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THE AMERICAN KEYNESIANS

John Maynard Keynes, wrote John Kenneth Galbraith (1908–2006) at Harvard, was long held suspect by his colleagues because of the clarity of his writing. But "in *The General Theory* … he redeemed his academic reputation. It is a work of profound obscurity, badly written and prematurely published."[1] Perhaps fog is to be expected when one sails into uncharted waters. Keynes struggled to avoid comparison of the *General Theory* with his earlier literary efforts such as *The Economic Consequences of the Peace*. In the struggle, Keynes succeeded all too well, and Keynes's classic begat a host of interpretations. Still, the Keynesian Revolution moved through the Crimson gates of Harvard into America.

Two loosely chartered schools of "Keynesians" can be discerned in the mists. Beginning here, we turn slowly to the neo-Keynesians, the more diverse Post Keynesians, and the New Keynesians, more or less in the order of modernization. "Neo-Keynesian" is itself a neo-term, but the position defining the school is not. It belongs to the new generation of economists growing up during the Great Depression and, then, emerging from the fire and smoke of World War II.

According to James Tobin (1918–2002), 1981 Nobel Prize winner and a neo-Keynesian, the basic issue is whether there are market failures of a macroeconomic nature in a market economy. Neo-Keynesians think there are and that the government can do something about them. They think that demand management policy can assist the economy "to stay close to its equilibrium

[1] J. K. Galbraith, *Money: Whence It Came, Where It Went* (Boston: Houghton Mifflin, 1975), pp. 217–128.

track."[2] Their policy recommendations are in the spirit of Keynes. Broadly still, two branches of neo-Keynesians have emerged — fiscal Keynesians and neoclassical Keynesians. But, first, let us consider the dramatic changes in the American economy that was the cauldron for the American Keynesians.

WORLD WAR II TRANSFORMS THE AMERICAN ECONOMY

Depression and war not only transform economies, they change minds. John Maynard Keynes was not the only writer to anticipate a second world war. The novelist Thomas Mann, born in Germany in 1875, published the prescient *Mario and the Magician* in 1929. In this tale a German family is marooned in late summer in a quintessentially European hotel. Staying longer than it had intended, the family goes to a performance by a famous magician. The magician, apparently a fraud, nonetheless holds his audience with a strong power that they cannot resist. The family wants to leave, but cannot; something holds them in their chairs. Mario, who is humiliated by the magician, obtains his revenge, but it gives neither he nor those who respect him any satisfaction. There is no remedy: There is only the hope that the performance will end sometime, although it may go on forever.

Mann's story is about Fascism, which had already overtaken Italy and had influenced many Germans. He had seen the "masters of deceit" and believed that people would have difficulty distinguishing between reality and illusion. In 1933 Hitler's government forced Mann into exile; in 1944 he became an American citizen.

Ernest Hemingway (1899–1961), the American novelist, experienced warfare up close, being seriously wounded at age 18 during World War I. Thereafter, living in Paris in the 1920s, F. Scott Fitzgerald already was famous, but Hemingway was about to emerge

[2] Arjo Klamer, *Conversations with Economists* (Totowa, N. J.: Rowman & Allanheld, 1984), p. 101.

from his shadow. Hemingway's novel, *The Sun Also Rises*, was about that "lost generation" of Americans living in Paris after World War I. In *A Farewell to Arms*, he mixed romance with heroic male exploits and, in still other works, captivated a male generation that saw World War II as a "good, just and necessary" battle. His wartime experiences eventually led Hemingway to see virtue in collective action. In his 1937 *To Have and Have Not*, its dying hero gasps, "One man alone ain't got … no chance." Later, in *For Whom the Bell Tolls*, Hemingway makes a plea for human brotherhood.

Certainly, the *children* of the Great Depression and the veterans of World War II did not compose a lost generation. Even the so-called literary "lost generation" did not really believe that. They learned from life what Hemingway's hero had learned from death. They learned new skills and they gratefully went to college on the G. I. Bill. Some of these men learned about Keynes at Harvard University and became the leading economists of the next generation. James Tobin, among the others, had left Harvard to go off to war for four and a half years, and then returned to graduate. A very young Paul Samuelson and a slightly older John Kenneth Galbraith already were teaching there, as well as the much older Alvin Hansen, Edward Chamberlin and Joseph Schumpeter.

Robert Solow, who had remembered from his childhood the unpleasantness of the Great Depression for his family and others, came to Harvard in 1940. When the war came, it seemed more important than studying and he joined the army at the end of 1942 at the age of 18, only to return in 1945 to study economics. Alvin Hansen and these younger personalities, who believed that "one man alone" didn't have a chance, will play major roles in the story of American Keynesian economics. According to Solow, it was his three years as a soldier that formed his character, one that sought tight-knit groups, doing hard jobs with skill and mutual loyalty.

Much as World War II had molded a new generation of economists, it also greatly altered the American economy. This time — unlike World War I — a postwar depression was avoided. Rather,

after postponing consumption for 16 years, through depression and war, Americans put their accumulated liquid assets into houses, automobiles, and other durables. The G.I. Bill also helped to feed the expansion, and the country rediscovered consumer credit. Finally, the Marshall Plan to rebuild European factories guaranteed that the Allies would buy American products in the meantime. These economists were a part of what Tom Brokaw would call *The Greatest Generation* (1998).

