

## IS-LM MODEL

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The birth of modern macroeconomics is often credited to John Maynard Keynes (1881–1946) and his classic 1936 book *The General Theory of Employment, Interest and Money*. Keynes's agenda in 1936 was twofold. First, he wanted to save the discipline of economics from being completely dismissed and ridiculed by policy makers and by the general public who were fed up with the neo-classical laissez-faire policy advice that dominated the Great Depression era of the 1920s and the 1930s. Second, Keynes feared the rapid political shift to the far left in Western Europe and the growing sympathy for and admiration of the ideals promoted by communism, not just by the working class but by a certain segment of the bourgeoisie. As a matter of fact, Keynes was rushing to publish his *General Theory* in order to provide a plausible explanation for the Great Depression and lay out an effective policy response to bring capitalist societies back on the road to economic prosperity. In seeking to achieve these two goals, Keynes had to completely divorce himself from the neo-classical theoretical apparatus that had paralyzed the economics profession during the Great Depression. The ensuing Keynesian revolution has brought forward (a) the theory of effective demand, (b) the concept of quantity adjustment rather than price adjustment, and (c) an explicit treatment of the time-dependent concepts (uncertainty about the future, speculation, "animal spirits").

Keynes's work sent a shockwave through the economics profession and was met with a lot of resistance by the gatekeepers of the economics discipline. Some younger economists, however, received Keynes's work with a lot of enthusiasm and support, but many of them could not help but interpret it by using the neoclassical theoretical framework that had been engraved into their brains. Therefore, the Keynesian revolution was quickly reincorporated into the neoclassical framework that Keynes sought to destroy.

In 1937, just a little over a year after the publication of the *General Theory*, Sir John H. Hicks (1904–1989) published one of his most famous articles, titled "Mr. Keynes and the 'Classics': A Suggested Interpretation." This article was first presented in September 1936, as an attempt to explain Keynes's theory to econometricians and mathematical economists. The outcome of this article turned out to be the dominant macroeconomic model until the mid-1960s: the IS-LL model, which later became known as the IS-LM model. Hicks's interpretation of Keynes became a classic textbook section in all macroeconomics textbooks and an essential tool for policy analysis for several decades. The model, however, was far from being faithful to Keynes's economic analysis, and it soon came under harsh scrutiny by post-Keynesian economists. By 1980, just 8 years after winning the Nobel Prize in economics, Hicks admitted that there were major flaws in his model and accepted the post-Keynesian critique. The IS-LM model soon lost its premiere position in academic research but remained a classic textbook exercise in intellectual gymnastics and an easy tool to communicate policy advice to policy makers.

This chapter aims at presenting the history of the development of the IS-LM model, its theoretical formulation and policy applications, the critiques of the model, and the direction taken by the economics profession after the demise of the IS-LM model.

### The Essence of Keynes's *General Theory*

To be able to understand the development of the IS-LM theory, one has to understand the basics of the revolutionary theory that Keynes introduced to the discipline of economics in 1936. Only then can one understand the context in which

Hicks worked to develop the IS-LM model. For Keynes, economic growth is driven by effective demand, investment is driven by expectations about future profits, and money is not neutral.

Unlike neoclassical economics where economic agents operate in notional or theoretical time, in the Keynesian model, economic agents operate in real historical time (minutes, hours, days, years, etc.) under conditions of uncertainty in which the future is unknowable and the past is unchangeable. Faced with such an environment, individuals make arbitrage decisions with regard to which assets they wish to hold over time. Each asset gets a return composed of four components:  $q - c + l + a$ , where  $q$  is the expected yield,  $c$  is the carrying cost,  $l$  is the liquidity premium, and  $a$  is the appreciation or depreciation.

At equilibrium, all assets earn the same expected return. If an asset has a demand price higher than its supply price, then firms will produce more of it, but as its production increases, its rate of return will fall and becomes equal to the rates of return of all other assets. When consumers and firms are optimistic about the future and feel confident about their financial situation, the expected returns on capital equipment rise above the expected return on money (i.e., the interest rate), which leads to an increase in investment, thus boosting output and employment. Conversely, when the economy is overtaken by pessimistic expectations, consumers and firms prefer to remain liquid, thus abstaining from spending on consumption and investment goods, which leads to a rise in unemployment. The business cycle is therefore driven by these waves of optimistic and pessimistic expectations.

