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STRUCTURE AND STABILITY:

THE ECONOMICS OF THE NEXT ADJUSTMENT

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I am going to begin with some elementary propositions, which may seem too familiar and obvious to be worth stating. Nevertheless, it is the obscurities at the heart of the obvious which cause the most trouble.

The first proposition, then, is that underemployment of resources, undercapacity use of an economic system, or, more plainly if less exactly, depression, is the result of an inability of the system to "absorb" or dispose of as much output as will be produced at "full" or optimum capacity. There are only two ways in which output can be absorbed. It can be consumed, in the literal sense of the word—that is, it can be destroyed and cease to exist—or it can be held willingly. "Willing holding" implies that at the existing structure and level of prices people can be found who are willing to hold the present stock of goods of all kinds. If, therefore, at capacity or optimum [1] output the institutions and the desires of the members of the system together do not suffice to absorb it all, there will be "unwilling accumulation."

Actual accumulation in a period is always equal to the total output of the period less its consumption, for whatever has been produced must either have been consumed or is still around somewhere. Put into the form

$$\text{Accumulation} = \text{production} - \text{consumption}$$

and expressed in value terms, this identity is seen as the famous savings-equals-investment identity of Keynes' *General Theory*. The value of accumulation is one important meaning of investment, the value of production is one important meaning of national income, and income minus consumption is an important meaning of saving.

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[1] "Optimum" output is likely to be less than output at physical capacity because of the desire for leisure and nonmarket activities. The vagueness of this concept in no sense detracts from its importance.

Flexibility of the Price System

The critical question now is what happens when actual accumulation is greater than "desired" accumulation, that is, when there are "unwanted" stocks of goods. The answer depends largely on the flexibility of the price system. If the prices of these goods are flexible, the appearance of unwanted stocks (at the existing price level) will drive down the prices to the point where people willing to hold the goods can be found. If *all* prices are flexible, the appearance of unwanted stocks will cause a general deflation of the price level to the point where holders can be found. This in essence is the famous "Pigou effect." It assumes of course that the stock of money has a degree of inflexibility in it, so that a decline in the general price level will not reduce the money stock proportionally. As prices fall, therefore, the value of the money stock rises relative to the value of the stock of goods or real assets; hence the willingness of people to hold *physical* assets should increase. The prospect of a future rise in price will of course make people even more willing to hold goods. It is thus clear that the Pigou effect *can* operate merely by increasing the community's willingness to invest—that is, to hold stocks of goods that otherwise it would not wish to hold.

Deflation also may operate on the level of the consumption function. It may do this partly by a simple liquidity effect, in that the rise in value of household balances may induce households to consume more at given levels of real income. The most important effect, however, is likely to be through the redistribution of income. Deflation redistributes income toward the recipients of fixed money incomes—*rentiers*, pensioners, etc.—and away from profit makers. Insofar as the *rentiers* are low savers and the profit makers are high savers, the redistribution of income itself will raise the level of the consumption function. This assumes, of course, that the *marginal* propensity to consume is higher among those who gain by the deflation than among those who lose by it. If the reverse is the case— a situation which cannot be ruled out as impossible—this effect of deflation will be perverse and will lead toward a fall rather than a rise in the consumption function.

Price flexibility may also lead to dynamic instabilities of the system, familiar to most economists. The "Pigou effect" depends on low, not on falling, prices. A falling price level in itself tends to have a perverse effect. It discourages investment, for when prices are falling it is more profitable to hold assets in the form of cash and bonds, which are appreciating in value, than in the form

of goods, which are declining. It is true that the losses of deflation are in part fictitious, because of an almost unavoidable defect of the accounting system which records a decline in the dollar value of assets as a loss in net worth, even though the purchasing power of these assets in terms of other things may not have changed. Even fictitious losses affect behavior, however, and the losses are not wholly fictitious in that the purchasing power of cash and bonds does increase more rapidly than that of real goods, so that those who hold cash and bonds do better than those who hold goods, conduct business, and give employment. A falling price level may even have an adverse effect on consumption, if people regard it as a sign to wait until prices have reached bottom. This merely reflects the impact on households of the fact that with a falling price level "idle money" bears a real rate of interest in terms of purchasing power.