During the war an immense arsenal of federal programs had emerged. Besides the military services within the War Department, there were the War Manpower Commission, the War Production Board's Controlled Materials Plan, the War Labor Board, the Office of Price Administration, and many more. Directives were issued and resources moved around. The New Deal already had enlarged the federal government's role in the economy: World War II confirmed its lasting presence.

The Employment Act of 1946, which established the President's Council of Economic Advisers, proclaimed "the continuing policy and responsibility of the Federal Government to use all practical means … to promote maximum employment, production, and purchasing power." It was a Keynesian document, written by New Deal Democrats and signed by President Harry S. Truman, but it had bipartisan support. President Dwight D. Eisenhower, the first Republican president since Herbert Hoover, initiated public works spending to fight the recession of 1953–1954. The recession of 1957–1958 witnessed still greater reliance on public spending and social insurance.

Keynes had come to the White House in 1934, only to be misunderstood. As President Franklin D. Roosevelt put it, he had neither time nor need for "fancified mathematicians." Keynesians nonetheless were to dominate economic policy during the first two post-war decades, beginning behind President Roosevelt's back. Like other Americans of their generation, the Keynesians had come of age during years of economic hardship, had had their lives

disrupted by the war, and had matured in national service. And they were tied together by friendship.[3]

THE FISCAL KEYNESIANS

When Keynes came to America, his most important recruit in the later 1930s was Alvin H. Hansen, a Harvard professor initially critical of Keynes' *General Theory*. Since Hansen was a prestigious figure in American academia, the economic establishment could ignore neither his tardy endorsement of Keynes nor the views of his students, among whom was Paul Anthony Samuelson.

Samuelson's textbook, *Economics: An Introductory Analysis*, first published in 1948, aroused a storm of dissent for its devotion of so many pages to Keynesian theory. Ultimately, however, it was to instruct millions around the world first in fiscal and then in neoclassical Keynesianism. The transition between the two strains of American Keynesianism was made possible by a more technical book by Samuelson and his subsequent endorsement of the neoclassical strain in a later edition of his textbook. Above all, Samuelson's revolutionary textbook made Keynes an accepted part of American economic thought. And it did as Keynesian approaches were becoming more operational with the appearance of national income statistics, themselves a byproduct of Keynes' theory.

Paul Anthony Samuelson: Enfant Terrible Emeritus

Paul Samuelson went on to become the 1970 Nobel Memorial Laureate of Economic Science and one of America's most esteemed liberal economists. Born in 1915 in Gary, Indiana, a company town created by U.S. Steel, Samuelson got an early practical lesson in the

[3] The entertaining story of how Keynes came to America is related by John Kenneth Galbraith in his *A Life in Our Times: Memoirs* (Boston: Houghton Mifflin, 1981) as well as in his *The Age of Uncertainty* (Boston: Houghton Mifflin, 1977), pp. 211–226.

Keynesian multiplier: As the steel mills flourished, his father's drugstore business also grew. His family later moved to Chicago, and Samuelson attended the University of Chicago, even then the fountainhead of a laissez-faire economics and sufficiently right of Adam Smith to make him seem like a mercantilist.

In 1940, Samuelson, a mere instructor in the economics department at Harvard, sailed down the Charles River to a full professorship at the Massachusetts Institute of Technology (MIT). The short, curly-red-haired young man became a very popular teacher, noted for his wit and erudition. At the end of World War II, Samuelson began teaching basic economic principles, and out of this course his textbook evolved.

It is not possible to overstate Samuelson's effect on American economics, even as a young man. His lively *Economics* popularized the idea, despite its then radical nature, that unemployment could be ended by the intentional creation of governmental deficits. *Economics* dominated postwar undergraduate teaching in the field, much like Alfred Marshall's text during the early 20th century. It was rare to find any other textbook in freshman and sophomore classrooms. An adviser to President John F. Kennedy during the early 1960s, Samuelson thereafter wrote a column for *Newsweek*. He was considered sufficiently radical during the Nixon Administration to win a place on the infamous "enemies list." Among liberals, being on this list made one honest and authentic. As already noted, Samuelson went on to win the Nobel Prize in Economics in 1970.

By most accounts, the Kennedy Administration was the high tide of applied U.S. Keynesianism. President Kennedy had appointed a gifted Council of Economic Advisers (CEA) headed by the bright, personable, and persuasive Walter W. Heller (1915–1987). Heller, born in Buffalo, New York, graduated from Oberlin College (1935), and went on to a PhD at the University of Wisconsin (1941). Heller chaired the CEA during 1961–1964. A second member of the CEA was James Tobin (1918–2002), later winner of the 1981 Nobel Prize in economics for his analysis of financial markets and their relations to expenditure decisions, employment,

production and prices. In turn, a star-studded Council put together arguably the best supporting cast of economists in history, including 1987 Nobel Prize winner Robert Solow of MIT; Charles Schultz from the University of Maryland, and Lester Thurow, later dean of the MIT business school.

