COWLES FOUNDATION FOR RESEARCH IN ECONOMICS

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COWLES FOUNDATION DISCUSSION PAPER NO. 669

MACROECONOMICS UNDER DEBATE

by

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June 1983

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Economics has always derived inspiration and energy from the burning issues of the day. Economists have shared the concerns of their fellow citizens and have addressed them as analysts, teachers, and advocates. Their own controversies have mirrored the ideological and political debates of their societies and epochs. From these encounters have developed principles and methods that outlasted their practical origins and gave our subject the cumulative continuity and internal dynamics of a discipline. Adam Smith's challenge to mercantilism, Ricardo's attack on the Corn Laws, and the Austrian School's response to Marxism are examples.

Reaganomics is a political counter-revolution against the economic ideas alleged to have motivated policies over the past half century. Thatcherism is a similar reaction in the United Kingdom. Throughout the non-communist developed world the spirit of the times reflects disillusionment with past policies; their intellectual foundations are rejected in favor of opposing theories old and new. Within our profession, the same counter-revolutionary war is waged -- in journals, classrooms, and conferences rather than in popular media, political debate, and elections. The parallelism is not accidental. The great inflation and stagflation of the 1970s were the common inspiration. Economists' ideas spill easily and rapidly into wider currency, frequently propagated by economists themselves. In a memorable passage Keynes observed that men of affairs and crusading zealots unconsciously echo the theories of bygone academics [1936, pp. 383-4]. Today the lags are short, the academics are not even bygone, and the debts are not always unconscious.

In Reaganomics we economists have no trouble discerning the presence, albeit in distorted and exaggerated forms, of several fashionable strands of professional opinion. Their common thread is one of the Great Ideas of intellectual history: the miraculous efficiency and optimality of decentralized market processes free of government intervention. The overriding goal is to reduce the economic size, burden, and activity of government.

Monetarism, especially in its more recent form, the new classical macroeconomics, extends to macroeconomic policy the grasp of these central principles. The new vogue is to forswear counter-cyclical measures, scornfully called "fine-tuning", in favor of firm steadiness in the policy instruments themselves. Market processes will then, it is argued, take the economy to its best equilibrium.

Supply-side economics has been identified with some ludicrous claims and forecasts. Qualitatively, however, it is new emphasis on an old theme: the importance of incentives and rewards for thrift, work, enterprise, and risk-taking. The corollaries are de-emphasis of redistribution via taxes and transfers and devaluation of public consumption and investment.

Finally, traditional financial and fiscal orthodoxy, always opposed to manipulation of fiscal and monetary powers for macroeconomic objectives, has gained renewed respect and influence in the counter-revolutionary climate.

However, the several branches of conservative economics are not fully consistent with each other. Though they are all represented in government, their ideological messages and policy counsels are frequently not harmonious.

The common target of the counter-revolutions in macroeconomic theory and policy is Keynesian economics, the ideas of the General Theory as elaborated, modified, and applied since World War II. The Keynesian revolution itself was

inspired by real world events, the Great Depression, and by the patent incapacity of the existing economic orthodoxy to provide either explanation or remedy. Four decades later the Great Inflation evoked the monetarist and classical revivals and discredited Keynesian orthodoxy. In both cases intellectual history was obviously shaped by events external to our discipline and by the political, ideological, and analytical vacuums and opportunities they created.

But that is by no means the whole story. The discipline itself imposes an internal logic on its developments, as the revolution and counter-revolutions in macroeconomics also exemplify. In discussing "macroeconomics under debate" today, I shall emphasize the internal debate and describe the theoretical issues among the contestants, revolutionary and counter-revolutionary. A good place to begin, a good frame of reference, I think, is Walrasian general equilibrium theory -- the basic paradigm of our discipline, and as it happens, the scientific counterpart of the common central theme of the conservative counter-revolutions, the Invisible Hand. Within the profession the vulnerability of Keynesian economics, even as modified in the "neoclassical synthesis" of the two postwar decades, to recent challenges is its long-standing failure to come to terms with this powerful theoretical tradition. In discussing the debate in this framework, I shall also be led to comment on contemporary attempts to reformulate Keynesian economics to overcome this failure.

I. The Invisible Hand and the Neoclassical Paradigm

The "invisible hand" is one of the Great Ideas of intellectual history. According to Adam Smith, market competition transmutes selfish and myopic individual actions into the wealth of nations [1776, p. 400]. Central direction is not necessary. The system demands of its participants neither altruism nor omniscience. Natural self-interest is enough motivation; every-day local observation is enough information. All that is required of the participants is respect for property rights and contractual obligations. All that is required of government is to establish and enforce those laws and to defend the society against internal and external enemies. Government interferences in markets are generally inefficient because they prevent individuals from making mutually and socially beneficial trades and contracts.

This momentous idea has flourished for two centuries. As political ideology it provided the economic content of nineteenth century liberalism and of twentieth century conservatism. In both phases it has been the weapon of bourgeois business and capital against rival interests and movements -- landed aristocracies, labor unions, bureaucrats, populists, socialists. Simultaneously, economic theory developed and refined Smith's insight. The task of giving rigor and precision to the relation of individual actions and aggregate outcomes has engaged the best minds of our profession, including Walras, Pareto, Hicks, Samuelson, Debreu, and Arrow. The propositions that survived this process are more sophisticated and more limited than the conjectures of earlier writers and the extravagant claims of the ideology.

Modern general equilibrium theory describes an economy with two principal features, individual optimization and price-cleared competitive markets. Each individual agent, given her endowments of productive resources and other commodities and given their market prices, buys and sells and produces so as

to maximize her utility, a function of the quantities she consumes of the several commodities. Firms maximize the wealth of the agents who own them. These choices imply aggregate schedules relating demands for and supplies of all commodities to all their prices. Market prices, equating demands and supplies and governing quantities produced, bought, and sold by all agents, are determined simultaneously for all commodities and resources. Under certain assumptions the system of simultaneous equations has at least one solution, a "competitive equilibrium" of the economy, and may have many solutions. Each competitive equilibrium is "Pareto-optimal", i.e. no re-allocations of goods among agents could fail to make at least one agent worse off. Moreover, any feasible allocation which is Pareto-optimal corresponds to some competitive equilibrium based on some initial distribution of endowments. The model encompasses intertemporal choices, time-consuming production technologies, and uncertainties about the future by a simple ingenious expedient, extending the list of commodities, prices, and markets by distinguishing the dates and contingencies in which commodities are to be delivered.

Where does the modern version of the theory leave the Invisible Hand? Two quite opposite responses are conceivable. On one hand there is the good news: the intuitions of Adam Smith and many later writers can indeed be rigorously formulated and proved. The bad news is that the theorems depend on a host of conditions, many of dubious realism. Restrictions on preferences and technologies are stringent. The concept of social optimality, the Pareto criterion, is weak. The theory does not describe a process in real time by which the economy reaches an equilibrium solution. When commodities are multiplied to cover future and contingent deliveries, the possibility that competitive markets do or could exist for all of them is remote. The modern

version might be taken to refute, not to support, the applicability of invisible hand propositions to real-world economies.

