MACROECONOMICS: AN APPRAISAL OF THE NON-MARKET-CLEARING PARADIGM

Second Thoughts on Keynesian Economics

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My view in the early 1970's of Keynesian, non-market-clearing-type models was that the soundness of their theoretical structure hinged on an as yet absent theory of the stickiness of wages or prices. The application of contracting theory to macro analysis seemed promising in this respect. The presence of employee risk aversion or of transaction costs associated with market arrangements—which could include elements of capital that were specific to employment or other aspects of production and exchange—seemed to motivate some long-term, implicit or explicit agreements about wages or prices. In particular, a sluggish adjustment of wages to current economic conditions could be rationalized by this approach.

Further consideration of the contracting model suggests that its rationale for sticky wages and prices—as far as it goes—does not explain the key features of Keynesian analysis with regard to the determination of employment and output. For example, long-term labor agreements do not imply a failure of employment to increase when all parties to the agreements perceive that they could be made better off by such a change. The so-called involuntary unemployment of Keynesian models—that is, a situation where everyone perceives accurately that the marginal product of labor exceeds the marginal value that potential workers place on their time—is not compatible with efficient labor agreements. Even in contracts that specify, *ex ante*, the value of nominal wages over some interval of time, it would be mutually advantageous for workers and firms to determine levels of employment in an efficient manner. The contracting approach may rationalize some departures of real wages from the marginal product of labor and/or the marginal value of worker time, but it does not imply that levels of employment would differ significantly from the (efficient) values that would have been attained under flexible wages. Rather than rationalizing the non-market-clearing model as a useful "as if" approach, contracting analysis suggests that—despite the possible existence of "sticky" wages—the continuous market-clearing model may provide a satisfactory framework for the analysis of employment and output. Notably, the approach suggests that such market features as sticky wages or the apparent non-price, quantity rationing associated with layoffs would be of secondary interest in analyses of business cycles. Since the prevailing wage need not represent the marginal product of labor, the presence of "excess labor supply" at this wage need not signal involuntary unemployment in any economic sense.

The conclusions derived from the contracting model can be generalized by observing that the key assumption of Keynesian analysis is the inefficiency of some aspects of private sector activity in comparison to corresponding activities carried out by the government. This central feature is, of course, the underlying basis for the policy activism that typifies Keynesian thinking. In some simple "disequilibrium" macro models, relative private sector inefficiency is represented by sticky wages or prices, in contrast to the flexibility of such government policy instruments as the money supply, taxes, or expenditures. Technical limitations of the private market in the coordination of production and exchange—as reflected in wage-price stickiness and the associated determination of employment and output through a non-price rationing process—are remedied through the superior coordinating

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skill of the government—as embodied in these models in the judicious use of monetary and fiscal policy or in the appropriate direct regulation of prices and quantities.

Presumably, sticky wages or prices are not intended to be taken literally as the source of private sector inefficiency. The underlying problem must reflect some deeper economic elements, such as imperfect information about the present or future, factor mobility costs, or some types of significant transaction costs. Although some of these elements are probably important in business cycle analyses, it is not apparent that they imply relative efficiency of the government over the private sector in handling such economic disturbances as oil crises, harvest failures, or even autonomous changes in liquidity preference or the perceived marginal product of capital—if such shifts occur on a significant scale. For example, uncertainty and mobility costs seem to imply that the allocation of resources is a difficult problem—not that the government can assist in allocation through active use of its macro-policy instruments. In any event the theoretical case for activism would, as in areas like industrial organization and the production of "public goods," require as a first step some serious analysis of private market "failure." For example, a frequently suggested macro-policy response to the oil crisis involved expansion of the money stock or the government deficit. I do not see how to construct an economic analysis of private sector allocation that would imply that the necessary and difficult private adjustments to this type of real—unexpected, but presumably perceived—disturbance would be assisted by an increase in the quantity of money. (I also do not see how this policy response would be called for on grounds of income distribution.) The observation that a monetary expansion might be helpful in models where some prices are arbitrarily held fixed does not seem illuminating.