President Lyndon B. Johnson with Walter Heller's able assistance, shoved through a willing U.S. Congress a fiscal Keynesian program, centered on tax cuts and credits, after John F. Kennedy's death in 1963. (By then, Charles Schultz was LBJ's Budget Director.) The powerful economic performance that followed was textbook fiscal Keynesianism.[4] Samuelson's intellect and his report to President-elect Kennedy had carried the day, cementing his influence on the fiscal Keynesians. Looking ahead, we will find that later editions of Samuelson's *Economics* as well as an abstruse mathematical treatise by Samuelson were to influence neoclassical Keynesianism. But, let us not get ahead of our story.[5]

The Keynesian Cross

Samuelson's 1948 version of Keynes's thought became associated with the "Keynesian cross," the intersection of Keynes's aggregate demand function and a 45-degree line, a line from Samuelson's *Economics*. Samuelson viewed the Keynesian cross as having significance as great as the Marshallian cross for demand and supply curves, because it provided the basic orientation for post-war fiscal policy.

The Keynesian cross (Figure 1.1a) is drawn "as if" production technology and the size of the labor force were unchanging givens.

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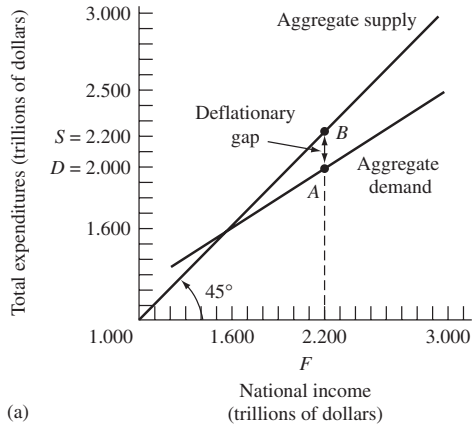
[4] For much more detail on the economics of John F. Kennedy, see E. Ray Canterbery, *Economics on a New Frontier* (Belmont, CA: Wadsworth Publishing Co., 1968).

[5] In a very early and widely ignored technical article, Samuelson also "closed" Keynes's investment-income model. See Paul A. Samuelson, "Interactions Between the Multiplier Analysis and the Principle of Acceleration," *Review of Economics and Statistics*, **21**(2), 75–78 (May 1939).



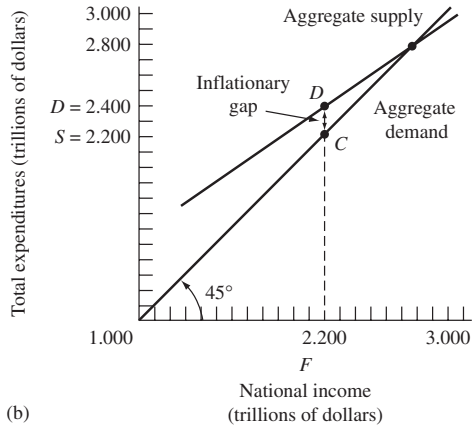


Figure 1.1 The Keynesian Cross: Deflation (a) and Inflation (b)

All values are expressed in current money terms. On the vertical axis is the total dollar value of expenditures for consumption and investment goods. On the horizontal axis is the dollar value of national income or product.

There are two posts to every cross. The aggregate demand post is the total amount of expenditures for consumer and investment goods that will occur at particular levels of national income. As Keynes surmised, total demand rises with national income, but not

in a one-to-one fashion. The aggregate or total supply post in the Keynesian cross alternately titled the "45-degree model," shows that as national income rises, the dollar value of goods and services potentially supplied rises by the same amount. That is, every time incomes received rise by one dollar, the total available goods and services also rise by a dollar. This is virtually a "Keynes law" wherein "demand creates its own supply."

Consider an economy in which full employment (everyone who wants a job at prevailing wages has one) requires a national income of $2.2 trillion (Figure 1.1a). But, alas, the national income cannot reach that high. In national income equilibrium, expenditures must exactly equal the dollar value of goods and services. This condition is met at an income level of $1.6 trillion. With the national income at $2.2 trillion, the dollar value of goods and services supplied (*S*) would be $0.2 trillion in excess of the total demanded (*D*) at that national income level. Samuelson referred to this condition, the distance *AB*, as a *deflationary gap*.

True to Keynes, government expenditures could close the deflationary gap and induce full employment if they reached a net level of $0.2 trillion. That would raise total demand to $2.2 trillion (point *B*). The seemingly magical multiplier (of 3) would increase national income from $1.6 to $2.2 trillion or by $0.6 trillion. Then the equilibrium level of national income *and* full employment would be simultaneously achieved at $2.2 trillion. So, having suffered the despair of the Great Depression, policymakers clung to the old Keynesian cross, for it promised an end to the suffering from unemployment and to massive uncertainty.