Wiser economic theorists have always been cautious. Joseph Schumpeter called the Walrasian system the magna charta of economics because it showed that the central problem of allocation of resources and final goods was in principle solvable. (In fact the formal proof came not from Walras [1874], who only showed that there were as many equations as unknowns, but three quarters of a century later from Arrow [1953] and Debreu [1959].) Schumpeter's own description of economic progress under capitalism, however, relied on wholly different mechanisms. A common view -- shared for example by Walras, Wicksell, Fisher, Marshall, and Pigou -- was that neoclassical analysis disclosed important and ultimately decisive tendencies but did not literally describe how observed prices and quantities were determined. Anglo-Saxon economics in the nineteenth and early twentieth centuries, less mathematical and more pragmatic than on the continent, was especially characterized by loose adherence to the magna charta.

Neoclassical theory itself developed an "anatomy of market failure," a catalog of ways in which departures from the conditions under which markets theoretically deliver optimal outcomes might occur and conceivably call for government interventions. These include: monopolies and other deviations from pure competition; public goods and bads and other externalities, i.e. extra-market ways in which one individual's actions give utility or disutility to others; absence of markets, in particular for future and contingent deliveries; inadequacies of information. The categories overlap. A standard mode of argument and analysis regarding any actual or proposed government intervention developed. The first question is why the market does not solve the problem, if it is solvable at all. The answer must be to identify one or

more of the recognized market failures and to show that the intervention remedies it. The presumption is that the market works. The burden of proof is on the advocate of intervention.

Of course interventions can be advocated on grounds of distributional equity, whether or not there is a market failure. Long ago neoclassical economics washed its hands of such messy questions by saying there is no way to compare the utility of one person with that of another. Pareto-optimality is no help. Redistributions always make someone worse off. Interventions that make everyone better off are virtually impossible to find. The best the neoclassical paradigm can do is to point out that if a given redistribution is to be made there are more and less efficient ways of accomplishing it. The more efficient ways, not surprisingly, generally rely on market processes, and so far as possible on redistributions of initial endowments rather than of final outputs.

Many of the ablest minds attracted into professional economics find their exposure to general equilibrium theory the most exciting intellectual experience of their lives. Elegant, rigorous, mathematically powerful, the theory reaches far from obvious results. It gives economics a theoretical core that "softer" social sciences lack and often envy. It "is the only game in town". It especially enchants those who were drawn into the profession more because it challenges their mathematical and logical skills than because it might help to solve real-world puzzles and problems. They are particularly disposed to regard general equilibrium propositions as reference points, and to assign burdens of proof to anyone who consciously or unconsciously alleges otherwise. Supporting this attitude is the "methodology of positive economics." [Friedman 1953, pp. 3-43] The patent and admitted unrealism of assumptions does not matter. The question is whether the outcomes of the

system as a whole are as if they were solutions of the postulated system. Since the system in its full generality generates precious little in the way of propositions refutable by observations, it is not very vulnerable to tests of "as if" methodology [Sonnenschein 1973].

II. Money and General Equilibrium

Money has always been an awkward puzzle for neoclassical general equilibrium theory [Kareken and Wallace 1980]. The use of a conventional unit of account, Walras's numeraire, is no problem; any arbitrary commodity or package of commodities will serve this purpose, and the results do not depend on the choice. But the holdings of intrinsically useless paper as stores of value is a puzzle. How can fiat moneys command any value in terms of the goods and services that enter utility and production functions? Even commodity moneys raise the question, because they acquire more value from their monetary status than they would otherwise have.

The question is not answerable in the standard general equilibrium framework. With frictionless, costless, simultaneously cleared auction markets for all commodities, there is no need for money holdings to bridge gaps between sales and purchases or to mitigate costly searches for advantageous barters. Common sense tells us that money is held and has value because, absent the super-computer of the Walrasian multi-market auctioneer, the use of money facilitates exchanges.

It is not easy to incorporate this common-sense observation in the standard paradigm, for two main reasons. First, transactions technologies do not fit the formulations of input-output relations needed to solve the system. Second, money has attributes of a public good; the standard paradigm has well known difficulties handling externalities occurring when the utility or

productivity of a commodity to any one agent depends on how many others use it.

The makeshift compromise in neoclassical theory has been the alleged neutrality of fiat money. The idea is simple: Whatever functions money may perform, whatever holdings agents may therefore desire, the real equilibrium must be independent of the stock of money as measured in its own nominal units. After all, it cannot matter whether the unit of account is a dollar or a dime. If a units change multiplies the nominal quantity by ten, the system will remain in equilibrium with all prices multiplied by ten, future and contingent prices as well as spot. All relative prices, including real interest rates, and all quantities will be the same as before.

Buttressed by this reasoning, older neoclassical economists and their reincarnations in new classical macroeconomics assert that money is just a veil. Anyone who looks through it can see that the real economy is the same as if the veil were not there. In extreme form the proposition is clearly false. If money performs real functions for individuals and for society, the equilibrium of a monetary economy cannot be the same as that of a barter economy. Indeed that of a barter economy, given the costs of search and barter, could not be the Walrasian solution [Hahn 1982]. But the extreme proposition is not needed. Monetary exchange can yield a solution different from barter, presumably a superior one because money compensates at least in part for the absence of the Walrasian auctioneer. But the altered and improved solution could be independent of the size of the stock of nominal money.

Money neutrality in this sense is the basis for the "classical dichotomy" [Patinkin 1955] separating the determination of real variables and relative prices from the determination of the absolute price level, the reciprocal of

the value of money. The dichotomy is the fundamental rationale of the quantity theory of money, the proposition that absolute prices are proportional to the stock.

However, the analogy of money stock variations to units changes requires extreme caution in application. A thorough change of units would re-scale proportionately the nominal quantities of all individual holdings of all existing assets and debts denominated in the monetary unit of account, and of all expectations of future quantities of money and of promises to pay money in every future contingency. The operations by which governments and central banks alter stocks of money involve issuing currency or its equivalent to make transfer payments or to buy goods and services to to buy outstanding promises to pay currency in future. These operations obviously do not alter all nominal stocks, present and future, individual and aggregate, proportionately. They leave unchanged the aggregates and the distributions of most pre-existing assets and debts. The application of the neutrality proposition to actual real-world monetary policies is a prime example of the fallacy of misplaced concreteness. Those who attribute real consequences to monetary policies and events are not <u>per se</u> guilty of attributing irrational "money illusion" to households and business managers.

As previously observed, wise neoclassical economists have been circumspect in application of general equilibrium results. This caution has embraced the implications of neutrality and dichotomy. Quantity theorists from David Hume to Irving Fisher to Milton Friedman expected to see plenty of important real consequences of monetary policies and events for long short runs. It is only recently that neutrality has been more sweepingly and indiscriminately applied.

In logic non-neutralities are not confined to any short run. For example, a permanent change in the growth rates of government-issued currency and promises to pay currency in future is not an operation that can be assimilated to a units change, because it would not alter all present and future nominal stocks in the same proportion. Variations of money growth and inflation rates alter the real rate of return on monetary assets which carry a nominal interest rate fixed at zero or any other number, and therefore have further real consequences [Tobin 1965]. More generally, if an economy approaches a steady state, its constellation of real variables is bound to be influenced by the monetary events occurring along the path [Hahn 1982].