In addition to these weighty theoretical objections to flexible prices as a cure for underemployment, there is of course the very practical objection that general price flexibility is not practicable in a highly organized economy, as least by any institutions which can easily be visualized. Under deflationary pressure those who can hold up the prices of what they sell, whether they are manufacturers, farmers, or laborers, do so, believing, not unreasonably, that even if the pie is smaller their share will be larger. One certainly cannot visualize in our society the destruction of the labor movement, the abolition of agricultural price support, and the ruthless antitrust activity or even the "counter speculation" (in Lerner's language) that would be necessary to make prices flexible in private markets. We can perhaps visualize a price control in reverse, beating down the price-wage structure by setting legal maximums well below existing levels. This may not be absurd, but it is certainly visionary, and of dubious value even if it could be achieved.

We must therefore reconcile ourselves to a substantial degree of price inflexibility, especially downward. If, however, prices cannot be lowered, the result of unwanted accumulations is an immediate cutback in output, and therefore in employment. In the case of a single firm, unwanted accumulations of inventory usually involve unwanted decumulations of liquid assets, for unsold goods and depleted money balances tend to go hand in hand. The usual response to this situation of firms selling in an imperfect market is to cut back output and lay off men, this being the only practicable way of restoring their liquidity and diminishing their inventory. The decline in output, employment, and income, however,

diminishes consumption, leading to further unwanted accumulations, and the economy will slide back along the total absorption curve until the decline in output overtakes the decline in consumption and the decline in the willingness to accumulate, and temporary equilibrium is reached at levels of output low enough to eliminate involuntary accumulation. This melancholy situation can be eliminated only through spontaneous upward movements of the consumption and investment functions brought about, for instance, by a decline in stockpiles or the wearing out of fixed capital, or through a deliberate increase in absorption performed by or engineered by government.

Positions of Equilibrium

By the "precariousness" of an economy I mean the extent to which a given change in the position of the total absorption curve changes the position of equilibrium. Equilibrium in this connection implies having no unwanted accumulations. Precariousness as defined above is a matter of comparative statics—a comparison of two positions of equilibrium with different parameters for the determining functions. There may also be dynamic precariousness if the dynamics of the system are perverse, in the sense that a movement toward equilibrium itself will change the parameters of the determining equations in such a way as to move the equilibrium still farther away from the actual position of the system. Thus a dog is precarious in the sense that the appearance of a rabbit makes him want to be where the rabbit is. This is comparative statics. This system, however, is also dynamically precarious—the act of chasing the rabbit generally removes the rabbit still farther from the dog's old position of equilibrium.

A simple output system is statically precarious if the propensity to absorb is close to 1, that is, if a change in output produces an almost equal change in consumption plus willing accumulation. It is dynamically precarious if the adjustments forced upon the system by unwanted accumulations (or decumulations), whether in the form of price changes or output changes, themselves lower (or raise) the level of the total absorption function. These concepts are illustrated in Figure 1. OY measures output or real income, OA real absorption. N_1P_1 is a total absorption curve which intersects the 45° line OP_1 at a "high level" equilibrium with output at OM_1. If the absorption curve is close to the 45° slope, a relatively slight shift in its position, say to N_2P_2, causes a large shift of the
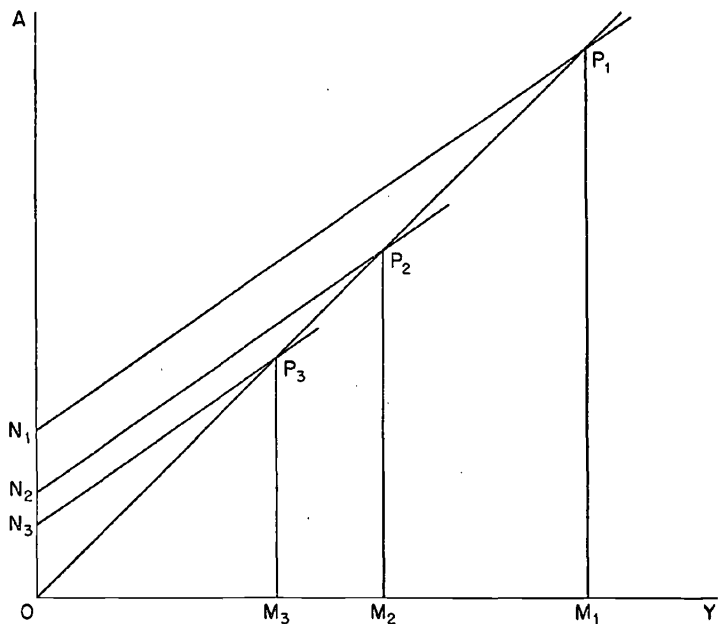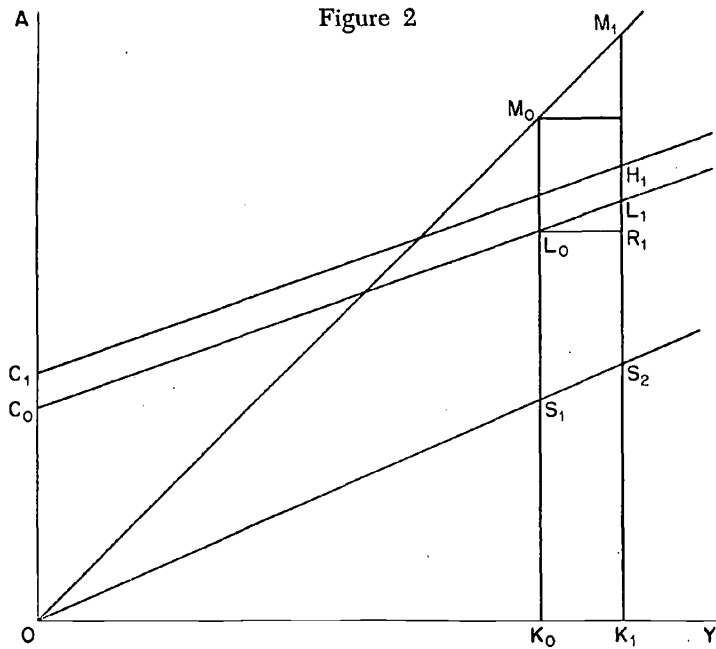
Figure 1

