TRANSACTIONS CHANGES

Given the ratio of inventories to sales or output that is judged convenient in any particular line of industry or trade, the problem becomes one of encouraging business to hold more than its accustomed ratio during depression and less than its accustomed ratio in prosperity. This is, of course, the classical sphere and objective of short-term credit policy. If the stabilization of business is an objective of monetary control, it should be the purpose of the banking system to cheapen and loosen credit as business declines and so encourage businessmen to hold larger stocks than they otherwise would do. And contrariwise as business improves.

Such action, of course, must always be subject to the paramount concern of banks with the solvency of their customers. And, on the other side, the effectiveness of credit controls will be weakened to the extent that customers do not rely on commercial credit and treat small changes in the cost of credit as inconsequential.

REDUCING SENSITIVITY TO PRICE CHANGES

Credit policy is again one method of control: it can discourage loans to customers for speculative use. This device is subject to the difficulties noted above and to the additional obstacle of discovering the purposes for which customers will use the funds placed at their disposal.

A second method is through a possible reform of capital gains taxation. As matters now stand, only the gains of persons actually engaged in commodity trading are subject to capital gains taxes. Gains resulting from changes in the value of commodities that constitute the stock in trade of an ordinary business are amalgamated with other business income and are subject only to ordinary corporate or personal income taxes. Thus there is no possibility under current procedures of special punitive taxation to discourage inventory speculation so far as the bulk of inventories is concerned. If a change in this practice could be made, it would be possible to

INVENTORY POLICY AND BUSINESS STABILITY

remove a large part of the incentive for speculative accumulation of stocks by suitably high capital gains taxes.

The difficulties in the way of such a reform are, however, very great. To subject the whole of the inventories of a business to a special and very heavy capital gains tax in the event of a price rise would greatly discourage the holding of stocks for ordinary purposes. Although the price would have raised the value of assets by more, presumably, than the amount of the tax, few firms would be in a position to liquidate their working inventory in order to meet their tax bill. To apply the tax only to that portion of stocks held for speculation would require that the tax authorities decide whether at any time during a tax period inventories larger than justified by the volume of business had been accumulated. And aside from the problem of setting standards appropriate to the different and changing conditions of each firm, it would always be possible for a businessman to claim that he made larger than normal purchases of supplies because he expected larger than normal increases in sales. Such inventory control was attempted by the War Production Board for a few scarce commodities, and it is now being attempted, again on a limited scale, by the National Production Authority. The War Production Board enjoyed only mediocre success, and the degree of detailed surveillance required seems to make such controls inappropriate for general application under peacetime conditions.

Policies Affecting the Volume of Stocks Subject to Fluctuation

Even if it were impossible to reduce the amplitude of inventory investment fluctuations (in the sense of the percentage changes in stocks), it might still be possible to reduce the impact of such fluctuations on business in general. This can be done if the mass of stocks subject to fluctuation can be reduced, or, in other words, if businessmen can be induced to hold a smaller volume of stocks in connection with any given volume of business than they now do.

FACTORS CONTROLLING THE AVERAGE SIZE OF STOCKS RELATIVE TO SALES OR OUTPUT

An exhaustive catalogue of controlling factors will not be attempted. Indeed, too little is known about the subject, and the most important recommendation to be made under this head is that we ought to learn more about it. What follows should be read subject to this blanket qualification.

INVENTORY POLICY AND BUSINESS STABILITY

From the point of view of the present problem, perhaps the chief thing to grasp is that the average relation between stocks and sales or output is determined by the amount of raw materials that in a particular industry or trade is judged adequate to assure continuity in production, or the amount of finished goods judged to be enough for prompt delivery and the provision of adequate selections for customers. This implies that relatively large stocks will be needed:

If supplies come from distant or uncertain sources;

If capacity of suppliers is limited;

If demand is subject to wide fluctuations;

If firms must be prepared to produce or offer for sale a wide variety of goods among which demand may shift;

If customers demand, and sellers must provide, supplies from stock rather than from goods made to order; or

If a series of processes are controlled by independent producers rather than carried on by a single firm as an integrated operation.

INFLUENCES MAKING FOR SMALLER STOCKS

Consideration of these factors makes it apparent that anything tending to assure prompt delivery of goods will make it safer for business to operate with smaller stocks. Thus improved transport facilities and larger manufacturing capacity would help.

Similarly any forces encouraging standardization of products and parts (however much this might be regretted on other grounds) would also be helpful. This points to continued technical research and cooperation of the sort proposed in President Hoover's report on *Waste in Industry* and also to progress in inventory control. Much indeed has already been accomplished through closer scheduling of production and purchasing by manufacturers seeking to reduce warehouse and material handling costs and avoid the expense of tying up working capital in unbalanced inventory. It also implies that technical information to help consumers grapple with spurious and useless product differentiation would bring additional benefits by reducing the inventory burdens of business.

Encouragement of selling to (and purchase on) order would make for smaller stocks, though it is not clear how such encouragement can be provided aside from use of the tax proposals to be described below.