III. Keynes and the Neoclassical Paradigm

In the General Theory, John Maynard Keynes had the audacity to claim discovery of massive, endemic, possibly chronic market failure, not just one of the minor exceptions to market performance in the usual canonical list. Keynes was quite explicit in this contention, opposing his "general" theory to what he called "classical" theory, which he relegated to the status of a special case. (He clearly meant theory that would now be called "neoclassical" to distinguish it from the classical economics of Britain before the advent of marginalism and subjective utility circa 1870.) The market failure is the unemployment of labor and other productive resources whose owners would gladly accept employment for remuneration no greater than their prevailing marginal productivities and would gladly purchase the output the employment would produce.

Ever since 1936, today more than ever, this claim has been received with incredulity by theorists whose trained instincts lead them to use general competitive equilibrium as presumptive point of reference. Keynes did not

help them understand his point. In keeping with the ethnocentrism of English economics, especially in Cambridge, he paid little attention to continental writers. His main "classical" target was another Cambridge economist, Professor A. C. Pigou. He attacked F. A. von Hayek, who had moved from Austria to London, and he briefly cited Walras as an exemplar of "classical" interest theory [Keynes 1936, pp. 19, 32, 56, 59-60, 176-7]. Keynes used only simple mathematics, and that sparingly. His language, terminology, and style of argument were pragmatic and worldly like Alfred Marshall's rather than rigorous and abstract like Walras's. Although he did in fact set forth a system of simultaneous equations, he did not present it with formal clarity. Most students owe their understanding of it to elucidations by Hicks and others. Anyway his structural and behavior equations differ from those of full-blown neo-classical general equilibrium models by their heroic aggregation. The consumption function, for example, represents the economy as a whole; its derivation from the consumption choices of individual agents is loose and informal.

For years general equilibrium theorists have said they "simply don't understand" Keynes, or for that matter any macroeconomics, which owes its identification as a distinguishable branch of economics to the Keynesian revolution. Frequently, not always, this is a polite way of saying they believe or suspect it is wrong. That in turn means that Keynesian theory must assume somewhere, implicitly or explicitly, irrational, non-optimizing behavior by individual agents. "Money illusion" is the most frequent example, i.e. imputing to individuals as workers or consumers behavior motivated by the monetary outcomes rather than those real outcomes which can be the only ultimate source of utility. Or Keynes must assume that for some unexplained

reasons markets do not clear, for example that nominal wages and prices are rigid or sticky.

Keynes contributed to the sources of these disbeliefs by insisting that his conclusions applied to the equilibrium of a competitive system. He attacked the classicals on their own ground. He appeared to charge that though the classicals had the right pieces of the puzzle they had not assembled them correctly. He was not content to regard the Great Depression as an especially slow and painful example of the time it takes neoclassical equilibrium tendencies to win out. Nor did he attribute the difficulties of the system to imperfections and monopolistic elements ignored in the competitive model, even though at the very time he was writing, microeconomic theories stressing these phenomena were flourishing in his Cambridge as well as in Cambridge, Massachusetts [Chamberlin 1933, Robinson 1933, Shove 1930, Sraffa 1926, Young 1930].

Despite these obstacles to communication, the General Theory is clear enough about the sources of macroeconomic market failure to enable careful and open-minded readers to grasp the points. Ultimately the basic reason for incredulity is the presumption against so enormous a market failure: surely rational individuals would find ways to conclude bargains that make all parties better off and thus to escape the Keynesian impasse. This viewpoint leaves the skeptics with the uncomfortable task of reconciling observed unemployment, both in the Great Depression and in other business cycles, with the presumptions of neoclassical faith. This task was pretty much finessed until the recent ambitious attempts at reconciliation by the new classical macroeconomics, discussed below.

In Keynesian theory there are several interrelated sources of the macroeconomic market failure. First, Keynes was explicit about the

incompleteness of markets, particularly the absence of future and contingent markets. He observed that savers abstaining from present consumption do not simultaneously place specific orders either for future consumption or for capital goods. Instead they acquire generalized stores of value, which they can spend when they please on what they please. Savers and investors, lenders and borrowers, are not the same individuals. Convenient and efficient as it is, the divorce of saving from specific future consumption and from contemporaneous investment imposes on capital and commodity markets an immense burden of coordination. The spot market signals from reduced consumption do not guide producers to make inventory and fixed investments to prepare for future consumption demands; the signals may even elicit perverse behavior [Keynes 1936, pp. 210-12]. Intrinsically unreliable expectations and information have to fill the market gaps. The tests that investment projects must pass can easily be the wrong hurdles, especially when capital-building projects have to compete with returns expected on monetary assets [Keynes 1936, pp. 210-144].

Second, Keynes emphasized the essential unpredictability, even in a probabilistic sense, of the returns to real and monetary assets. They depend on what future buyers will be prepared to pay for them, and that in turn depends on what those buyers' expectations will be about what future buyers .... The indeterminacy is both cause and effect of the absence of markets for future and contingent deliveries. For this reason, Keynes regarded the "state of long-term expectations" as an autonomous determinant of investment and aggregate demand, not as an endogenous variable [Keynes 1936, pp. 147-164].

Third, Keynes observed that prices, including wages, are quoted and set in the monetary unit of account. The practice is socially and individually convenient, but it does have real consequences. It difficult for agents,

especially workers, to make effective their true demands and supplies at real, relative prices [Keynes 1936, pp. 4-22]. He did not note, perhaps because he regarded it as self-evident, that the use of a nominal numeraire would make no difference if a Walrasian auctioneer continuously cleared and re-cleared all markets simultaneously, knowing at each moment everyone's demands and supplies as functions of all prices. Keynes was probably thinking implicitly of more realistic wage- and price-setting mechanisms, in which specific prices are set locally and subsequently adjusted only with delay and cost. Consequently his point was misunderstood and seemed vulnerable to the "money illusion" accusation. Now in the context of contract theory and other models of non-Walrasian price-setting, his intuitions -- including the importance of wage comparisons in local wage bargains -- are being formally modeled.

Fourth, Keynes's principle of effective demand is a clear statement of the role of quantity variation, as well as price variation, in clearing markets. Individuals' demands are constrained by what they actually sell at prevailing prices, and this may be less than what they would like to sell at those prices given their endowments. Unemployed workers consume less than they would like because they sell less labor than they would like [Keynes 1936, pp. 23-36]. That, not failure to understand that supply of labor can be an endogenous decision, is the reason income is a principal argument in a Keynesian consumption function. Quantity equilibration becomes a key process whenever relative prices, including interest rates, are slow to move. This can happen even when nominal prices are quite flexible, as Keynes observed in his story wherein goods prices follow money wages down and workers are unable to lower their real wages [Keynes 1936, pp. 257-279]. In this story the price stickiness is elsewhere in the economy, in the determination of interest

rates. One interpretation of the "general" in General Theory is allowance for quantity as well as price variation in clearing markets.

Fifth, Keynes rejected neutrality of money. Money competes with other assets, including real capital, as a vehicle for holding wealth. The yield on money, its implicit advantages in liquidity and safety included, influences the returns savers and investor require of other assets. Consequently real interest rates are not independent of monetary phenomena. Keynes was particularly concerned, writing in the Great Depression, that the advantages of holding moneys and near-moneys would prevent interest rates from falling low enough to induce real investment sufficient to match the economy's potential saving [Keynes 1936, pp. 222-244]. Curiously, unlike Irving Fisher, Keynes did not note that price inflation was a way to lower the real return on money, probably because he saw that actual events were bringing deflation, moving the real return on money in the wrong direction.