However, a depressed economy is something of a special case. In "normal" times, when national income is stimulated by fiscal policy, part of the increase comes from rising prices and part from increased goods and services — more tons of steel, more hours of accounting. The cross diagram cannot distinguish these two sources; it cannot tell real increases in national income (from higher productivity) from nominal increases (higher prices). Samuelson and the fiscal Keynesians ignored this limitation and

proceeded to use the diagram to explain purely inflationary conditions.

Suppose that the conditions of the economy are those of Figure 1.1b. Then the level of national income required for full employment ($2.2 trillion) is to the left of national income equilibrium, which is now at $2.8 trillion. Samuelson referred to the distance CD as an *inflationary gap*. Here, the dollar value of national income at equilibrium is obviously inflated, because if there is no surplus of workers, the goods and services on hand must be rationed by the raising of prices. The total dollar demand of $2.4 trillion at $2.2 trillion national income is $0.2 trillion *greater* than the total dollar value of supply.

In such cartoon Keynesianism, the only cause of inflation is too much demand relative to supply — too much air pumped into the industrial balloon. (Other writers, with other metaphors, have called this variety of inflation *demand pull.*) Faced with ballooning prices, the Keynesian policymaker simply reverses the stimulative, anti-depression policy of Keynes. If total demand can be reduced (to $2.2 trillion in this example), prices will descend to their previous level.

The prescribed policy then would be to partially deflate the balloon with cutbacks in government spending, increases in tax rates, and upward movements in the interest rate — all ways to diminish spending on durable goods. In the parlance of those times and since, a "tight federal budget" and "tight money" deflate the economy.

As we move from theory to policy, this balloon theory of prices is shown to be full of hot air. For the model to work, the entire amount between the stable-price national income ($2.2 trillion) and the actual national income ($2.8 trillion) has to be price inflation: pure hot air. Otherwise, when restrictive monetary and fiscal policies caused national income to fall, production would also be reduced, and so would the employment associated with that production. The balloon would not descend gently.

The Phillips Curve

In fiscal Keynesianism, there is not supposed to be a trade-off between inflation and unemployment. But there is. A. W. Phillips, an economist from down-under, looked up, saw the anomaly, and drew the Phillips curve. It relates the percentage of change in the money wage rate and the associated cost-of-living inflation, on the vertical axis, with the unemployment rate on the horizontal axis (Figure 1.2). Wage inflation does not translate into price inflation until it exceeds the long-run rate of productivity growth (about 3 percent per year in Figure 1.2).

The Phillips curve amendment was awkward for the economists. The solution to the Keynesian national income model was no longer neat and tidy as, for example, Newtonian mechanics. Either reality had to be changed or else the science of economics. Reality, of course, is much more difficult to deal with or, as Winston Churchill might have said, with which to put up with.

The shape of the Phillips curve presumably reflects competitive labor markets. During booms the enhanced demand for labor drives

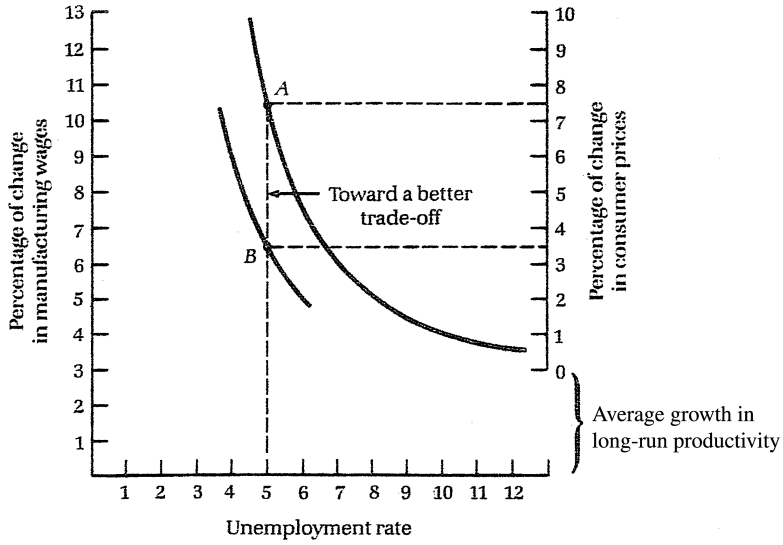


Figure 1.2 The Phillips Curve

up the rate of increase in wages, which translates into higher production costs and higher product inflation rates. (Wages comprise the largest share of production costs.) At such times the unemployment rate falls. The opposite sequence follows during slumps.

Applied to the U.S. economy of the 1950s and 1960s by Samuelson and Solow, the Phillips curve showed the trade-off for lower unemployment rates to be indeed inflation. Furthermore, the relationship was presumed to be stable. This was not good news for voter-conscious presidents, who hoped to have both low inflation *and* low rates of unemployment. If the real world were like the right-hand curve in Figure 1.2, a policy reducing inflation from 7.5 percent to 3 percent would raise the unemployment rate from 5 percent to 7 percent. For the incumbent, that could mean "Goodbye, Washington DC."