It is not difficult to construct a theoretical model in which the natural rate of private output is too low, relative to some ideal, because of external effects. For example, the taxation of market earnings and the existence of welfare programs for the unemployed drive a wedge between private and social product, which would imply "insufficient" output on average. This observation would seem important for the design of tax and welfare programs. However, these types of external effects produced by government intervention (which may or may not be warranted on other grounds) do not have obvious relevance for the business cycle or for the usual forms of macro-stabilization policies.

A typical feature of macro analysis is that government intervention into the economy is recommended without bothering to describe the supposed externality or private market failure that underlies the call for policy activism. As a recent example of this tendency, consider the proposal for a tax-based incomes policy (*TIP*), which involves a tax penalty for price or wage changes above some amount and a reward for changes below this amount. I honestly have no idea what sort of private market failure or externality is supposed to rationalize this sort of government interference with the price-setting process. (However, I'm sure it has nothing to do with the triangle under the money demand function that is occasionally used to measure the welfare loss from anticipated inflation.) It is unclear why there is some asymmetry that leads individuals or firms toward "excessive," rather than insufficient, price changes. Casual arguments about external effects from "price leadership" or the like do not seem helpful in this respect. Additionally it is unclear whether the *TIP* proposal is directed at the costs of the average rate of inflation, the uncertainty of inflation, or to some perceived interplay between (I assume, unanticipated) inflation and unemployment. It is also hard to reconcile the plan with the irresistable link between monetary expansion and inflation, although the proponents may have in mind some subtle pressure on the money supply process. In any case the theoretical rationale that has been presented to support the *TIP* plan or other forms of general price controls has not been on the same level of economic analysis as that—weak as it may be—which has been provided to defend government regulation of certain industries, control of pollution, and so on. This lack of a theoretical argument might be provisionally acceptable in the light of supporting empirical evidence on the benefits

of such a policy but the record of previous price control programs does not seem impressive.

Modern courses in macroeconomics utilize price theory to a considerable extent. However, these "micro foundations" are usually limited to the formulation of sectoral supply and demand functions, rather than to the analysis of "general equilibrium." Despite oddities in some earlier treatments of labor supply, the serious problem with non-market-clearing-type models are not in the characterization of supply and demand, but rather in the neglect of the other branch of price theory: namely, supply equals demand. Supply not equal to demand as a basis for quantity determination in non-market-clearing models is not on the same analytical level as supply equals demand. The latter mechanism implies that—at least in a direct sense—the private market manages to exhaust trades that are to the perceived mutual advantage of the exchanging parties. On the other hand, by mechanically leaving opportunities for mutually desirable trades, the non-market-clearing approach makes government policy activism much too easy to justify. When the arbitrariness of supply unequal to demand is replaced by a serious explanation, such as imperfect information about exchange opportunities, for the failure of private markets to achieve some standard of efficency, the case for government intervention becomes much less obvious.

Let me now consider some specific issues relating to information and macro policy. I begin with the role of expectations in macro models. Thanks especially to the work of Robert Lucas, we have a much better idea of the significance of well-informed private expectations in macro analysis. This significance arises in at least three areas: positive analyses of the effects of monetary and other shocks on economic activity; analyses of the role of government polices; and evaluations and carrying out of econometric estimation. Nonetheless, I agree with the view that rational vs. nonrational expectations is not per se the key division between Keynesian and non-Keynesian models and, accordingly, is not the essential basis for a division between activist and nonactivist policy conclusions. The formation of expectations is one dimension in which the private sector might operate less (or even more?) efficiently than the government—other seemingly comparable dimensions would include the range of permissible contracts, coordination of trades, production of information, responsiveness of supply and demand to money illusion, and so on. However, it is possible to produce Keynesian policy conclusions in models that incorporate rational expectations, but which contain some other departures from sensible behavior, for example, arbitrarily fixed nominal wages, or money illusion either in supply and demand functions or in the form of private labor contracts. Thus the nature of the formation of expectations seems to be an important issue within the general context of the efficiency of private arrangements relative to governmental actions, but it is this general concept of relative efficiency that seems to be crucial in evaluations of policy activism.