IV. Syntheses of Neoclassical and Keynesian Economics

Two developments in macroeconomics subsequent to Keynes derived their impetus in large measure to the gap in understanding, language, and credibility between Keynesian theory and general equilibrium theory. These are first, the neoclassical synthesis, the mainstream macroeconomics of the quarter century after World War II, and second, more recently, formal disequilibrium theory.

The first might better be called the neoclassical neo-Keynesian synthesis. Several of its architects, notably Hicks [1946] and Samuelson [1948], were in the 1930s and 1940s active participants in the development and refinement of pure neoclassical theory. They were among the writers who were bringing at long last Walras, Pareto, and the continental tradition into

English-speaking economics. At the same time, living through the Great Depression, they were impressed by the realism and relevance of Keynes. In the cautious vein of older neoclassicals, they found the neoclassical paradigm useful for long-run trends but saw nothing problematic in departures from those trends for a variety of reasons, e.g. market imperfections, adjustment costs, information lags. These departures need not imply any irrationality or any permanent failure of markets to clear; the properties of full general equilibrium should not be expected to hold every day or every year.

Keynes's analysis looked like a good model of lapses from full employment equilibrium. Its long-run stagnationist pessimism could be dropped. It was empirically and theoretically unsound, the more so if Keynesian stabilization policies themselves reinforced the mechanisms that return the economy to its long-run growth track. The debate over Keynes's pretension to a permanent equilibrium with involuntary unemployment could be declared a draw; it was largely semantic and anyway operationally irrelevant. Keynes's comparative statics methodology worked well enough in the short run. Dynamics could be added. The structural equations could be both improved theoretically and tested and estimated empirically. Principles of neoclassical welfare economics could be applied to macroeconomic policy choices, correcting Keynes's intimations that wasteful make-work projects have zero opportunity cost when resources are idle and providing criteria for choices among the several instruments of macroeconomic stabilization available.

This "synthesis", however, did not still the complaints that macroeconomics could not be understood or believed because it had no firm "microfoundations". Its authors and practitioners were too busy with pragmatic macroeconomics to develop formally the several sources of market failure described by Keynes.

The second development, formal disequilibrium macroeconomics, presented Keynes's ideas in a manner designed to communicate them to general equilibrium theorists, though not necessarily to make them more acceptable.[1/]

In these models the vector of prices is, for reasons not explained, stuck at values other than the Walrasian general equilibrium solution. Agents -- consumers, workers, employers -- are constrained in their demands and supplies by the actual transactions they are able to consummate at these wrong prices. They cannot effectuate their "notional" demands and supplies -- the transactions they would choose to make at these prices if constrained only by their endowments -- because those will not clear the markets except at the "right" prices of the Walrasian solution. But the markets may nonetheless clear at some vector of quantities, which replace prices as the equilibrating variables. Finding this disequilibrium equilibrium, with agents solving their constrained optimization problems, is a task engaging the same mathematical techniques and analytical talents as standard general equilibrium theory. That is one reason why it seems to enable some theorists to understand what Keynes meant. The approach holds considerable promise. Perhaps some day it will fulfill Keynes's vision of a "general" theory, of which both his own and Walrasian equilibrium will be special cases.

As a contribution to macroeconomics, however, these models have so far added little new. Recall the "principle of effective demand" in Keynes, his stress on output variation as equilibrator of saving and investment, his concern that prices, specifically real wages and interest rates, are wrong. Why these points, clear enough in Keynes and in many subsequent expositions, suddenly become revelations when repeated in somewhat different language is a mystery. Nor have the repetitions altered or improved the substance of standard macroeconomic analyses of under-employment. Indeed they are in many

ways more primitive, neglecting monetary and financial markets, fiscal institutions and policies, intertemporal phenomena, and the dynamics of prices and wages. They also miss a basic point of Keynesian logic: there could be an underemployment equilibrium or disequilibrium even if prices happened to be the "right" ones for full Walrasian equilibrium.

The new models are, it is true, in some ways more general. They call attention to the possibilities and properties of outcomes neither Keynesian nor Walrasian, e.g. classical unemployment and over-full employment. They apply the fixed-price variable-quantity calculus to larger numbers of markets simultaneously.

In contrast to these two developments, a school of self-styled post-Keynesians regard any synthesis or reconciliation, in substance or in language, of Keynes and neoclassical economics as a betrayal of the revolution. They reject equilibrium analysis altogether, stress the historical, institutional, and evolutionary aspects of economic development, and emphasize the macroeconomic implications of the non-competitive structures of modern economies. Their valid points do not add up to a coherent theory, but many of them will have to be tackled in eclectic work in macroeconomics in future. Many mainstream Keynesian economists have long agreed that Keynesians macroeconomic cannot be grounded on pure or perfect competition in product and labor markets. As increasing numbers of them have come to the conclusion that wage and price controls or other incomes policies are at least occasionally necessary to prevent inflation at full employment, the practical gap between them and post-Keynesians has narrowed.

V. The Monetarist Counter-revolution

The quantity theory of money, the central proposition of monetarism, has two guises. One is the fundamental neutrality proposition discussed above. As there noted, the axiom that paper money is not held or valued for its own sake is unexceptionable but offers limited mileage in application to real-world monetary operations. The other quantity theory is a brand of pragmatic macroeconomics, methodologically similar to Keynesian theory and no less a specialized deviation from full-blown neoclassical general equilibrium. It too has a long history. For example, Irving Fisher breathed life into his famous identity, the Equation of Exchange $MV = PQ$ by analyzing and studying empirically the behaviors and institutions that determine the velocity V of the supply of transactions media M, and the properties of the economy that determine the division of MV impulses between price level P and quantity Q in short and long runs [Fisher 1911]. The influential monetarist resurgence under Milton Friedman this past quarter century follows the same tradition, though emphasizing subjective factors in money demand as well as transactions mechanics [Friedman 1956]. This movement I call Monetarism I to distinguish it from the later and theoretically purer Monetarism II, aka the new classical macroeconomics. Though Monetarism I borrows credence from the neutrality proposition, that proposition neither implies Monetarism I nor limits its applicability.

The debates of the last quarter century between Keynesians and Monetarists I concerned matters of substantial importance in macroeconomic policy, but from a theoretical standpoint they were internal to standard macroeconomics. They concerned: the theoretical plausibility and empirical validity of alternative specifications of aggregative equations and models; the relative usefulness of alternative languages, one based on the national

income = expenditure identity, the other on the Equation of Exchange; the plausibility of differing estimates of parameters, notably the interest-elasticity of money demand and the speeds of price and output adjustments in response to variations in aggregate nominal demand, MV; the reliability and stability of crucial behavioral equations, money demand and aggregate expenditure; the relative importance of money supply shocks and real demand and supply shocks in generating business cycle fluctuations; the role of expectations of monetary policies in generating inflation expectations affecting interest rates; and the empirical constancy of real interest rates. These are all important questions, with decisive implications for policy. Monetarists' answers to them led them to assign minor macroeconomic importance to fiscal policy, to oppose activist "stabilization" policies of any kind, and to advocate central bank policies focussed on steady growth of money supplies unmodified by concern for interest rates or any other variables. But they do not raise fundamental issues of theory and method. They are in principle, if not in practice, resolvable by established techniques of theoretical and econometric research in macroeconomics.