For the fiscal Keynesians there was a slight glimmer of hope: Compared to earlier periods, the 1950s and 1960s showed a modest rightward shift in the curve (toward more inflation and more unemployment). If the curve could shift right, why not left — Keynes's favorite political policy direction. Was it possible to alter the behavior of individuals and institutions important in placing the curve's position? If the shift leftward resulted in a curve parallel to the old one (as illustrated in Figure 1.2), the inflation rate would fall from 7.5 percent (point *A*) to only 3.5 percent (point *B*) while the unemployment rate remained constant at 5 percent. Of course, a society would prefer less inflation if it meant a stable unemployment rate. But as long as inflation remained modest, the electorate could remain content. However, economics is almost always more demanding than politics.

Toward the Hicks-Hansen Synthesis

Paul Samuelson was not to embrace neoclassical Keynesianism at its conception. A long time lapsed between the sowing of the seeds of neoclassical Keynesianism and the growth of the new branch. We have become accustomed to this idea: Change in a science is

gradual because of the intellectual powers of the defenders of the old orthodoxy.

The *General Theory* was barely in the hands of the public when Professor John R. Hicks, an English economist (and 1972 Nobel Prize winner), recast its message in neoclassical terms. Hicks followed the classical and neoclassical tradition of seeing all variables as *real*. Thus, in the Hicksian version all the values in Figure 1.1 would be adjusted by a price index. For policymakers confronted with inflation this alteration compounds the difficulty: They must describe the causes of price inflation where no prices are present!

In Marshallian economics, Keynes had noted, investment and saving alone were inadequate to account for the interest rate, but they could join with the interest rate to predict the level of income, or with the level of income to predict the interest rate. As Keynes's explanation of the interest rate was incomplete, Hicks merged Marshall with Keynes, devising what became, in the textbooks, the *IS-LM* framework. The entire economy was reduced to only two curves crossing at a single point, telling the world the value of the interest rate *and* the national income.

Most wonderful of all, equilibria are found simultaneously in the money *and* the goods markets. Almost magically, a single interest rate equates the money demanded with its supply and, at the same time, the goods demanded with those supplied. Hicks demonstrated the *possibility* of simultaneous equilibrium in the money market between the demand and supply of money and in the goods market between investment and saving.

A Transition from 45° to *IS-LM*

Hicks's model acquired in the fullness of time a highly lettered name, the *IS-LM* model. The devil is in the details. The *IS* curve represents Samuelson's 1948 version of Keynes's thought that became associated with the "Keynesian cross," the intersection of Keynes's aggregate demand function and a 45° line, a line from Samuelson's *Economics*. The cross was so popular that it approached

biblical status (at least in economics). If Mel Gibson had produced *The Passion* in 1950, the Keynesian cross might have made it into the film. Aggregate demand and aggregate output are equal only at points along the 45-degree line. Samuelson and his American Keynesian followers *now* viewed the Keynesian cross as having significance as great as the Marshallian cross for demand and supply curves, because it provided the basic orientation for post-war fiscal policy. And, of course, they were correct, if short of God-like. Unlike Copernicus's deathbed view of the earth's rotation, the fiscal Keynesians would not recant, but later they would amend with estimates of the Phillips curve. An important further caveat is called for. The Keynesian cross is drawn "as if" production technology and the size of the labor force were unchanging or givens.

THE NEOCLASSICAL KEYNESIANS

Samuelson's *Foundations*: The Micro-Foundations of Macroeconomics

As we have said, Paul Samuelson's stature and style in economics also were to influence the neoclassical branch of Keynesian. There exists, of course, a reason for this. American economists, hypersensitive about their economics being a "science," seldom win praise within their own profession solely for contributions to public policy, public debate, or education. Walter Heller never won a Nobel Prize, not did John Kenneth Galbraith, whose domination of economic thought into the 21st century surely qualified him.

Among economists, Samuelson's stature is derived from his arcane *Foundations of Economic Analysis* (1947), the book most responsible for making mathematical economics part of mainstream economics scholarship. *Foundations* is mostly *micro*economics, but its mathematics and focus on equilibrium mesmerized the neoclassical Keynesians. *Foundations* takes Marshall's crude mathematics from the footnotes of his *Principles*, brings the mathematics up to date and in line with advances in thermodynamics, and then converts it

to main text. *Foundations* expresses Marshall's economic essentials in pristine, resolute, unassailable mathematical form. We will return to more details about *Foundations* in Chapters 3 and 4.

The Hicks-Hansen Synthesis

In the *IS* curve *I* stands for investment and the *S* for saving; the *L* stands for liquidity preference (demand for money) and the *M* stands for money. Since national income is in equilibrium (as in Keynes' theory), saving (S) equals investment (I) at each level of equilibrium income (Υ). Since the money market is in equilibrium, the amount of money demanded (L) equals the amount supplied (M). The *IS* and *LM* curves of Figure 1.3 are constructed from these conditions.