Figure 2

equilibrium output to OM_2. This is "static precariousness." Now suppose that the movement from M_1 to M_2, however contrived, itself lowers the absorption curve to N_3P_3: output will go on declining past the static equilibrium point M_2 to M_3, or to where this dynamic movement peters out. Once the movement has stopped, the curve moves back to N_2P_2, say, and an upward movement pushes output up to M_2 and beyond till the movement peters out again, from which point the cycle repeats itself. Dynamic precariousness clearly results in a cyclical movement, which may be damped, explosive, or of stable amplitude depending on parameters of the system. It is most likely in practice to be damped.

This simple model shows clearly the difference between the problem of cycles, which are due to dynamic precariousness, and the problem of the "general equilibrium" of the economy in its static state. The static equilibrium may be one of stagnation below full capacity, with unemployment relieved only by dynamic movements above the equilibrium position, or it may be a "pressure economy" with constant inflationary pressure relieved only by downward dynamic movements.

I have dwelt at some length on this simplest of all models of a macroeconomic system, familiar as it is, because it illustrates so well the dilemmas of policy that face us at the present time. It is not always realized that the problem of moderating the amplitude of dynamic fluctuations may be quite different from the problem of shifting the position of static equilibrium of the system and may require quite different kinds of measures. If we are suffering from excessive dynamic instability, the remedies would seem to lie along two possible lines. The first would be to damp the cycle itself by identifying and correcting those factors in the system which lead to perverse dynamic reactions. The "100 per cent reserve" plan, aimed at preventing a shrinkage of bank deposits in deflation of prices, would be a remedy of this type. The second line of attack on dynamic instability would be to introduce into the system counterfluctuations which are designed to offset the perverse dynamic movements of the absorption function. Monetary policy, reduction of interest rates when investment lags, adjustable tax plans, commodity reserve plans, public works cycles—these are all examples of counterfluctuations. The difficulty of counterfluctuation policy is that it must be timed properly and be of the right intensity; otherwise, as Friedman has shown,[2] it may actually intensify the amplitude of the cycle.

[2] Milton Friedman, *Essays in Positive Economics*, Chicago University Press, 1953, pp. 117–132.