Inflation in the late 1960s and 1970s brought widespread support to Monetarism I, both inside and outside the economics profession. Keynesian theory was perceived to be incapable of explaining or foreseeing the inflation, and Keynesian policies to be incapable of arresting it. More and more people agreed with the monetarists that Keynesian economics actually promoted inflation.

The General Theory provides no theory of persisting inflation except in cases when real aggregate demand chronically exceeds the full employment output potential of the economy. For the usual case of underemployment, the theory explains why prices will be positively related to employment but not

why they might continue to rise with employment stable or even falling. Postwar periods of inflation at times when the economy did not appear to be at full employment underscored the gap. As a practical matter, it was filled by the Phillips curve, interpreted to offer a policy trade off between unemployment and inflation. Statistical findings that rates of wage and price inflation varied inversely to the unemployment rate were elevated into a structural equation of the model. As the economy approached full employment, the curve became very steep, approaching the vertical. While thoughtful devotees of the Phillips curve were aware that longer-run inflationary consequences of increases in employment would be greater than short-run impacts because of feedbacks from actual inflation on to expectations and patterns of wage settlement and price-settings, they were encouraged by initial empirical indications that such feedbacks were slow and incomplete. At the same time, they never believed that unemployment could be pushed indefinitely low without running into classic excess-demand inflation, as Keynesian theory itself envisaged when aggregate real demand exceeded full employment output. Indeed there was a long-standing belief among Keynesian economists that price stability could not be maintained at full employment without some form of wage and price controls or incomes policies. The empirical question, important for policy, was to identify the unemployment rate that indicated "full employment".

Milton Friedman's 1967 Presidential Address [1968] argued, as Phelps had independently argued shortly before [1967], that there could be no permanent trade-off of unemployment and inflation. Full employment, renamed the natural rate of unemployment, was the point of inflation stability, at whatever rate was consistent with the growth of money stocks. At higher unemployment rates, prices would be decelerating, and at lower rates accelerating. The moral for

policy was not to aim at any unemployment rate, or at any other real variable. Follow a stable monetary growth policy, preferably one consistent with price stability, and unemployment will gravitate to its natural rate, i.e. whatever it gravitates to will be the natural rate. Though not denying that monetary policies have real consequences in short runs, Friedman was now stressing more fundamental neoclassical propositions, the neutrality of money, than in the earlier monetarist-Keynesian debates. He had already moved in this direction when he tried to conclude the controversy over the relevance of the interest-elasticity of money demand to the efficacies of fiscal and monetary policies by saying in effect that it was irrelevant if prices were flexible and the economy was in full employment equilibrium [Friedman 1966]. In any case his Presidential address was the bridge from old monetarism to new.

Robert Lucas followed up and went further. He offered an interpretation of Phillips-curve statistical correlations that deprived them of indicating any tradeoff possibility exploitable by policy even in the short run [Lucas 1972]. That price increases are associated with gains in employment and production indicates only that workers and business managers were temporarily confused between relative prices and absolute prices. They mistook a general price increase due to a monetary shock for a favorable improvement in their real terms of trade. But the monetary authority cannot fool them for long. Markets clear at prices reflecting the best information, including anticipations and perceptions of policy, that agents have. This was the beginning of the most fundamental counter-revolution.

VI. Stagflation as a Test of Macroeconomic Theories

Was the stagflation of the 1970s a *prima facie* refutation of Keynesian macroeconomics? Economic theories and the policies based upon them stand or fall in professional esteem by their perceived congruence with large and long-lasting events. Gross and simple historical tests are much more persuasive than sophisticated econometrics. What Keynes called classical orthodoxy, exemplified by Pigou's theory of unemployment and by the famous or notorious "Treasury View", was discredited by the Great Depression, for which it appeared to have neither explanation nor remedy. Mainstream Keynesian macroeconomics itself gained credibility and converts over the first two decades after World War II from the prosperity and growth to which its policies were perceived to have contributed. But the Great Inflation and Stagflation of the 1970s, it is commonly asserted and believed, refuted this brand of macreconomics as decisively as the Great Depression undermined the classical target of the Keynesian revolution forty years earlier. Monetarism and the new classical macroeconomics were the counter-revolutions that benefited from the turn of events. They in turn are in danger of flunking the latest test, the disinflation and depression of the early 1980s, though it is too early to be sure or to identify the intellectual beneficiaries of the latest economic disappointments.

Is a verdict against Keynesian macroeconomics justified by the evidence of the 1970s? In two well read polemics, New Classical macroeconomics argue that the verdict is self-evident.[2/] NeoKeynesian theory of the 1950s and 1960s was just incapable of envisaging the combination of high and rising unemployment with high and rising inflation observed in the 1970s. The Phillips curve, embraced by Keynesians in the preceding decades, predicted not positive but negative correlation of inflation and unemployment. Nor was the

180-degree mistake, in their indictment, a harmless academic error. Keynesian policies, recommended and adopted in order to lower unemployment by riding up the Phillips curve, generated much more inflation than bargained for, while raising unemployment at the same time. In the review of my book cited above, Lucas expressed astonishment that an accomplice to such monumental error still speaks or writes about such matters in public.

What did Keynesian economists think in the 1960s about the relation of unemployment and inflation and about the dependence of both outcomes on macroeconomic policies? How and why did a curve through A.W. Phillips's scatter diagram [Phillips 1958] become a structural equation in theoretical and textbook models and in large macro-econometric models? Such a structural equation was needed to "explain" the inflation of the mid-1950s; that inflation, which peaked below 5%, may seem trivial in today's retrospect, but it caused considerable alarm at the time. It occurred at rates of unemployment, 4% plus, then regarded as too high to correspond to "full employment". Standard macroeconomic theory of that day did not envisage continuing, persistent inflation in an underemployed economy. Wage and price levels were supposed to be positively associated with employment, for reasons given in Chapter 21 of the General Theory. This relation implied that prices would be rising in cyclical upswings but would settle down if output and employment were stabilized. Continuing inflation, a wage-price spiral, would occur in response to an "inflationary gap", an excess of aggregate real demand over full employment output.

The disturbing observation of the 1950s was a wage-price spiral in the apparent absence of excess demand. This species of inflation was dubbed "cost-push" in distinction to the classic variety "demand-pull". Just naming the phenomenon and treating it as an unexplained exogenous event was

intellectually unsatisfying. The Phillips curve came along to fill the gap, attributing inflation to both cost and demand pressures simultaneously and avoiding the dubious knife-edge discontinuity of the "inflationary gap" model.

However, incorporation of the Phillips curve into the standard macroeconomic model did not imply that demand expansion could increase employment and production without limit, and always with definite and limited inflationary cost. There remained the notion of full employment, beyond which demand expansion would unleash wage-spiral inflation qualitatively different from Phillips curve inflation, engendered by excess demand not removed by price rises. There had long been a Keynesian theory of this kind of inflation, of its mechanics and its speed, provided by Keynes himself and subsequent contributions [Keynes 1940, Holtzman 1950, Koopmans 1942, Smithies, 1942].

Indeed Keynes himself and others had for a long time recognized that prices and their rates of increase were essentially indeterminate at levels of demand greater than or equal to full employment output. A common formula around Harvard in the late 1940s when I was a graduate student was that a modern mixed economy could not enjoy more than two of three desiderata: full employment, price stability, and freedom from wage and price controls.