According to Keynes, unemployment is due to money's very specific nature as the most liquid asset in the economy with a near-zero elasticity of production, small elasticity of substitution, and no carrying cost. In other words, when people want to hold more money (liquidity), no significant amount of labor is directed to producing it, unlike capital equipment, which, when it is in high demand, requires additional labor input to produce it. Therefore, Keynes's conclusion was that an environment must be created that is conducive to more investment and less hoarding of money. Hence his three policy recommendations: (1) "parting with liquidity" (giving up liquid assets in exchange for employment-creating illiquid assets), (2) "euthanizing the rentiers" by lowering the interest rate so much that nobody will find it profitable to save money (because expected returns on money are less attractive than expected returns on capital), and (3) "socializing investment" through the creation of a new kind of capitalist culture of cooperation between private and public authorities (Keynes, 1936, chap. 24).

One would expect that an accurate interpretation of Keynes's theory would remain faithful to the above basic principles. Joan Robinson argued that Keynes "was himself partly to blame for the perversion of his ideas" (Robinson, 1962, p. 90) and that he "himself began the reconstruction

of the orthodox scheme that he had shattered" (Robinson, 1971, p. ix). Robinson was referring to Keynes's last chapter in the *General Theory*, where he argued that "if our central controls succeed in establishing an aggregate volume of output corresponding to full employment as nearly as practicable, the classical theory comes into its own again from this point onwards" (Keynes, 1936, p. 378). This statement in the *General Theory* led many to believe that Keynes was admitting the validity of neoclassical theory and its general applicability. However, what Keynes meant was that once full employment is achieved through government spending, the neoclassical "special case" would be valid because neoclassical theory assumes that the economy operates at full employment. Hicks's interpretation of Keynes's work was capable of incorporating some of Keynes's conclusions in a very clever way but still managed to validate some of the basic neoclassical principles. That is what led to the creation of the so-called neoclassical-Keynesian synthesis school of thought.

## Development of the IS-LM Model

When Keynes wrote the *General Theory* in 1936 he was launching an attack against the "classics," by which he did not mean the classical political economy of Adam Smith, William Petty, James Mill, David Ricardo, Thomas Malthus, and Karl Marx but rather the neoclassical school of thought of John Stewart Mill, Leon Walras, Carl Menger, William Stanley Jevons, Alfred Marshall, Francis Y. Edgeworth, and Arthur C. Pigou. Keynes's contribution recognized that capitalist economies do not have any natural tendencies to stabilize at full-employment equilibrium, but instead the system is driven by destabilizing forces that push the economy into a downward spiral if the government does not intervene to alleviate unemployment.

According to Keynes, economic recessions and depressions are due to the lack of effective demand. His analysis highlighted the importance of uncertainty and expectations to the determination of the level of economic activity. In real historical time (minutes, days, and years, as opposed to notional or analytical time), the past is unchangeable and the future is unknowable; therefore, both consumption and business investment decisions are made under conditions of uncertainty. Spending decisions always depend on future expectations. A wave of positive expectations about the future will lead to an increase in business investment, which increases output, income, and employment. For Keynes, the economy moves from one equilibrium point to another through a process of quantity adjustment rather than price adjustment. The neoclassical price mechanism (prices, wages, and interest rates) plays no role in the Keynesian system. Prices are administered through relative market power relations rather than perfectly competitive market conditions. Furthermore, Keynes argued that recessions are not to be blamed on the lack of price flexibility.

If anything, price rigidity helps prevent an acceleration of the downward spiral during bad economic times.

Keynes's approval of Hicks's interpretation of his work was primarily based on the fact that the IS-LM model was able to capture the importance of effective demand, the possibility of underemployment equilibrium, and the important role of fiscal policy to achieve and maintain full employment. That was sufficient for Keynes to publicly recognize Hicks's work as a step in the right direction, even though he criticized the IS-LM model in private communications and thought that it was too simplistic to capture the complexities of economic reality.