The Stagnation Thesis

If, however, the problem is not so much one of dynamic insta-
bility as of stagnation, or undercapacity equilibrium, measures with
different ends in view are necessary, measures to be conceived not
as countercyclical but as directed toward shifting the "level" of
the cycle—i.e. the range within which the cyclical forces move the
essential variables. This is not to say, of course, that measures which
may be useful in combating dynamic instability may not also be
useful in shifting the level of the cycle itself, but in principle the
two problems must be kept distinct. The long war and postwar
prosperity has made the secular stagnation doctrines seem very out
of date. Nevertheless, it is possible that the long period of almost
continuous full employment from 1941 to the present is a reflection
of the size of the war economy rather than of any sufficient long-
run forces in the civilian economy, and it is worth glancing at the
stagnation thesis again in case there should be an outbreak of peace.

The stagnation thesis is simply that the level of investment (i.e.
the willingness to accumulate) is inversely related in any given
state of techniques to the amount previously accumulated, and that
hence the process of accumulation itself destroys further oppor-
tunities for accumulation. Opportunities are, in a dynamic culture,
constantly recreated by discoveries and inventions; but even this
source of dynamism must eventually wear itself out, and the
shadow of the stationary state falls across the march of events.
The notion of a stationary state was, of course, familiar to Adam
Smith and Ricardo; in their view, however, there would still be
full employment in the stationary state because consumption would
rise to fill the gap left by the decline in accumulation, and when the
stationary state was reached consumption would be equal to pro-
duction and there would be no further accumulation or saving. In
the Malthus-Keynes-Hansen version, the consumption function fails
to rise sufficiently to take care of the decline in investment, and the
stationary state is reached only at the cost of unemployment and
undercapacity output.

The stagnation thesis has been confused by the failure to dis-
tinguish clearly between the "real" and the monetary aspects of
the models—an unfortunate characteristic of Keynesian theory. If
the model is formulated clearly in "real" terms, it becomes appar-
ent that the stagnationists have left out of account a very important
variable in the consumption function: the stock of capital itself.
If we think of consumption as the destruction of capital, it includes
depreciation, and we can suppose that there is a certain "fixed con-

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sumption" which is independent of income but which depends on the size and on the durability of the stock of real capital. The larger the capital stock and the shorter its average period of production (if I may use an old-fashioned but useful concept) the larger will this "fixed consumption" item be. Thus the basic assumption on which, for instance, the gloom of the Harrodian system is founded—that consumption is a constant proportion of income— seems to me quite indefensible.

These principles are illustrated in Figure 2, where the axes have the same meaning as in Figure 1. We suppose $C_0 L_0$ to be a consumption function at time t_0. OC_0 is the "fixed consumption," assumed to be dependent on the capital stock.[3] This is the amount of consumption even at zero income. Now let us suppose that the "ideal" or full employment output is OK_0. If this output is to be stable, an amount $L_0 M_0$ must willingly be added to total capital. This addition to total capital, however, increases the capacity of the system, which in the next period is OK_1. The ratio $L_0 M_0 / K_0 K_1$ is the accelerator coefficient required for continuous full employment, or Harrod's "capital requirement." If the consumption function does not change in the period t_1, the amount of investment required to give full employment is $L_1 M_1$. If, however, as a result of the rise in the stock of capital the consumption function rises from $C_0 L_0$ to $C_1 H_1$, the amount of investment required for full employment in the period t_1 is only $H_1 M_1$, not $L_1 M_1$. The question of stagnation in the stationary state then depends on whether the rise in "fixed consumption" with increasing capital stock will be enough to compensate for the decline in willing accumulation (investment).

Let m ($= R_1 L_1 / L_0 R_1$) be the marginal propensity to consume; c the "capital coefficient," $L_0 M_0 / L_0 R_1$; and f the fixed consumption coefficient, $L_1 H_1 / L_0 R_1$. Then

$$H_1 M_1 = L_0 M_0 + L_0 R_1 - L_1 H_1 - R_1 L_1$$

whence

$$\frac{H_1 M_1}{L_0 M_0} = 1 + \frac{1}{c} - \frac{f}{c} - \frac{m}{c} = 1 + \frac{1-f-m}{c} = 1 + e$$