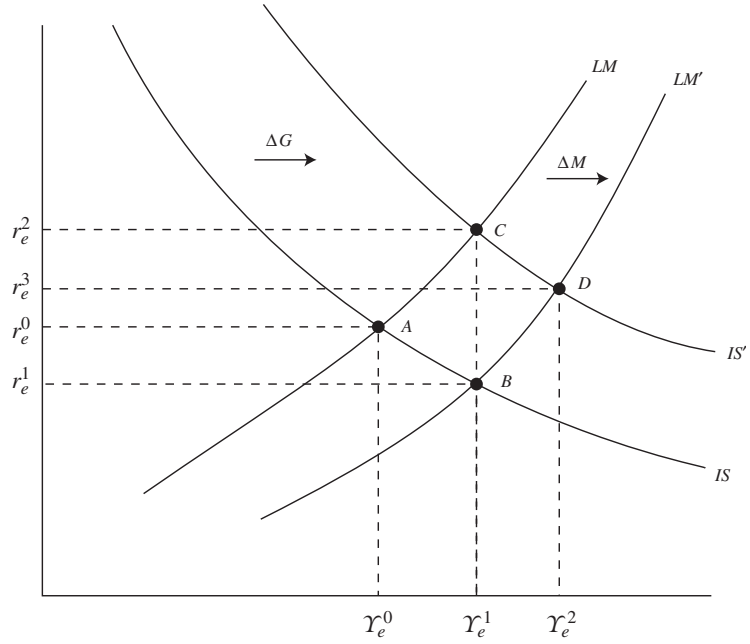


Figure 1.3 The *IS-LM* Model and Policy Shifts

Hicks's *LM* curve traces out the possible national income and interest rate combinations at which a fixed money supply just equals the preference for liquidity (demand for money). Hicks simply did not buy the idea of the interest rate stuck in a liquidity trap. Rather, when the money supply was increased, Hicks believed that the interest rate could always go lower. On the other hand he said, rising total expenditures and income will increase liquidity preference. At a fixed money supply level, the rising demand for money (to conduct a greater volume of transactions) from a rising income must be rationed by an elevated interest rate. The upward-sloping *LM* curve shows how increases in national income come at the expense of rising interest rates in the money market.[6]

The *IS* curve traces out all those combinations of national income and interest rates at which saving equals investment. That is, all the national incomes represented earlier in Figure 1.1 are equilibrium national incomes. Since the *IS* curve is downward-sloping, it is clear that Hicks did not swallow the idea that investment could be insensitive to the interest rate. If the interest rate fell, investment would rise. Saving and investment still would be equal in Keynesian national income equilibrium. However, saving equals investment at higher and higher levels of national income as the interest rate falls.

The greatest excitement is found where the initial *IS* and *LM* curves cross; at that point the interest rate *and* national income are in equilibrium at the same time. General equilibrium exists; that is, the equilibrium interest rate (r^o_e) allows not only the demand for money to equal the supply of money but also for investment to be

[6] In prose apparently designed with the torture of economics students in mind, Keynes had concluded, "Thus the functions used by the classical theory, namely, the response of investment and the response of the amount saved out of a given income to change in the rate of interest, do not furnish material for a theory of the rate of interest; but they could be used to tell us what the level of income will be, given (from some other source) the rate of interest; and, alternatively, what the rate of interest will have to be, if the level of income is to be maintained at a given figure (e.g. the level corresponding to full employment)." John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (New York: Harcourt, Brace & World, 1936), pp. 181–182.

equal to saving. Hence the national income also is in equilibrium (at Υ^{o}_{e}). This little apparatus was not only important for monetary and fiscal policy then, it remains important to this day. An increase in the money supply (shifting the *LM* curve rightward to *LM′*) produces a lower equilibrium interest rate (r^{1}_{e}) and, predictably, more equilibrium national income (Υ^{1}_{e}). A larger federal budget deficit represented by a net increase in Federal spending (*G*) shifts the *IS* curve rightward to *IS'*. The equilibrium national income increases but only to Υ^{1}_{e} because the interest rate now rises to r^{2}_{e}.

There is a classical style "crowding out" of some investment at higher debt-inspired interest rates. The usually powerful Keynesian multiplier is muted by the off-set in interest sensitive investment. This latter effect — a dampening in the Keynesian multiplier as interest rates rise — is the most important new characteristic for Keynesianism. Crowding out of private investment by interest rate increases led to the idea of an accommodative monetary policy whereby the money supply increases (*M*) would shift the *LM* curve to *LM′* at the same time that the *IS* curve is shifted to *IS′*. Then, the interest rate would rest at an intermediate point (r^{3}_{e}), enabling national income to rise all the way to Υ^{2}_{e}.

At the time Keynes and Hicks disagreed. Keynes himself had said as much in a letter to Hicks dated March 31, 1937.[7] A rightward movement in the *IS* curve would not necessarily raise the interest rate. The use of real national income in the *IS-LM* model disguised the critical importance of expectations in determining business investment. Moreover, the model makes no judgment regarding labor market conditions.

When attempting to put income, investment, and the demand for money all together in explaining interest rates, Keynes was remarkably unclear. Nonetheless, Hicks at the time missed Keynes's main point — namely, how expectations and uncertainty outweighed

[7] Elizabeth Johnson and Donald Moggridge, eds., *The Collected Writings of John Maynard Keynes*, Volume XIV (London: Macmillan & Co., 1971), pp. 79–81.

the interest rate in the investment decision and in individuals' preferences for liquidity — for cash.