Finally, the spread of vertical integration through industry and trade should, if my suspicions are correct, make possible a reduction in the volume of stocks required to carry any specified volume of

INVENTORY POLICY AND BUSINESS STABILITY

business. With regard to this, what is needed, first of all, is information that will enable us to judge whether integration does, in fact, make possible a substantial reduction in inventories. If so, obstacles now standing in the way of integration, for example, aspects of the antitrust laws or discriminatory taxation of chain stores, would deserve reconsideration.

AN INVENTORY TAX

The devices outlined above are all probably limited in effectiveness and slow in operation. More may be accomplished by using the tax power. The rationale of such use is that the liberality with which business uses inventories to assure continuity in production, rapid delivery, adequate selection, etc. depends on the cost of holding stocks. If it cost nothing to hold inventories, average ratios of inventories to sales would be larger than they are. The costs, as they now exist, comprise such items as the risks of depreciation or price drop, warehousing, handling costs, interest, and insurance. The aggregate cost of holding stocks could be substantially increased by a tax levied, say, on the average value of inventories held by firms during a tax period. Such substantial increase in the cost of holding stocks would tend to reduce the volume of inventories held against any specified volume of business in a variety of ways:

1. Every firm would try to operate with smaller stocks, accepting as an alternative some additional costs due to occasional interruption of production, longer delivery periods, or inability to provide samples or prompt delivery of every variety of their product.

2. Slowly moving items would tend to be abandoned. So would goods supplied from distant or uncertain sources, since using or selling such goods requires relatively large stocks.

3. Selling to order would be encouraged at the expense of making for stock.

4. Firms engaged in types of business requiring small stocks would enjoy a competitive advantage over rivals whose business requires a large stock. The former type would tend to grow at the expense of the latter.²

² This effect is considered by some to be discriminatory. But if the character of a firm's business requires it to hold relatively large stocks, the cost it imposes upon the community in terms of economic instability will be large, other things being equal. It is not discriminatory to bring this cost home to its source through a tax the weight of which is proportionate to the cause of the trouble, namely, the size of stocks. It would, however, be just to argue that it is discriminatory to strike at those firms that contribute heavily to business instability through the

INVENTORY POLICY AND BUSINESS STABILITY

If the relative fluctuations of stocks (compared with their average level) remained unchanged, the effect of smaller average inventory holdings would be to reduce the impact of inventory cycles on the economy at large. For if the same relative change in inventories affects a smaller volume of stocks, it means a smaller change in total output and employment.

In the writer's judgment, this would be the general effect of a uniform inventory tax. It has been suggested, however, that if the cost of holding stocks were increased, the tendency to economize inventory holdings would be more pronounced in depression, when the need to save money is relatively great, than it would be in prosperity, when business practice becomes more lax. If so, the relative fluctuations of stocks would increase, and that would offset, at least to some degree, the benefits from reducing the average volume of stocks.

It will be recognized that an inventory tax would carry with it some undesirable side effects. One is that it would discourage investment during the transitional period in which business is adjusting to a lower level of stocks. This, however, is strictly a transitional effect, which would have no continuing consequences. If the tax were imposed at a time of economic strain, rather than slack, even the transitional effects might be beneficial, on the whole.

The other collateral effects of an inventory tax would be like those of a sales tax. It would be regressive in its effects on income distribution and undesirable on that account. But the inventory tax need not provide a net increase in excise revenues. Since need for revenue is unaffected, this tax can be imposed as a substitute for other forms of excise taxation—a substitute with the peculiar and desirable characteristic of encouraging economy in inventory holdings.

Contracyclical Public Stockpile

The objective of a public stockpile is easily stated: to provide a large inventory of commodities in which the rate of accumulation and liquidation would move in a direction opposite to that of investment in private business inventories. Public stockpiling now has ample precedent in this country, partly in connection with agricultural support programs, partly for security purposes.

The commodities to be included in the program would have

size of their stocks and not at others that may contribute just as heavily some other way.

INVENTORY POLICY AND BUSINESS STABILITY

to be restricted to staples, and the staples of interest are nonfarm commodities. If all nonfarm staples were included, the commodities involved would be those whose inventories now comprise perhaps 20 per cent of all nonfarm stocks. To stockpile so many goods, however, would require the administration of a vast number of commodities, taking account of the many kinds and grades of even standard products. The number of commodities that could be handled would, therefore, almost certainly turn out to be fewer. This seriously limits the scope and, therefore, the usefulness of the scheme. An investigation of the number and value of the commodities that could be included, as well as of the probable financial demands of the scheme, would be desirable.

The operation of the scheme would, of course, require the most serious consideration. The objective should be to devise a plan by which the administration of the public stock might be reasonably automatic and flexible. The operating scheme should not require forecasting, and it should provide some protection against the accumulation of unduly large stocks in time of depression.

One possible method would be to require all holders of commodities covered by the scheme to report their holdings monthly. The public stock authority might then undertake to purchase (sell) during any month an amount of each commodity equal to some specified proportion, perhaps one half, of the quantity liquidated (accumulated) by private holders during the previous month. Such a plan would be automatic, and it would substantially offset the fluctuations in private inventory investment for those commodities included in the scheme. Moreover, it would not permit private holders to unload unwanted output on the government. In time of depression, for example, it would be impossible for an industry to produce more than the market was absorbing by selling to the public stock authority. That authority would purchase only if production had been reduced below the level of current demand, and even then only to the extent of one-half the rate at which private stocks were falling. The operations of the public stockpile would, therefore, act only to mitigate the depressing effect of inventory liquidation or the expansive force of accumulation.