[3] It should be observed that the volume of "fixed consumption" depends on the stock of human capital as well as the stock of material capital. Thus in a society in which a high level of skill and education is maintained, a considerable portion of the output consists of the replacement of the depreciation of the human population through death and aging by child rearing and education. Here again the volume of fixed consumption depends on the period of production; if the average expectation of life is high, less will have to be expended in maintain-

where e is the "warranted rate of growth" of investment—i.e. the rate of growth necessary to maintain stable full employment. In the Harrod system, of course, $f = O$ and $1 - m = s$, the "average propensity to save," as Harrod assumes a consumption function like OS_1S_2. In Harrod's system, therefore, there is practically no chance for e to be zero or negative. In the extended model, however, it is quite possible for $f + m$ to be greater than 1, in which case a declining level of investment will still yield full employment. The value of f depends on the average length of life of additions to the stock of capital. If these additions are short-lived, f will be large. In view of the problem of the *structure* of the populations of goods we cannot assume a simple relation between the length of life and f, but in an equilibrium population the relationship would be $f = 1/L$, where L is the average length of life of additions to the stock of capital. Thus if the additions to the stock of capital have a life expectancy of five years, the addition to consumption in the form of depreciation, reflected eventually in maintenance expenditures, will be one-fifth of the total investment.[4]

The weakness of these aggregative models as a means of identifying the strategic factors in antidepression policy is their neglect of the more intricate structural problems of the economy. Capital and income, in real terms, are not homogeneous aggregates, but highly heterogeneous aggregates of large numbers of different commodities —vectors that cannot be reduced to a single linear dimension without doing serious violence to reality. This is important for policy questions because difficulties that arise as a result of strains in the structure and composition of the aggregates may not be suitably resolved by methods, such as tax or government expenditure changes, that operate on the economy as a whole, or at least on its various sectors more uniformly than the structural situation may require.

ing the population. The output involved in population *growth* should properly be regarded as investment, but a considerable proportion of this can also be regarded as independent of income.

[4] Recent studies indicate that there has been a sharp downward trend in the capital/output ratio in recent years. According to Daniel Creamer (*Capital and Output Trends in Manufacturing Industries, 1880–1948,* National Bureau of Economic Research, Occasional Paper 41, 1954) the ratio of capital to value added in manufacturing (in 1929 prices) fell from 2.555 in 1929 to 1.655 in 1948. A recent (unpublished) calculation by L. R. Klein indicates a similar decline for the whole economy from around 3.5 before 1929 to about 2.5 in 1950. If this can also be regarded as indicating a similar fall in the marginal capital-output ratio, there must have been a considerable increase in the consumption coefficient f, which will make the task of maintaining full employment with constant or even declining rates of investment much easier.

Possible Structural Difficulties

An example will clarify the point. I have recently made a pro-
jection (*Kyklos*, August 1955) of automobile population and produc-
tion on various highly simplified assumptions for the next fifteen
years. On almost any assumptions there seems to be trouble ahead
for the automobile industry on a strictly structural basis, because
we are now approaching the period when the non-existent cars of
the war years would have been in those age groups with the high-
est "death rates." Because of this serious distortion in the age
structure of automobiles it seems certain that if automobile pro-
duction is to be maintained between now and 1960 at present levels,
the total population of cars will have to rise much more rapidly
than it has been rising. If the population merely continues to rise
at present rates the annual production will fall from over 5 to a
little over 4 million by 1958—a serious prospect not only for the
automobile industry, but for the whole American economy. There
may be similar structural difficulties ahead in other consumer
durables, for similar reasons, but unfortunately we know nothing
about the age composition of consumer capital beyond the happy
accident of the information provided by automobile registrations.
There may be similar structural difficulties ahead in residential
housing, as a result of a decline in the number of new families be-
cause of the low birth rates of the thirties and the inevitable cessa-
tion of the decline in the age of marriage.

There is also a strong possibility of serious structural difficulties
in agriculture, always the sick sector of a progressive economy. In
part, overproduction in agriculture is a result of foolish policies in
the past, but it is also a recurrent structural difficulty in a society
like ours, simply because the amount of rural migration necessary
to maintain a proper balance between agricultural and industrial
output seems to require almost a condition of inflation and hyper-
employment in industry. When industrial employment is "normal"
the job opportunities in the cities are not plentiful or attractive
enough to create the necessary rural exodus, and agricultural sur-
pluses begin to pile up. Agricultural surpluses, however, especially
in a free market, have a strongly depressive effect on the price level
of agricultural commodities, and even on the price level in general.
I am in the middle of a study of the relation of commodity stocks to
prices which suggests—in spite of the limited information available
—that there is a strong inverse relation between commodity stocks
and the price level, as we should expect from market theory. There-

fore, a disproportionality in the structure of industry involving an excessive amount of resources in the raw material industries and a deficiency in services and processing near the consumer end increases "unwanted" accumulations and thereby sets off a process either of deflation of prices or of contraction of output, or both. This structural difficulty may have nothing to do with any deficiency in money supply or even in aggregate demand; there may be "shortages" of services at the same time that there are surpluses of commodities. Nevertheless, it creates a strong deflationary force in the economy, which is almost certain to cause trouble. We have managed to avoid this particular difficulty in the war and postwar years largely by subsidized exports, first through lend-lease and later through the Marshall Plan. This policy is not well adapted, however, to a more "normal" world when the deficiencies in the domestic production of other countries have been remedied.