The IS-LM model starts with Keynes's rejection of the "classical dichotomy" theory that supports the neutrality of money. Keynes argued that changes in the quantity of money will have a real impact on the quantity of output, income, and employment. There is an inevitable interaction between the monetary and the real spheres. Therefore, Hicks (1937) argued that it is necessary to solve for the money and real markets simultaneously. The IS-LM model is essentially the superposition of two curves: the LM curve, which is derived from the money market, and the IS curve, which is derived from the goods market.

The equilibrium condition in the goods market is  $S = I$  (saving = investment), and the equilibrium condition in the money market is  $L = M$  (money demand = money supply). The basic equations of the IS-LM model are defined as follows:

$$S = a + bY + ci \quad (1)$$

$$I = d + eY + fi \quad (2)$$

$$L = A + BY + Ci \quad (3)$$

$$M = M_0 \quad (4)$$

$a$ : autonomous savings ( $a < 0$ )

$b$ : marginal propensity to save ( $b > 0$ )

$c$ : interest elasticity of savings ( $c > 0$ )

$d$ : autonomous investment ( $d > 0$ )

$e$ : marginal propensity to invest ( $e > 0$ )

$f$ : interest elasticity of investment ( $f < 0$ )

$A$ : autonomous demand for money ( $A > 0$ )

$B$ : transactions demand for money ( $B > 0$ )

$C$ : speculative demand for money ( $C < 0$ )

$M$ : exogenous money supply determined by the central bank

$Y$ : aggregate output and income

$i$ : interest rate

To solve for the IS-LM equations, we set  $I = S$  and  $L = M$ , and then we solve for the IS and LM equations. The resulting equations are the following:

$$i_{IS} = \frac{(d-a) + (e-b)}{(c-f)} \cdot Y \quad (5)$$

$$i_{LM} = \frac{(M-A)}{C - (B/C)} \cdot Y \quad (6)$$

Finally, to solve for the equilibrium level of interest rate ( $i^*$ ) and the equilibrium level of output and income ( $Y^*$ ), we have to set  $i_{IS} = i_{LM}$  and solve for  $Y^*$ , then plug the  $Y^*$  value into either Equation 5 or Equation 6 to find the  $i^*$  value.

$$i^* = \frac{(M-A)(b-e) - B(d-a)}{B(f-c) + C(b-e)} \quad (7)$$

$$Y^* = \frac{(M-A)(c-f) - C(d-a)}{B(c-f) + C(e-b)} \quad (8)$$

Equations 5 and 6 allow us to plot a downward-sloping IS curve and an upward-sloping LM curve. However, the downward slope of the IS curve is possible only under the condition that the marginal propensity to save is greater than the marginal propensity to invest ( $b > e$ ). Assuming that  $b$  is greater than  $e$ , the resulting IS-LM model gives us the equilibrium level of interest rate ( $i^*$ ) and the equilibrium level of output and income ( $Y^*$ ). This equilibrium solution must have four characteristics:

1. it must exist (i.e., the IS and LM curves must intersect),
2. it must be unique (i.e., the IS and LM curves must intersect only once),
3. it must be positive ( $i^* > 0$  and  $Y^* > 0$ ), and
4. it must be stable (i.e., any shock to the system produces temporary disequilibrium and an eventual return to the equilibrium point).

In the goods market, the investment demand function is negatively related to the interest rate. A fall in the interest rate will result in an increase in the demand for investment, leading to an increase in the level of output (income) and employment through the multiplier effect. The IS curve is steep when the investment demand function is interest inelastic, and it is flat when the investment demand function is interest elastic. It is noteworthy here to mention that the full employment level  $Y_f$  is generally higher than the equilibrium level of output  $Y^*$ . Contrary to the neoclassical model, there are no inherent mechanisms to ensure that the equilibrium level of output would coincide with the full employment level. Therefore, under normal conditions, the economy will be sustained at the underemployment equilibrium.

The IS curve represents the equilibrium locus that captures the relationship between the interest rate and output levels. As the interest rate rises, investment falls and so does disposable income, and thus the equilibrium level of output  $Y^*$  declines. Therefore, the IS curve is downward sloping: High interest rates are associated with low-equilibrium output  $Y^*$ , while low interest rates are associated with high  $Y^*$ . This is, in fact, an equilibrium locus and not a curve, which means that at any point on the IS curve, the goods market clears (neither excess supply nor excess demand). The multiplier dynamic ensures that at any point not belonging to the IS curve ( $Y > Y^*$  or  $Y < Y^*$ ), there will be an automatic return to the equilibrium locus. Thus, points to the left of the IS curve represent situations of excess demand for goods, whereas points to the right of the IS curve represent situations of excess supply of goods.