As we have said, Hicks's impact was delayed — on this side of the Atlantic, by the success of the American Keynesians in carrying the Keynesian cross to Washington during the late 1930s as well as to the millions of students reading Samuelsonian economics after World War II.[8]

In fact, it seemed for a time that the American Keynesians would be spared Hicks's reinterpretation altogether, even though Alvin Hansen, the leading American Keynesian at the time, prominently displayed Hicks's smooth curves in a new book in 1953.[9] But Hansen's former student Paul Samuelson apparently read it on the road to Damascus and was converted. Universal equilibrium apparently was irresistible to someone trained in mathematics, with an interest in physics, with an eye for Newtonian metaphor, and writing at a time when economists were struggling to make economics a science in the same sense as natural science. Samuelson incorporated the Hicksian system into his famous textbook, in the 1961 edition jubilantly referring to the rapprochement as the "grand neoclassical synthesis"!

The ensuing debate bore little resemblance to the Epistles, however. Increasingly, the difference between Keynes and the original neoclassicals was reduced to debates about the shape of various curves, none of which were even remotely related to those of their contemporary, Marilyn Monroe. Paul Samuelson was not to embrace

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[8] Hicks's dispatch was delivered in "Mr. Keynes and the Classics, A Suggested Interpretation," *Econometrica*, **5**, 147–159 (1937).

[9] See Alvin H. Hansen, *A Guide to Keynes* (New York: McGraw-Hill, 1953), pp. 140–153. There is some irony here. Hansen and his seminars had been important in bringing officials from Washington D.C. to Harvard. The complete story is told in John Kenneth Galbraith, "How Keynes Came to America," in *Economics, Peace and Laughter* (Boston: Houghton Mifflin, 1971), Key Keynesians at the Federal Reserve such as Marriner S. Eccles and Lauchlin Currie allied with Galbraith were also influential in bringing Keynes underground to the White House during the New Deal era. See John Kenneth Galbraith, *A Life in Our Times: Memoirs* (Boston: Houghton Mifflin, 1981), pp. 68–70.

neoclassical Keynesianism at its conception. As is so often the case, a long time lapsed between the sowing of the seeds of neoclassical Keynesianism and the growth of the new branch.

The greatest excitement occurs where the *IS* and *LM* curves cross; at that point the interest rate and national income are in equilibrium at the same time. General equilibrium exists: that is, the equilibrium interest rate allows not only the demand for money to equal the supply of money but for investment to be equal to saving. Hence the national income also is in equilibrium. Note that after the *IS* curves and the *LM* curves have shifted, the money market (which never in reality leaves equilibrium) and the goods markets regain the balance known as equilibrium. Point *A* is the initial equilibrium, point *B* is the exclusively monetary policy equilibrium, point *C* is the exclusively fiscal policy equilibrium and point *D* is the result of coordinated monetary and fiscal policy.

THE *IS-LM* MODEL: SECOND THOUGHTS

As noted, John Maynard Keynes and J.R. Hicks disagreed about Hick's "little apparatus". For one thing, argued Keynes, Federal budget deficits would not necessarily raise the interest rate; it all depended upon all the underlying conditions in an economy. There was only a tentative tendency toward equilibrium. When attempting to put income, investment, and the demand for money all together in explaining interest rates, Keynes was remarkably unclear. Nonetheless, Hicks at the time missed Keynes's main point — namely, how expectations and uncertainty outweighed the interest rate in the investment decision and in individuals' preferences for liquidity — for cash.

As we have said, Hicks's impact was delayed on the American side of the Atlantic, by the success of the American Keynesians in carrying the Keynesian cross to Washington during the late 1930s as well as to the millions of students reading Samuelsonian economics after World War II.

True. But it was judicious fiscal policy, the new gyroscope for the economy, which made simultaneous equilibria in all markets

possible. As to the product markets, Keynes's system had left them in whatever state of competition the reader preferred, and the neoclassicals naturally chose perfect competition. Of course, to the extent perfect competition ensures low inflation rates, the belief in equilibrium and economic stability fit reality.

Thirty-seven years after Sir John Hicks unwittingly began the counterreformation, he recanted, admitting to a deeper meaning in Keynes's view of money, investment, and uncertainty.[10] He was the sole Keynesian to recant. But, just as Hicks' timing was bad initially, it was off once again, for there was little reason for economists to notice. Inflation and high interest rates were not problems during the 1950s and most of the 1960s, and the Hicks-Hansen model was in sync with the data and the times, an era during which Keynesian policies seemed to work well. When credit markets are liquid and private investment is sensitive to interest rate fluctuations, the *IS-LM* framework is a good policy tool. Put differently, when recessions are mild and business and consumer confidence is at least moderate, policy-induced equilibria make sense.

SAVING KEYNES'S THEORY

Like the woman in the dancehall in the old country song, economists like to go home with the theory that "brung 'em." When inflation became a problem by the 1970s, fiscal Keynesianism and neoclassical Keynesianism seemed less relevant. But naturally those Keynesians who had fathered the new American macroeconomics were ready to fight for their offspring. They wanted to "save" Keynes's theory. But, *which* theory?