Information and Effector Channels

Getting a little closer now to the policy issues facing us, we must raise the difficult and largely unexplored problem of the nature of the economic *information* required to operate a successful antidepression policy. In their theoretical constructs economists have been curiously indifferent to the information concept and to learning processes. This perhaps is because of the long predominance of the perfect competition model, where the price system itself provides, in simple and accessible form, all the information necessary to describe economic behavior. As soon, however, as we take imperfect markets into account, and as soon as we begin talking about stabilization policy on the part of government, we must face the questions of *what* information is necessary for appropriate action and how this information is obtained. In stabilization policy especially, what we are proposing is the setting up of a servomechanism for the "governing" of certain critical economic variables. Such an apparatus always involves devising information channels from the system to the "executive" or controller, and channels of effect from the controller to the system. If systems of this kind are set up too clumsily, they may even generate wider fluctuations, especially if there are serious lags in the effector apparatus or in the information system.

Several problems involved here have received far too little attention. One is the problem of "signal detection"— How do we distinguish a signal from "noise," i.e. purely random, or at least non-

significant, events, changes, or positions of our sensitive variables? All economic variables are subject to fluctuations; the question is what changes are significant, in the sense that they require action, and what changes are not significant and can be regarded as "random." Recent work on the theory of signal detection has shown that the *criterion* for selection of doubtful signals depends on the penalties for false alarms and missed signals and the rewards for correct perception of either the presence or the absence of a signal. Thus if the penalties for false alarms (saying there is a depression when in fact there are only random fluctuations) are light, and the penalties for missed signals (saying there is no depression when in fact there is) are heavy, the criterion for detection will be set at a point where there is a likelihood of a considerable number of false alarms but very few misses. This is a possible explanation for the tendency of all advanced societies to inflation in the absence of strong taboos against it in the form of artificial false alarm penalties, such as those involved in the maintenance of a gold standard.

The behavior of a servomechanism depends in part on the time lags involved in the information and effector channels, and these may be serious in the case of the economic system. If information regarding the state of the economy only reaches the controller with, say, a six months' time lag, and if his decision to act on this information only takes effect in another six months, the danger that his action will augment instead of diminish cycles is a real one. Fortunately, much has been done in recent years to speed up the transmission of information. We should be unwise, however, to assume that this problem is solved, particularly where action involves cumbersome governmental and Congressional procedure.

Perhaps the most serious of all the problems involved in the control of depressions, however, is that of the appropriateness of the "effectors." If the action of the controller affects many variables, and especially if it affects them with a time lag, the attempt to stabilize one variable or set of variables may result in the destabilization of others. In any antidepression program, therefore, it is necessary to look at the structural problems as well as the aggregative measures of the economy, with a view to improving the *specificity* of the action taken. Thus suppose unemployment develops in the automobile and perhaps a few other industries as a result of the structural difficulties peculiar to these industries outlined above. This will be reflected in a rise in the over-all unemployment figures. A rise of this kind, however, concentrated in a few industries, constitutes a very different kind of "signal" from a rise uniformly spread

over the economy. In recent years economists have rightly criticized a "piecemeal" approach to problems of economic stability, as reflected, say, in agricultural policy, and have emphasized the importance of looking at the economy as a whole. The ease with which the macroeconomic variables can be manipulated has reinforced this tendency. Nevertheless, it is now time, perhaps, to point out that although the economy is a whole it also consists of parts, and that even though we must look at the effects of policy as a whole, this does not mean that actions taken should be only those which spread their influence uniformly over the whole economy.