What Keynes meant by using the term *General Theory* in the title of his book is that neoclassical economics is a “special case” in which the economy settles at a full employment equilibrium, whereas his theory explains the “general case” where the economy could be at equilibrium at any level of employment, but with a general and most likely situation of unemployment—hence the concept of “underemployment equilibrium.” In trying to make this argument, Keynes had to launch a direct attack on neoclassical economics and its leading advocates, including his own professor, Arthur C. Pigou (1877–1959). According to Hicks, Keynes was wrong in claiming that the classics had no theory of money, wages, and employment. In other words, Keynes rejected the classical dichotomy between the real and monetary spheres. Hicks went even further to argue that Keynes’s theory and the classical theory are both special cases. The Keynesian theory could be represented by a horizontal LM curve, in which case an increase in aggregate demand would shift the IS curve to the right, thus leading to an increase in output and employment without increasing interest rates or prices. The classical model, however, could be represented by a vertical LM curve at the full employment level, in which case any increase in aggregate demand would only lead to inflation and higher interest rates because the economy is already operating at the full employment level.

Hicks’s IS-LM model generalized Keynes’s *General Theory* and argued that the classical model is a special case of an economy operating at full employment, but also Keynes’s theory is a special case of a Great Depression economy. The IS-LM model, however, is a more general theory as it shows the operation of the economy under normal circumstances (neither a depression nor full employment) with an upward-sloping LM curve, in which case an increase in aggregate demand would lead to a simultaneous increase in output and employment, as well as interest rates.

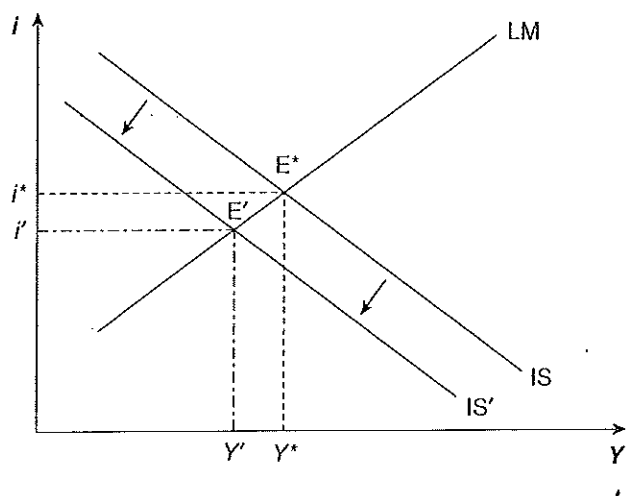


Figure 33.1 The IS-LM Diagram

## IS-LM Policy Analysis

A major reason for the popularity of the IS-LM model from the late 1940s until the mid-1970s was its easy and convenient application in the study of alternative policy scenarios. For instance, one can easily find the impact of an increase in consumer thriftiness on the overall level of income, output, and employment. Following the IS-LM mechanism, a sudden increase in consumer thriftiness, meaning an increase in the marginal propensity to save  $b$ , results in a decrease in the production level  $Y$ , leading to a decrease in the employment level. Furthermore, as a result of the interaction of the Keynesian multiplier and the accelerator, an increase of the intended saving supposedly may result in a decrease of the actual saving. This phenomenon is known as the paradox of thrift.

Many years after the introduction of Hicks’s IS-LM model, which was the first misinterpretation of Keynes’s *General Theory*, Franco Modigliani (1944) revised the standard model in his PhD dissertation written under Jacob Marschak at the New School for Social Research. He proposed to add to Hicks’s model the missing labor market and production function equations. As a matter of fact, Modigliani imposed the labor market-clearing assumption when he defined the labor supply function as a function of the real wage. He showed that when this assumption is added, the IS-LM model results in a price elasticity of money supply equal to 1. He concluded that money is *completely neutral*, as neither the interest rate nor the employment and output levels are affected by an increase in the money supply. In short, he established that the neoclassical results can be derived from a seemingly Keynesian-like set of equations. Modigliani’s results were expected because he assumed that the labor market would reach full employment, an assumption that goes against the essence of Keynes’s analysis.