The Samuelson-Solow article "Analytical Aspects of Anti-Inflation Policy" [1960] is frequently cited as a notorious example of the naivete with which Keynesians embraced the notion of a Phillips tradeoff exploitable in both long and short run by demand management policies. In truth, the authors were quite agnostic about the long run, and canvassed various possible ways that policy-induced movements along the short-run curve might shift the curve itself.

> [It] might be that ... low-pressure demand would so act upon wage and other expectations as to shift the curve downward in the longer run -- so that over a decade, the economy might enjoy higher employment with price stability than our present-day estimate would indicate. But also the opposite is conceivable. A low-pressure economy might build up within itself over the years larger and larger amounts of structural unemployment .... The result would be an upward shift of our menu of choice, with more and more unemployment being needed just to keep prices stable.

Subsequent history suggests that these were both reasonable concerns.

Even before the "natural rate" articles of Phelps and Friedman, some Keynesians were quite aware of the feedbacks from actually realized price and wage inflation via expectations and emulative or catch-up patterns on to subsequent inflation, of the implication that the Phillips curve is steeper and the tradeoff less favorable in the long run than in the short, and of the possibility that the long-run Phillips curve is vertical and allows no trade off at all. Let me quote Tobin writing in 1966 [Tobin 1967]

> Nor do we know the answer to the even more basic question whether continuation of 4 per cent unemployment would, so long as it generates any inflation, generate an accelerating inflation. This would be the orthodox prediction: Wages and other incomes rise because people want real gains, and the bargaining power of individuals and groups depends on the real situation. If they find that they are cheated by price increases they will simply escalate their money claims accordingly. On this view the Phillips curve would blow up if growth at a steady utilization rate were maintained. Only cyclical interruptions in the learning process have saved us from accelerating inflation. On this interpretation, the only true equilibrium full employment is the degree of unemployment that corresponds to zero inflation -- any higher rate of utilization can be called excess demand. This is a dismal conclusion if true, because it appears to take a socially explosive rate of unemployment -- more than 6 per cent in the U.S.A. -- to keep the price level stable.

What Keynesians of that day were not prepared to do was to identify as full employment equilibrium the point of price or inflation stability on the Phillips curve, or to believe that inflation or acceleration and deflation or deceleration are symmetrical consequences of deviations up or down from that point, or to accept the "natural rate" as a Phillips curve as an empirical aggregate summary of imperfectly competitive wage- and price-setting institutions and of disequilibrium adjustments rather than a description of the workings of Walrasian auction markets.

Was the combination of higher inflation with higher unemployment something that could never have been foreseen by the macroeconomic theories and models of the 1960s? The world-wide "wage explosion" of 1970-71 occurred during a recession. It could not be explained either by unemployment, which was rising, or by contemporaneous or recent price increases, which the wage gains overshot. But it was no surprise to Samuelson, Solow, and others who thought "cost-push" shocks could occur at any time. A "cost-push" shock, it was well understood, causes simultaneously more inflation and more unemployment, in proportions depending on the degree of policy accommodation. Thus a positive correlation of the two outcomes was not a complete novelty either in theory or in practice. No one in the 1960s foresaw the commodity price and oil shocks later in the 1970s or thought about the macroeconomic consequences of such shocks. The failure of foresight and imagination does no one credit, but it does make it difficult to speculate how an economist in the 1960s would have analyzed the case had it been presented to him.

The relevant question is not the one Lucas would hypothetically present. His question would be as follows: Observe as of 1969 the prospective true paths of money supplies during the succeeding ten years and say on this information alone what outcomes in inflation and unemployment you would

anticipate. This formulation conceals the reasons for the monetary expansions. They did not come out of the blue. They did not occur because central bankers wanted to ride up Phillips curves and to lower unemployment at some inflationary cost. They were accommodations, grudging and partial, of commodity price increases external in origin. These were prototypical stagflationary shocks, reducing aggregate demand and raising costs and prices simultaneously. They increased unemployment as well, the more so because they were incompletely accommodated. Had the monetary authorities not accommodated them at all, unemployment would have risen even more, at the same time that prices were rising faster. Nothing in this story is inconsistent with Keynesian analysis or warrants filing for intellectual bankruptcy.

As I understand Lucas and Sargent, they should not have expected a rise in unemployment in the 1970s had they been told in advance only the rates of money growth. Their best guess of the equilibrium unemployment rate in the 1970s would have been the average actual unemployment rate of the 1960s. They would logically have guessed that all the extra money creation would go into prices. Had they been told in advance of the supply shocks, they -- unlike Keynesians -- would have or should have expected shifts in terms of trade between oil and other goods to have no more than very transient effects on overall price indexes.

The 1970s caught us all, Keynesians and monetarists and new classicals, unprepared. But the decade is no decisive evidence for or against any school

of macroeconomics. VI. The New Classical Macroeconomics

Monetarism II aka the New Classical Macroeconomics aka Equilibrium Business Cycle Theory is not just a revival of pre-Keynesian neoclassical or "classical" macroeconomics. It is a more literal and sweeping affirmation of its assumptions. What theorists of those older times were content to regard as long-run tendencies their contemporary successors take to apply every day. Agents optimize continuously. Flexible prices clear all markets. The mythical Walrasian auctioneer functions perfectly. In the latter two respects the new classicals are at the opposite pole from the new disequilibrium school discussed above.

However, their models differ from those of full general equilibrium theory in two important and related ways, which I suppose qualifies them as macroeconomic models. Like Keynes they assume a monetary economy; money would have no place in an Arrow-Debreu world. Like Keynes, they assume the absence of most of the futures and contingent futures markets which complete the Arrow-Debreu version of general equilibrium.

Also as in Keynes, expectations play an important role in an economy where markets do not provide contractual insurance against all contingencies. Here the resemblance stops. Keynes thought for reasons recounted above that savers and investors could not have fully rational expectations of the future variables that would determine the outcomes of their decisions, because those outcomes will depend on the behavior and thus the expectations of others. In contrast, the new classicals take expectations to be unbiased forecasts, not themselves sources of shocks. In their models, expectations of the variables, both their mean values and other moments of probability distributions, are those which the models themselves would generate. The actors all calculate them from the same model, the one known to the author. Disturbances to the

system come chiefly from surprises in government policies. Rational expectations take the place of the missing Arrow-Debreu markets and enable the full general equilibrium to be realized.

New classical macroeconomic models rely heavily, even more uncritically than Monetarism I, on the neutrality of money. Though explicitly justified by the "units change" analogy [Lucas 1981, pp. 558-67], the proposition is applied to real world money supply operations and to short runs as well as long. Indeed in models designed to illuminate effects of policies, or rather their lack of real effects, M's are altered exogenously without specification of the transactions by which governments and central banks bring the changes about. The primitive way in which monetary and financial markets are modeled could be remedied, but not without peril to the more striking policy conclusions of the school.

An implication of money neutrality is a purely monetary theory of inflation. Friedman has told the world that inflation is everywhere and at all times a monetary phenomenon. Both brands of monetarism have ridiculed attributions of inflation to trade unions, OPEC shocks, taxes, and other non-monetary institutions and events. Paradoxically the "classical dichotomy" they thus embrace as explanation of inflation also implies that inflation is costless and painless. Yet the main appeal of monetarism is that, in contrast to Keynesian economics, it provides an explanation and remedy for inflation.