There is a case, therefore, for "structural policies," directed at those parts of the economy where difficulties are arising. This is the case for specific agricultural policies directed toward the removal or prevention of surpluses. It is a little odd, though no doubt explicable on political lines, that agriculture is almost the only sector for which specific policies are suggested. There is a good case, for instance, if my projections of automobile population are correct, for helping the automobile industry over the expected trough by deliberately withdrawing automobiles from the road, either by more stringent licensing provisions or by a program of the purchase and scrapping of obsolete vehicles. The case for public works in a trough of the building cycle is of course a familiar one and is part of this same argument for "structural" policy. There is no absolute reason why tax policy and even monetary policy should not be "structural" in the sense of having an uneven incidence in different sectors of the economy. Traditions of equity in fiscal and monetary affairs, however, are strong—and rightly so—and make it difficult to impose frankly discriminatory taxes or loan policies.

All this in a sense is merely introductory to the main theme of this conference. I shall be glad, however, to leave the practical application to hornier statistical hands than mine, and I shall end with a brief recapitulation of what I conceive the present problem to be.

Seeing the Whole and the Parts

We are now in the thirteenth year of virtually full employment, beginning with 1941. In the attainment of this happy state, however, we have endured one major and one minor war, an arms race, and an inflation. The critical question for our society is whether this association between war and full employment is an accident or a necessity. If the latter, then I think we can write our society

off as a failure, with all its accomplishments. War is not only an outrageously high price to pay for full employment, but is a most unreliable means of payment, for wars are created much more by political than by economic breakdowns, and nobody in his senses is going to go to war in order to get full employment. Fortunately, I think it can be shown that the connection between war and full employment is *not* a necessary one, though it is by no means accidental. What gives us full employment is not war itself, but the expansion in government absorption which it entails, coupled with inflationary finance and price-wage stickiness or control. It is clear, therefore, that one recipe for full employment is a sure thing—large government expenditures, a budget deficit, and suppressed inflation —and that this remedy is good no matter what the government expenditure is on: an $80 billion budget is likely to yield full employment *and* inflation whether it is spent on the means of death or on the means of life.

This remedy, however, is not acceptable, for good and proper reasons. It is still too high a price to pay for full employment, even though it is a much more agreeable price than war. Our instructions are therefore to think again and come up with peacetime full employment at cheaper rates, with less government and no inflation. I am not altogether sure that the article we want is in the window with this price tag on it. Nevertheless, it is worth asking for; it may be hidden in the back of the store.

The broad outlines of the problem are clear. If government absorption declines, and if private domestic investment declines, there must be a corresponding increase in household absorption or in net foreign investment, if capacity output is to be maintained. The details, however, are difficult. We have first to inquire whether there are "legitimate" expansions in peacetime government activity that can take the place of military expenditures. A moderately affirmative answer can surely be given to this question, especially if state and local governments are taken into account. One of the contributing factors to the Great Depression was that the decline in state and local government activity more than compensated for the expansion in federal activity. There seems to be a real weakness in our overall governmental structure at this point, and we should explore methods of expanding state and local government expenditures which are consistent with a federal system. Certainly the economic needs are there—in roads, in education, in the beautification of towns and cities, in slum clearance, and so on. It would be tragic if the federal nature of our Constitution imposed quite unnecessary

financial barriers to the satisfaction of these legitimate needs in a time of threatened depression.

The center of the problem, however, lies around the level of the consumption function and the trend in this level. If we may look at the bright side of things for a moment, there are reasons to suppose that the consumption function is higher than in the threadbare thirties and is likely to remain so. One reason is the change in the age distribution of the population. In the thirties an abnormally large proportion of the population was of working age. This meant a low consumption function, for it is those in the middle years who produce more than they consume and those at the extremes, both children and old people, who consume more than they produce. It also meant that the labor force itself was abnormally large, so that even had the proportion of the population employed been normal for an undistorted age distribution, there would still have been a gap between the labor force and the employed force, creating a social problem of unemployment. Now, on the other hand, we are in a period where the rise in the proportions both of the aged and of children may lead us to a situation with a relatively smaller proportion of people in the labor force and in middle life, so that we shall have high consumption functions and a low labor force.

The introduction of social security, insurance of bank deposits, agricultural income-maintenance programs, and other legacies of the depression also give us a certain amount of "built-in flexibility" that we did not have in the thirties, which should serve to protect us against some of the worst aspects of "perverse dynamics." Nevertheless, we cannot assume any necessarily automatic adjustment. An economy as "precarious" or sensitive as ours can go bad fast if conditions favor a general decline in the absorption functions, as they did for instance in the 1937–1938 episode. The situation may be all the more dangerous, potentially, if the perverse dynamic reactions have a "threshold" so that hope suddenly turns to despair on a large scale at some critical point on the downward path.