In the next step of his analysis, Modigliani ran his model again without the market-clearing assumption and with the assumption of rigid money wages. His results showed that the price elasticity of the money supply is less than 1. Furthermore, an increase in the money supply results in a decrease in the interest rate and an increase in both employment and output levels to the full employment level. Therefore, he concluded that money is *not neutral* and that Keynes’s conclusions are now restored. Modigliani’s conclusions were adopted during the 1950s and early 1960s by the conventional wisdom of the economics discipline, which is essentially a “synthesis” of neoclassical and Keynesian theory, where the results of the model in a “perfectly working” IS-LM model (i.e., in the long run) are neoclassical (i.e., full-employment equilibrium). In an “imperfectly working” IS-LM model (i.e., in the short run, money wages are rigid), however, the Keynesian conclusions are restored.

Robert W. Clower (1965) and his student Axel Leijonhufvud (1967) launched a significant attack against

the standard IS-LM presentation of Keynes's theory and started the so-called disequilibrium<sup>1</sup> Keynesianism movement. Both Clower and Leijonhufvud believed that the disequilibrium situation (i.e., unemployment and effective demand failure) is the result of information and coordination deficiencies.

The IS-LM model, according to Leijonhufvud, has also a fundamental weakness, causing a terrible misinterpretation of Keynes's *General Theory*. Both Keynes's model and the IS-LM model have five goods in the system (consumer goods, capital goods, labor, money, and bonds). To solve for the three relative prices (i.e., the overall price  $p$ , the real wage  $w$ , and the real interest rate  $i$ ), the models assimilate one good into another. The IS-LM model combines consumer goods with capital goods (commodities), whereas Keynes's model, according to Leijonhufvud, combines bonds with capital goods (nonmoney assets). This is a major difference between Keynes and the IS-LM Keynesians in the aggregative structure of their models.

In the neoclassical approach, there is only one kind of output and one price for it. However, in Keynes's model, there are two kinds of output: consumption goods and investment goods. Along with the two kinds of output come two completely different price systems: a price system for current output and a price system for capital assets, the price of which is crucial in the determination of the level of investment that will take place. The interplay between these two price systems determines the level of investment and, through the multiplier, determines the level of output and employment. Unemployment results when the two price systems fail to generate a set of prices that is consistent with the full employment level of production (i.e., either the demand price of capital assets is too low or the supply price of capital assets is too high).

The more headway the IS-LM made into economics textbooks and economic policy circles, the more scrutiny and criticism it drew from the followers of Keynes who tried to remain faithful to his theoretical analysis and to vindicate his theory from all the misuse and abuse brought by the so-called IS-LM textbook Keynesians, or "bastard Keynesians," a term used by Joan Robinson to refer to economists who do not know whether the father of their theories is Keynes or Marshall. The following is a summary of the main points of criticism made by post-Keynesians such as Joan Robinson, Richard Khan, Hyman Minsky, Paul Davidson, and Sidney Weintraub, to mention a few.

The downward slope of the IS curve is possible only under the condition that the marginal propensity to save is greater than the marginal propensity to invest ( $b > e$ ). The most reasonable assumption, however, would suggest the exact opposite. That is to say that for most industrialized economies, the marginal propensity to invest should be greater than the marginal propensity to save, especially under a very sophisticated banking system. An upward-sloping IS curve could result in the violation of some of the

equilibrium conditions. An upward-sloping IS curve may not intersect with the LM curve in the first quadrant, or it may intersect with the LM curve twice if there is a liquidity trap (i.e., in the horizontal section of the LM curve). This would violate the existence and the uniqueness conditions of the equilibrium solution in the IS-LM model.