Monetary control is one area in which a strong governmental role is generally accepted. I abstract here from important issues that involve the transactions benefits of a generalized medium of exchange and the resource costs that can be saved by using a fiat standard for money, rather than a commodity standard. Even with this abstraction, a rationale for government involvement in monetary control can be constructed on business cycle grounds—in particular, from a consideration of the Phillips curve, which I view here as a representation of the responsiveness of economic activity to unanticipated movements in money and the absolute price level. The potential for confusion between absolute and relative price changes in a monetary economy, which is a possible basis for the Phillips curve, seems to justify some public control over the quantity of nominal money.

A major empirical finding is the central role that monetary shocks have, in fact, played in business cycles. The greater year-to-year stability of the underlying monetary mechanism in the United States since World War II—which involves a substantial increase in government regulation—has led to a smaller amplitude of business fluctuations in comparison to those of either the interwar

period or the pre-World War I era. However, it also seems that the important change in monetary structure has been a reduction in the short-run variance of money, rather than a move toward an activist feedback policy by the monetary authority. Specifically, the tendency to increase the money stock at a higher rate in response to a recession—which is a pattern that appears to originate in the Full Employment Act period following World War II—does not seem to have contributed to enhanced economic performance.

The effects of the shift to greater year-to-year stability in money indicates the potential real effects of changes in the underlying monetary institutions. The evaluation of this particular change (i.e., a comparison of the gold standard money process before World War I with today's fiat standard managed by the Federal Reserve) involves a complicated tradeoff. In my view the benefits of greater year-to-year stability in today's output and employment have been bought with two major costs. The first of these concerns the monetary education during the early years of the Federal Reserve, a process that is doubtless still continuing. The monetary errors of the interwar period—which seem to be much more extreme than those that would have arisen under the pre-World War I regime—can be credited with much of the costs of the Great Depression, as well as with those of the 1937–38 contraction. Although the gold standard was not "ideal," it did require less knowledge by the government or anyone else about how the aggregate economy worked. The second cost of the monetary change is the chronic inflation of the present environment.

Further economic benefits could be attained by moving to a monetary institution that first, and most importantly, delivered even greater year-to-year stability in the money supply, for example, by constraining the monetary authority to achieve an approximately constant growth rate for M_1, and second, that attained an average monetary growth rate below the roughly 6–7 percent annual rate for M_1 that is implied by the present structure. The precise design of the new governmental institution and, more importantly, the political-economic process that leads to changes in this or other institutions are unclear to me. However, it might be worth remarking, from the standpoint of the adjustment costs implied by a shift in monetary structure, that an analysis of expectational changes associated with a structural shift cannot usefully be separated from an analysis of the changes in the underlying variables that led to the shift in structure. In particular, there is no reason to believe that expectations about money growth and inflation are either more or less flexible than the underlying structure that generates the actual values of money growth and inflation. Therefore, one would not predict that a shift to a new monetary environment—such as those that occurred in the past concerning the monetary role of gold or the Federal Reserve—would involve an adjustment period in which expectations lagged behind the changes in "reality." A shift in the United States to an institution that delivered a lower average growth rate of money would not imply a transition period of unusually high unemployment.

The interpretation of the Great Depression is a key matter dividing policy activitists from nonactivists. The activist view is that the Great Depression was a symptom of an inherently unstable private economy that experienced large gyrations in output and which tolerated prolonged periods of high unemployment. Governmental activism in the middle and late 1930's—notably, the high levels of public expenditures—are thought to have been helpful in restoring some measure of economic prosperity.

The alternative view is that the Great Depression was in large part a product of governmental mistakes; specifically, the inept monetary policy of the Federal Reserve. Further, the governmental interventions associated with the New Deal, including the volume of public expenditures and direct price regulations, retarded the recovery of the economy, which was nevertheless rapid after 1933. The sharp increase in reserve requirements was primarily responsible for the 1937–38 recession.