The methodology of new classical macroeconomics, like that of neoclassical general equilibrium theory, stresses the requirement that the behavior assumed of economic agents be rooted explicitly in individual optimizations. This is an especially rigorous requirement, because the new classicals regard the entire path of the economy as one of continuous, continuously changing, equilibrium. What less ambitious theorists might

regard as lagged adjustment behavior, which economic theory neither can nor need explain, the new classicals propose to bring within the tent of optimization. That is not easy, to say the least. Moreover, as I mentioned above, neoclassical general equilibrium theory is too general to yield conclusions, even as to the direction of effects, in macroeconomics or elsewhere. How can the new classicals, seeking even greater generality, do better? There are no free lunches for them either. When new classical models give definite conclusions about the effects of policies or other variations, they obtain them by simplifications. One short cut is to assume all agents are alike in preferences, endowments, or both; in advanced analyses two or three types of agents are assumed, with emphasis on their differences in age. Another short cut is to attribute to the agents special preference or utility functions of mathematical form tractable in carrying out the obligatory optimizations. These expedients enable the theorists to claim that their behavior equations have the microfoundations that are fatally missing from Keynesian and Monetarist I models. But what you gain on the swings you lose on the roundabouts.

Empirically the main challenge to new classical macroeconomics is how to explain as moving <u>equilibrium</u> the fluctuations in general economic activity we actually observe. The theory implies that labor "markets", for example, are in the same equilibrium, cleared by wages and prices, at 11% or 25% unemployment as at 3% or 5% unemployment, with the same balance of supply and demand. On the surface this seems to be refuted by all kinds of evidence, on vacancies, quits, layoffs, hours of work, and wage movements. Moreover, the theory has trouble accounting for the persistence of slumps and booms, rather than serially uncorrelated noisy wobbles around smooth trends [Okun 1980, Tobin 1980]. The two types of business cycle theory offered by the school

seem equally implausible. One is a completely real model, explaining fluctuations in employment and production as swings in tastes and technologies, evoking decisions to shift the timing of work and leisure. The other, building on Lucas's interpretation of Phillips curve statistics recounted above, finds the origins of fluctuations in unanticipated money supply policies. But these have real consequences only because of inadequacies and asymmetries of information arbitrarily assigned to market participants, and they have cyclical consequences only with the help of further arbitrary assumptions. Whether these are more or less objectionable, more or less "ad hoc", than the much-criticized Keynesian assumptions of wage and price inertia seems a question more of taste than of principle.

The emphasis of new classical theories on expectations, especially expectations of policy, rather than on inertia, made many economists and policy makers optimistic about "credible threat" policies for disinflation [Fellner 1980]. The idea was that government should make clear its determination relentlessly to diminish monetary growth to non-inflationary rates, whatever the consequences for employment and production. If this was understood, it was argued, wage and price inflation would decline much more quickly than in the past, when workers and business managers expected counter-cyclical monetary and fiscal policies to restore their markets. Both Prime Minister Thatcher in Britain and Federal Reserve Chairman Volcker in the United States recently followed this policy. Disinflation occurred all right, but it was no less fraught with painful real consequences than in recessions under prior policy regimes. The 1980s may be as difficult for monetarism as the 1970s were for Keynesianism and the 1930s for old style neoclassical orthodoxy.

VII. Supply-side Economics and Fiscal Orthodoxy

I turn finally to two other trends in current macroeconomic debate, important both within the profession and without, so-called "supply-side" economics and old-fashioned fiscal and financial orthodoxy. These are less novel in methodology and more diffuse in content than the identifiable counter-revolutions discussed above. They are renewed emphases of long-standing neoclassical themes, allegedly ignored or underrated in Keynesian and neo-Keynesian macroeconomics.

"Supply-side" economics is not a coherent theory. It has no great book or prophet, no Walras or Keynes or Friedman or Lucas. Its identification as a distinct counter-revolution comes from media enthusiasm for its simplistic label, which suggests that Keynesian macroeconomics went wrong in theory and practice by exclusive attention to the "demand side". In the policy debates of the late 1970s and early 1980s, the supply-siders' diagnosis was that government spending, taxes, and regulations were retarding economic growth. Their prescription was to reduce drastically government presence in the economy in all these dimensions. In these conclusions supply-siders agreed with other conservative counter-revolutionaries. However, they disagreed sharply on tactics. While traditional orthodoxy argued for lowering public expenditures and receipts in step, supply-siders proposed to lower taxes first, recognizing that lowering expenditures is more difficult politically and administratively. Sometimes this tactic was rationalized by the judgment that politicians will spend less if they have smaller tax receipts and face large deficits. But more typically supply-siders argued that deficits do not matter very much -- a point of view that ironically allied them with Keynesians -- and would in any case be removed by the economic growth the tax reductions would stimulate [Ture 1980, Wanniski 1975 and 1978].

This claim took the form of the famous Laffer curve, employed to assert that in our over-taxed society lowering tax rates will actually raise revenues. A slightly more modest claim was that the lower rates would evoke enough extra saving to make up for any net loss of tax receipts, so that public sector borrowing requirements would not be greater. These propositions are reminiscent of the more extravagant claims of demand-side pump-primers, not generally accepted in Keynesian analyses of fiscal policy. The supply-siders were, however, relying not on the re-employment of idle resources, but rather on additional economic activity and productivity in full employment equilibrium. The distinction has become blurred in fiscal policy debates in 1982 and 1983, when the economy has been depressed.

Although monetarists generally share supply-siders' aversion to government, supply-siders perceived that monetarist anti-inflation policies could hamper their scenario for economic growth. Specifically, recession and high real interest rates could nullify the incentives of "supply-side" tax cuts for investment, enterprise, risk taking, and work. As this actually happened in 1981-83, supply-siders found further affinity to their Keynesian enemies.

As for disinflation, however, the supply-side alternative to unadulterated monetarism clearly could not be the incomes policies favored by some Keynesians. Instead, some supply-siders offered the hope that productivity growth stimulated by their tax cuts would do the job, a prospect even less likely than Laffer curve miracles. Their monetary solution was to return to the gold standard, a discipline which was supposed to have the same salutary self-fulfilling effect on expectations as the "credible threats" of relentless monetary restriction advocated by new classical rational expectations theorists [Mundell 1981].

Stripped of its more ludicrous cocktail-napkin extravagances, supply-side economics simply emphasizes the familiar incentive and substitution effects dear to standard neoclassical economics and attacks the distortions or dilutions of these effects by taxes, transfer payments, and regulations. Its more sober protagonists describe it as simply "good microeconomics" [Penner 1981]. Since theorists of all persuasions acknowledge incentive and substitution effects, the main issues are quantitative: Are these effects empirically as large as the supply-siders' estimates?

The more sophisticated practitioners of supply-side economics regard it as the application of neoclassical public finance theory. Given the government's programmatic requirements, there is no way to avoid some distortions of price signals. There is no way to collect taxes or make transfers in "lump sums", i.e. in ways which would not give households and businesses some inducements to inefficient tax-avoiding or transfer-increasing behavior. The problem is to find the "second-best" welfare economic solution. Some ways of collecting revenues and making transfers and other outlays create fewer distortions than others.