In closing his 1937 article, Hicks recognizes some limits to his general theory—namely, the fact that most variables would remain indeterminate as long as income and distribution are unknown. He also admitted that depreciation and the timing of processes are neglected in his analysis as well. By 1976, Hicks grew more dissatisfied with the IS-LM model. In his seminal article "Some Questions of Time in Economics" (1976), he recognized the importance of the irreversibility of time. He argued that Keynes's theory was a hybrid one that is divided in two parts, one "in time" and another "out of time." Keynes's theory of the marginal efficiency of capital and his liquidity preference theory are "in time" because they are forward-looking concepts that integrate the irreversibility of time and fundamental uncertainty about the future. Keynes's multiplier theory, as well as the theory of production and prices that it implies, however, is a theory "out of time." It is a theory that runs in terms of supply-and-demand curves like the old tools of neoclassical equilibrium analysis. A state of equilibrium is by definition a state in which nothing relevant changes, and hence time is put aside. Hicks conceded that his IS-LM model has reduced Keynes's *General Theory* to equilibrium economics, even though Keynes himself did not wholly disapprove of the original IS-LM interpretation.

In another seminal article published in 1980–1981, Hicks tried to distance himself from his original 1937 theory and provided a very candid assessment of the IS-LM model. He argued that there are great similarities between his work and that of Keynes prior to the publication of the *General Theory*. They have both worked on the behavior of the economy "during a period that had a past" (i.e., in real historical time). Hicks also argued that there are some differences that he did not explicitly mention in his earlier articles. First, the IS-LM model is a flexible price model with perfect competition, while Keynes's theory is a fixed price model that is consistent with unemployment. Second, both models are in the short run, but Hicks's model is an ultra-short-run model ("one week"), while Keynes's is a "one-year" model.

More than four decades after the birth of the IS-LM model, Hicks brought two major critiques of his own work in another showcase of his intellectual honesty. Hicks admitted that the absence of the labor market and the lack of dynamics in the IS-LM model constitute two major weaknesses in his theory. He explained that in Keynes's model, there is a possibility of unemployment even when all markets are in equilibrium. He also argued that even though the labor market does not exist in the IS-LM model, a labor market that is in disequilibrium can be

added to the model without leading to inconsistencies with the Walrasian framework.

Regarding the concept of time, Hicks argued that time has not really been entirely neglected in the IS-LM model, but it is rather the flow of time within a period that has been ignored. He also recognized the problems caused by superimposing a stock (in the LM curve) and a flow (in the IS curve) where IS-LM draws an instantaneous equilibrium between a stock at time  $t$  and a flow at a period of time. The solution to this problem according to Hicks would be to maintain a stock equilibrium over the period that implies a flow of equilibrium over the period. That is to say that stocks rolling over time would be assimilated to a flow. As a result, Hicks found himself in a deterministic model where there is no place for uncertainty and therefore no room for a liquidity preference theory. To fix this problem, Hicks invented a pseudo-deterministic model where the variables would fall within a particular range. Thus, the equilibrium would fall within the expected range.

In the end, Hicks concluded that the IS-LM model should not be such an important policy tool but rather simply a model that will explain economic conditions in a static way, knowing that the future is unlikely to be well predicted.

Despite all the weaknesses highlighted above, and despite the fact that all economists today recognize and accept the nonvalidity of the IS-LM model, we still observe the presence of the IS-LM model as a standard section in every single intermediate macroeconomics class taught in the United States. Students are often confused as to why they are asked to study a model that has been proven to be theoretically flawed and is considered useless for policy analysis. Most economists still teach the IS-LM model because of the following three reasons.

The model serves as a good pedagogical tool to improve the students' analytical skills and graphical analysis, preparing them for the more advanced mathematical models that they will encounter in graduate school.

Most undergraduate economics instructors teach the IS-LM model, so it is considered unfair to students not to familiarize them with it in case they decide to pursue a graduate program in economics where they would be expected to be familiar with the model.

The IS-LM model has been taught as a standard model for decades, which means that nearly all policy makers in Washington, D.C., have become familiar with it over the years as a standard tool that economists use to communicate their policy advice. Economists today use mathematical models that have nothing to do with the IS-LM analysis, but they still use a simple IS-LM presentation to communicate their results and policy recommendations to policy makers who lack the sophisticated training that it takes to be able to understand the new and more advanced mathematical models.