The Wages of Inflation

It is often said erroneously that Keynes did not worry about inflation. For sure he did not worry about inflation during the Great

[10] Hick's altered view appears in his *The Crisis in Keynesian Economics* (New York: Basic Books, 1974). It is good reading.

Depression, nor did the Keynesians. During World War II, he did worry, and he wrote about "How to Pay for the War," in which he recommended that households be required to buy government bonds as a way of "forced savings." Moreover, another model is set forth in Keynes's classic.

One part of the model is contained in Chapter 21 of the *General Theory*, "The Theory of Prices." The second part dominates Chapter 22, "Notes on the Trade Cycle," but otherwise is spread throughout the book, in which an uncertainty principle is invoked to account for business fluctuations. In Chapter 21, Keynes shows how inflation could begin prior to full employment, as pictured by what we now call the Phillips curve.

For an industry, writes Keynes, prices of its products depend on the payments to those who produce the goods, which therefore enter into the cost of production. If the technique of production is given and the requisite equipment is in place, the general price level depends largely on wage rates. Prior to the achievement of full employment, increases in total effective demand are divided in their effect between swelling output and pumping up prices because of rising wages.

If so, the total supply line is not the simple 45° guide of the fiscal Keynesians. Wage rates being the major component of the unit cost of production, an increase in wage rates would entice producers to reduce their output. But they would at the same time raise prices to reflect the increased cost of production. It is possible for production (and therefore employment) to retrench even while prices are rising. Of course, such an outcome was viewed as an anomaly within either the fiscalist or the neoclassical vision of Keynes, much less the Phillips curve.

This more complete total demand and total supply picture from Keynes was seized on by the self-proclaimed legitimate heirs of Keynes, the Post Keynesians. This, a wages and cost-based theory, they believed, would save the theory during periods of simultaneous inflation and unemployment. The Keynesians owning Keynes's franchise and building a macroeconomics superstructure, however,

disavowed the Post Keynesians, banishing them as "radicals" and, so, to Volume III.

The Case of the Missing Auctioneer

Before we leave Keynes and his many models, we need to mention a second, even brilliant, attempt to resuscitate his theory. Two economists — Robert Clower and the seemingly unpronounceable Axel Leijonhufvud — defended Keynes's notion of disequilibrium. The general equilibrium described by the neoclassical counterrevolutionaries, they claimed, requires instantaneous price and output adjustments in the economy. But such a complete clearing of markets requires a "Walrasian auctioneer" (a reference to Léon Walras, who had everyone "groping" for the correct prices). With the auctioneer calling out prices of everything, including prices of labor (wage rates), every actor in the economy would have sufficient information to make precise adjustments, so all market prices would be true equilibrium ones.

Robert Clower (1926–) was part of the WW II generation, enlisting in the U.S. Army in 1943 and being there until the end of the war. Thereafter he studied under John R. Hicks as a Rhodes Scholar at Oxford (1949–1952). He went on along with Leijonhufvud to be among the founders of Post Keynesian economics. Clower is best known for work paralleling that of Axel Leijonhufvud (1933–) Leijonhufvud and Clower were at Northwestern University at the time of Clower's influence on Axel's dissertation, published in 1968.

In the real world, conclude Clower and Leijonhufvud, there is *no auctioneer* for the macroeconomy. Prevailing prices, including wage rates, are imperfectly established, because individuals do not have complete knowledge. That is, people act on the basis of "wrong" prices, as they are not true equilibrium prices.

According to the insightful Leijonhufvud, the responses of individuals are restricted to those their incomes will allow. Unemployed workers provide an unreliable source of spendable funds. Contrary

to Samuelson's choice-theoretics, the income constraint *is* critical. Thus, market adjustments to disturbances are made by income reactions and production changes, and only belatedly by price variations. The real world is one of imperfect information, and persons in it will not wait for all these price adjustments to occur. Such price disequilibrium further diminishes the practicality of general equilibrium and the Walrasian view. From this pioneering work, economists began to develop disequilibrium models. Today, Robert Solow bases his "Keynesianism" on this idea: Output and employment adjust much more slowly than prices and even they are sluggish. For Clower, Leijonhufvud, and Solow, perfect competition does not prevail in the real world in the Keynesian short haul.

Keynes himself took an even more drastic view of uncertainty. For example, he compared the stock market to a "game of Snap, of Old Maid, of musical chairs." In his restatement of the *General Theory* a year after its publication, he emphasized almost to the exclusion of anything else the uncertainty of knowledge and foresight as the cause of chronic unemployment of resources.[11] Not only would Keynes then abandon equilibrium in favor of disequilibrium, but he would also question the efficacy of policies based entirely on equilibrium models. Full employment equilibrium then could only be approximated through governmental actions.

This raises the kind of question posed for Karl Marx. If Keynes had still been alive after the mid-1960s, would he have been a Keynesian? We can be fairly sure that he would not have been a neoclassical.

[11] John M. Keynes, "The General Theory of Employment," *Quarterly Journal of Economics*, **51**, 209–223 (February 1937).