It is easy to think of drastic and wholesale remedies for an obvious crisis—wholesale remission of taxation, budget deficits, public works, and so on. What is difficult is to design a policy that will interpret small signals correctly and will be sensitive to the structural dislocations of the economy. Thus if we seek to use a general remission of taxation to counteract a depression in automobiles caused by age-structure factors, the result may be inflation in the economy as a whole without much effect on employment in the

automobile industry. Many of these difficulties arise because economic signals are significant not by themselves but only in conjunction with others. Thus a decline in agricultural prices may mean that adjustments are necessary in the proportion of resources going into the production of the storable crops and not enough into other things, even within agriculture. Or it may mean that the banking system is failing to provide increments of money supply sufficient to take care of increasing population and income. Or it may be the result of a pure speculative movement of a "self-justifying" nature. Each of these conditions may require different policies.

Thus the time may now be ripe for a new generation of economists to turn their attention to the structure of the economic aggregates, with a view both to elucidating what subaggregates are essential parts of the economic information system and to collecting information about them. The pre-Keynesian type of business cycle theory can be justly accused of never seeing the wood for the trees. Keynesian theory is open to the opposite accusation—that of never seeing the trees for the wood. In this generation we may well set ourselves the task of seeing both wood and trees, returning, with the Keynesian vision of the whole firmly in mind, to the renewed study of the parts in the light of their contribution to, and significance for, the general system.

COMMENT

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Without judging the usefulness of Boulding's basic concepts for economic analysis in general, it seems to me that they are not suitable for business cycle analysis. Boulding asserts that economic theory has overlooked an important fact by not counting depreciation, "which is independent of income but which depends on the size and on the durability of the stock of real capital," as consumption. He does not explicitly recognize, however, that this "fixed consumption" is a kind of consumption which in itself does not affect the level of economic activity and that of employment. It affects these only to the extent that actual replacement of worn-out plant and equipment takes place, and replacement is not a "fixed" element of demand.

I agree with Boulding's main point, that we are facing a double

precariousness, namely, a dynamic instability and the possibility of an undercapacity equilibrium—or, we may say, a cyclical problem and a structural one.

There are, of course, interrelations between the cyclical and structural problems. Because of structural, and in part institutional, changes in our economy, the nature of the cyclical processes has changed. Other papers in this conference discuss a number of the structural and institutional changes that have made the American economy more shock-resistant. But I agree with Boulding that we have no assurance of stability. Some reduction in incomes and spending may still cause further reductions in income and spending. Also, an undercapacity equilibrium—that is, a "sidewise" movement of the economy—if continued for some time, is likely to result in a curtailment in investments for expansion and thus may cause a cyclical disequilibrium.

The initial reasons for the recent downturn and the possibility of a "sidewise" movement below the full employment level are likely to lie in structural changes in the economy now taking place. One of the structural changes is that national security expenditures have recently been leveling off and that, under present programs, they are expected to be further reduced. The problem that we are facing can be expressed in simple quantitative form as follows: At the present time, economic activity is moving at an annual rate of about $15 billion below the full employment level. Because of the increase in productive capacity and in the labor force the full employment level itself increases by $10 to 15 billion over the period of a year. Thus a year from now a full employment level will be $25 to 30 billion above the present level of activity. Furthermore, if national security expenditures should be reduced in accord with present plans by about $5 billion over a year, it follows that private demand and demand for government nondefense services should increase by at least $30 billion during the same time to permit full use of available resources.

In this needed expansion of private demand, consumer demand will probably have to rise more than investment demand. During the three-year period of the build-up in national defense, the ratio of consumer demand to total demand was reduced (even though the absolute level of consumer expenditures continued to rise). If national security expenditures should level off or contract, consumer expenditures would have to rise not only in proportion with the needed rise in total demand but, in addition, enough to increase

their ratio to total demand. This is a problem of structural adjustment which, if not taken care of, may lead to a cyclical downswing.

"The economics of the next adjustment" in my judgment centers around the question as to how, through the forces of the market supported if necessary by government policies, this rise in active demand and these structural changes can be made.