Since there is a very strong positive correlation between private inventory investment and business activity in general, there is a presumption that a public stockpile, so operated, would serve to ameliorate the disturbing effects of inventory investment. It is true, however, that investment in some commodity stocks is inversely

INVENTORY POLICY AND BUSINESS STABILITY

correlated with business or positively correlated with a long lag. Some of the staples, otherwise eligible for inclusion in the scheme, are prominent members of this maverick group. Private investment in such commodities now does something to stabilize business at some cycle stages, and public stockpiling of these items would interfere with such beneficial tendencies. It will be important, therefore, to study the cyclical traits of particular commodity stocks to be included in the scheme, as well as their volume and the ease with which they can be handled.

C O M M E N T

LUDWIG S. HELLBORN, General Motors Corporation

Assuming that other problems raised by Mr. Abramovitz's proposal to tax inventories could be solved, there would remain a differential effect that he has not allowed for. As part of the Internal Revenue Code, the taxes payable thereunder could be deducted by the taxpayer in the determination of both ordinary net income and adjusted excess profits net income in the same manner in which existing taxes are now deductible. This being the case, a tax designed to have a given economic effect at the rate of x per cent would, under existing law, have 70 per cent of that effect in the case of a corporation with net income of less than \$25,000; it would have only 48 per cent of its intended effect in the case of a corporation with larger net income not subject to the excess profits tax; and it would have only 18 per cent of its intended effect in the case of a corporation subject to excess profits tax.

This dilution of economic effect could be avoided if this punitive tax were levied under the Criminal Code, where it rightfully belongs. As such, its effect would be unmodified by the vagaries of income and excess profits taxes since criminal penalties are not deductible from gross income. Taxes of the kind here proposed have the effect of perverting the Internal Revenue Code into a kind of junior Criminal Code and they should be recognized for what they are.

OSWALD KNAUTH

As we should expect, Dr. Abramovitz has added new knowledge by his keen analysis of movements of inventories. Particularly interesting is his division of the movements of inventories into the cases of the "transaction motive" and the "speculative motive." I think he

INVENTORY POLICY AND BUSINESS STABILITY

could have gone one point further and separated the speculative motive from the desire to guard against shortage of goods. I do not think the latter is speculative. Rather it is a business judgment of how far ahead it is necessary or wise to make commitments. This judgment, of course, varies at different times according to circumstances. But basically commitments are made in order to keep the machine running without interruption. In mass production or mass distribution, continuity is the prime consideration.

I also believe that a great many inventory movements in the going concern have no motive behind them. They just happen when the flow of distribution and the flow of manufacture get out of step with each other. A small variation piles up before it is noticeable. Even after it is noticed and corrective steps are taken, it takes time before the rate of flow can be enlarged or reduced enough to effect a cure. Such changes in the rate of flow are part of a dynamic economy. They are often due to extraneous causes having little apparent connection with the industry involved and imputable neither to the transaction nor to the speculative motive.

I confess I cannot follow Dr. Abramovitz on his buffer stock scheme for stabilizing industry. But then I suspect that Dr. Abramovitz himself is not too enthusiastic about this type of remedy. I have yet to see a government body that could handle inventory problems with the degree of wisdom that such a scheme would require. Possibly, it could succeed for basic, imperishable materials. But I doubt success in any finished product.

In this area, industry is far less helpless than it was, say, twenty or twenty-five years ago. During the intervening period an organization of creative marketing has developed that did not previously exist. The American Marketing Association is symbolic. Starting from scratch about fifteen years ago, it has today over 4,000 members, with active groups in many localities. There are many market research organizations that have displaced mere selling pressure with intelligence. They are showing that demand can be created, and that this is not merely a matter of price. Indeed, price enters into marketing only as one of a number of factors, such as new utility, a hitherto untapped economy of operation, a more correct size of package, a more functional and useful design, new distributive outlets and services. This new concept of marketing has barely begun to scratch the surface of its possibilities. But the organization exists and any organization can be expanded more easily than it can be created.

INVENTORY POLICY AND BUSINESS STABILITY

In a recent speech, Paul W. Stewart, of Stewart Dugall Associates, and one of the pioneers of the new methods, concluded:

"In summary, dynamic marketing research is evolving from 'static' marketing research because of the increasing recognition of the gap between fact-finding and the interpretation and application of those facts from a management viewpoint. It means a closer liaison between research people and operating people. It helps to bridge the gap between the problems confronting each group.

"There is evidence today that shows increasing acceptance of the dynamic concept. Management shows its reaction by increasingly stressing the use of research personnel who demonstrate a sound understanding of their problems. Among research organizations there are an increasing number of firms that offer staffs balanced in academic training and practical marketing experience. This background must be coupled with an appreciation of the management approach, to provide the foundation for true dynamic research."