I do not presently see a fully satisfactory "equilibrium" or "disequilibrium" story of the Great Depression. With respect to one type of equilibrium model that has been

proposed, I do not know of an empirical documentation of a major downward shift in factor supply during the early 1930's in response to a cut in prices relative to perceived prices. Actually, the depression experience does not stand out in this respect, since this type of factor-supply story has not been satisfactorily documented empirically even for the more mild fluctuations of the post-World War II period. On the other hand, the disequilibrium type of model, which relies on a nontheory of price rigidities, does not seem to have more impressive empirical support.

From a reduced-form perspective that relates business fluctuations to prior monetary disturbances, the contraction from 1930 to 1933 seems to be well in line with other experiences. The unprecedented monetary collapse over this period accords quantitatively with the drastic decline in economic activity. The magnitude of the monetary contraction can be appreciated by noting that the reduction in (annual average) M_1, 1929–33, averaged 7.3 percent per year. The only other four-year periods since the Civil War that show a decline in the money stock are much milder: 1875–79, 0.8 percent per year for M_2; and 1892–96: 0.4 percent per year for M_2. (A decline of 10.2 percent in M_1 occurred 1920–21, but the 1920–24 period shows no net change in the money stock.)

A somewhat greater puzzle is posed by the recovery periods 1933–36 and 1938–41. These periods may have exhibited a slower recovery rate than would have been anticipated, although the average annual growth rates of real *GNP* from 1933 to 1936 of 10.3 percent and from 1938 to 1941 of 10.4 percent (which would be reduced somewhat if the final date were 1940) are exceptional for peacetime periods. In fact, these growth rates are about the same as that (10.5 percent per year) that appears in the reported statistics for the World War II expansion 1941–44. It is possible that the recovery periods from 1933 to 1941 involve the retarding influence of massive governmental interventions into the price-setting process. However, this explanation must be regarded as highly tentative, especially since governmental interventions in the form of price controls during the Korean War and from 1971 to 1973 did not seem to have such important output effects.

In any case I regard empirical testing of hypotheses derived from alternative theories of business cycles as a matter of continuing priority. Examples of testable hypotheses that are implied by some "equilibrium" macro models with incomplete information are: 1) only the unanticipated part of movements in money affects "real" variables like output and real interest rates; 2) the anticipated part of current money movements affects the price level contemporaneously on a one-to-one basis, while the unanticipated part has a less than one-to-one contemporaneous effect on prices, a *positive* effect on anticipated real rates of return, and an ambiguous effect on nominal interest rates; 3) an increase in the variance of money would reduce the sensitivity of output to a given size money shock and raise the dispersion of relative prices; and 4) changes in consumption or in federal tax rates are, as a first-order approximation, unpredictable from lagged data. The equilibrium-type models are consistent with persisting effects of monetary and real shocks, although this aspect of the theories is less developed. The approach is also consistent with real effects of government spending, which would depend especially on the substitutability between public and private expenditures in utility and production functions, and with real, relative price-type effects of changes in taxes, unemployment compensation, and the like. Aggregate demand effects of shifts between taxes and debt issue would arise, at most, when these shifts were unanticipated.

Testable hypotheses from simple Keynesian models would seem to include: 1) increases in money imply increases in output and *decreases* in nominal and real interest rates, all of which persist over a substantial period. Price responses depend on the initial state of excess demand (whatever that means), but generally the rate of change of prices is raised above what it otherwise would have been. However, the short-run effect on prices is weak. The role of price and money expectations is not stressed in simple models of this type. 2) Increases in the government

deficit, produced by higher expenditures or reduced taxes with the money stock held fixed, imply increases in output—which are likely to be multiplicative—and increases in interest rates. These effects persist over a substantial period. Prices rise at a faster rate than otherwise, but the initial price response is weak. The nature of government expenditures and expectations about future taxes, prices, etc., are not stressed in simple models of this type. 3) Real wages move countercyclically in models that assume only wage stickiness. In models that also assume some price stickiness, the cyclical behavior of real wages is indeterminate.

I will not attempt at this time to present a detailed appraisal of the state of current empirical evidence—however, I think that the major doubts about Keynesian, non-market-clearing-type analysis that are prevalent today are primarily a reflection of perceived empirical inadequacies of the theory, especially in an inflationary environment. I expect that the final verdict on the usefulness of Keynesian economics will also come primarily from empirical analysis.