Of course a final judgment cannot be reached without considering distributional effects too. Supply-siders, sometimes explicitly but often implicitly , feel that in the past redistribution has been overemphasized with blind disregard of allocational distortions. Furthermore, they call specific attention to the possibly inadvertent extra distortions caused in the 1970s by the interaction of inflation with tax codes written in nominal dollar terms [Feldstein 1983].

It is fair to say that Keynesian and neo-Keynesian macroeconomics, in its focus on the massive market failure it attributed to inadequate aggregate demand and to involuntary unemployment of labor and existing capital,

underplayed the allocational effects of relative prices, as distorted by taxes and transfers, on labor supply, unemployment, saving, investment, and portfolio choice. But these matters were certainly not entirely ignored [Hall and Tobin 1955]. In the neo-Keynesian neo-classical synthesis, they arose in the context of long-run growth and therefore in the choice of instruments for short-run demand stabilization. It was after all the Kennedy administration, in the hey day of neo-Keynesian influence on policy, which introduced the investment tax credit and lowered top-bracket marginal income tax rates. Likewise neo-Keynesian theorists advocated a mix of fiscal and monetary policies combining tax disincentives to consumption with monetary low-interest incentives to investment, as a means of allocating more resources to capital formation in order to promote long-run growth.

Prior to the coining of the "supply-side" slogan, revisionist thinking in the same spirit had substantial influence in macroeconomic policy debate. A central issue throughout the 1970s was the upward drift of actual unemployment rates and of the rates apparently consistent with stable inflation. How much unemployment was involuntary and "Keynesian", how much was voluntary or frictional? A new view arose, which attributed increasing amounts of unemployment to voluntary search or personal choice, influenced by unemployment compensation and other transfer programs, and by minimum wages and other regulations. In its strongest form, this new view alleged that most unemployment was of short duration, caused little discomfort to the unemployed, and was neither a social problem nor a condition remediable by macroeconomic demand management [Feldstein 1978, pp. 155-158].

Another revisionist argument challenged the policy-mix recommendation of the mainstream Synthesis, and this too stressed the importance of tax distortions magnified by inflation. Residential investment, it was argued,

was heavily subsidized by the deductibility of nominal mortgage interest and the freedom from taxation of implicit rental incomes on owner-occupied homes. On the other hand, non-residential investment, much more strategic for economic growth, was penalized by the inadequacy of depreciation allowances and the taxation of purely nominal capital gains on inventories and other assets. Consequently the recommendation was for a tight money policy to control inflation and to deter over-investment in housing via high real interest rates, accompanied by tax concessions to stimulate saving and fixed business investment [Feldstein 1980, pp. 182-6].

This recipe was consistent with another proposal, advanced under the supply-side banner. The idea was to pursue a high-interest-rate tight monetary policy in order to appreciate the exchange rate, gaining counter-inflationary headway by lowering the domestic prices of internationally traded goods. This would reduce the country's trade surplus or increase its trade deficit. The compensating increase in demand would be obtained by an "easy" fiscal policy, achieved by supply-side tax cuts [Mundell 1975]. The troubles with this recipe are several: It is not a game that every country can play; one country's lower prices of traded goods are another country's higher prices. Anyway, the price advantage occurs only once; continuing counter-inflationary help requires continuing appreciation of the currency resulting from an ever wider interest differential above the rest of the world. Finally, since this policy mix crowds out foreign investment in favor of domestic uses of resources, its effect on the growth of future consumption opportunities is not necessarily favorable.

Fiscal and financial orthodoxy has been a durable opponent of Keynesian theory and policy. It has received a new lease on life in the contemporary climate of disillusionment with government. The focus is on two major points,

limiting the size and growth of government and balancing the government budget. Government, it is alleged, tends to become too big because of a bias in the politics of representative democracy. The gains from specific public expenditures, purchases of goods and services or transfers, are concentrated on minorities with intense special interests. The costs are widely diffused, and therefore have inadequate weight in the budgetary process. In legislatures the organized interest groups prevail over the unorganized taxpayers. The costs may be further diffused and disguised by deficit financing, postponing the taxes to future years and future generations or substituting inflation for taxes honestly and explicitly enacted. For these reasons, the orthodox view condemns Keynesian economics for attempting, with considerable success, to eliminate the discipline of the norm of balancing the budget [Buchanan and Wagner 1977]. To restore and solidify the balanced budget norm and to overcome the alleged political bias toward large and growing government are the purposes of constitutional amendments recently proposed, favored by more than thirty state legislatures and by the U.S. Senate.

A macro-economic argument against deficit financing is that it "crowds out" private investment in favor of public and private consumption. This is also an argument against pay-as-you-go social retirement insurance -- it replaces private saving without substituting any public saving [Feldstein 1976]. The Synthesis agrees that crowding out can be a problem at full employment. Indeed this is the basis for its recommendation of an easy-money-tight-budget policy mix. The orthodox view, however, is not so discriminating as between situations of underemployment and full employment. Keynesians would not worry about "crowding out" in situations where idle resources are available both for government and private use, and where their

re-employment would generate the saving to finance both government deficits and private investment. This is an ancient controversy. During the Great Depression the orthodox economists of the U.K. Treasury opposed Keynes's public works proposals on the grounds that they would simply substitute public employment for more productive private employment [H.M. Treasury 1928-9]. The famous "Treasury View" was echoed in the U.S. at the time, and it has recurred in every recession, including that of 1981-82.

In this respect fiscal orthodoxy differs from some other strands of contemporary conservative economics. Supply-siders, as already noted, are not so worried about deficits and advocate a bold tax-cutting strategy for stimulating investment. For a different reason, some new classical rational expectations theorists are not at all worried about crowding out. They argue that rational taxpayers will save enough to pay postponed taxes, so that the macroeconomic effect of government expenditures is the same whether they are financed by contemporaneous taxes or by borrowing [Barro 1974].

IX. Optimistic Conclusion: A New Synthesis?

The present disarray of world economies, macroeconomic policies, and macroeconomics itself is certainly disheartening. But I am an optimist at heart, and I feel that the worst is over. The unprecedented shocks that generated economic turmoil from 1966 to 1980 are not likely to be a recurrent feature of the economic environment. In a more benign climate public opinion will not support ideological extremes and simplistic nostrums. Policies will be more pragmatic and more respectful of hard-learned lessons of the past.

Within professional macroeconomics, the slow but trustworthy internal discipline of our science will prevail over our methodological and doctrinal conflicts. The developments I have reviewed here, revolutionary and

counter-revolutionary as many of them are, have already inspired serious theoretical and empirical research transcending those divisions. The objectives, common to scholars across the whole spectrum, are to understand and model more satisfactorily the roles of expectations and inertia; the reasons for explicit and implicit contracts and for their absence, and for the inclusion of some contingencies and the neglect of others; the setting of prices and the processes of search in the absence of Walrasian auction markets, and the role of quantity variations in balancing demands and supplies. Eventually, I should think in the 1990s, a new synthesis will replace the present disarray of macroeconomics.

Footnotes

1. The seminal article is by Clower [1965]; Leijonhufvud [1968], Grossman [1971], Barrow and Grossman [1971] developed the theme. It has been the focus of a group of French theorists, whose prolific work is well summarized in Malinvaud [1978].

2. Notably in two well read polemics, one by Lucas and Sargent [1978], the other Lucas's review of a book of my own [Lucas 1981, pp. 558-67].

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