Despite the general consensus among economists about the demise of the IS-LM model, it is still common to find no reference to any critiques of the model in undergraduate textbooks or class discussions. Students typically find out about

the model's weaknesses when they take a graduate course in macroeconomics or when they take a history of economic thought course at the undergraduate or graduate level.

## Conclusion

The IS-LM model developed by Hicks (1937) and later popularized by Paul Samuelson (1948) and Alvin Hansen (1953) has provided an extremely useful diagram that explains how the economy operates and how it could be managed to reach the full-employment equilibrium through the different fiscal and monetary policy adjustments. There is no doubt that the IS-LM model is the most popular macroeconomic model used in textbooks because it was extremely efficient as a pedagogical tool.

Like most mathematical models, however, the IS-LM model should be taken with a fistful of salt. It is a simple model that superimposes equilibrium in the goods market with equilibrium in the money market to produce a general macroeconomic equilibrium for the economy as a whole, with an equilibrium interest rate and an equilibrium level of aggregate output and employment. The model was able to explain the possibility of unemployment equilibrium, which was one of Keynes's most important arguments in the *General Theory*. This was sufficient for Keynes to approve of Hicks's work and to write him a letter saying that he "found it very interesting and [that he] really [has] next to nothing to say by way of criticism" (Keynes, 1937). Keynes of course knew the weaknesses of the IS-LM model and how far it stood from his *General Theory*, but he was willing to accept it as a strategy to make the economics profession accept the fact that markets do not self-adjust and that there is a necessity for government intervention to achieve full employment.

Keynes's followers (and eventually Hicks himself) laid out the key criticisms that brought the IS-LM hegemony to an end. The model conflates short- and long-term interest rates, conflates stocks with flows, ignores the importance of uncertainty and investor's expectations in determining business cycle fluctuations, and reintegrates the price mechanism back into a seemingly Keynesian model. The economics profession has moved far beyond the limits of the IS-LM model since the 1980s, but the traditional IS-LM way of thinking about the economy has remained a habit of thought in every economist's mind to this day, not necessarily in mathematical form but at least in spirit.

## Note

1. Clower and Leijonhufvud argued that Keynes had a disequilibrium approach instead of an equilibrium approach. When Keynes used the term *equilibrium*, he did not mean the same thing as the neoclassical approach, where equilibrium means that prices adjust so that all markets clear. When Keynes used the term *equilibrium*, he meant that there are no forces to cause further movements (markets might not clear). Thus, in Keynes's

theory, unemployment is an “equilibrium” in the sense that there are no forces to cause employment to increase. Clower and Leijonhufvud thought that this is disequilibrium because they used it in the way that the neoclassicals used it.

*Author's Note:* The author thanks L. Randall Wray for comments on an earlier draft of this chapter and one anonymous referee for helpful suggestions. Rana Odeh provided invaluable editorial assistance.

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21st Century  
**ECONOMICS**  
*A Reference Handbook*

*Volume 1*

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 **SAGE** |  reference

Los Angeles | London | New Delhi  
Singapore | Washington DC



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SAGE Publications Ltd.  
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55 City Road  
London EC1Y 1SP  
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SAGE Publications India Pvt. Ltd.  
B 1/I 1 Mohan Cooperative Industrial Area  
Mathura Road, New Delhi 110 044  
India

SAGE Publications Asia-Pacific Pte. Ltd.  
33 Pekin Street #02-01  
Far East Square  
Singapore 048763

Printed in Mexico

*Library of Congress Cataloging-in-Publication Data*

21st century economics: a reference handbook / editor, Rhona C. Free.  
v. ; cm.

Includes bibliographical references and index.  
ISBN 978-1-4129-6142-4 (cloth)

1. Economics—Handbooks, manuals, etc. I. Free, Rhona C. II. Title: Twenty-first century economics.  
HB171.A19 2010  
330—dc22  
2010001776

10 11 12 13 14 10 9 8 7 6 5 4 3 2 1

<i>Publisher:</i>	Rolf A. Janke
<i>Acquisitions Editor:</i>	Jim Brace-Thompson
<i>Developmental Editor:</i>	Sanford Robinson
<i>Reference Systems Manager:</i>	Leticia Gutierrez
<i>Reference Systems Coordinator:</i>	Laura Notton
<i>Production Editor:</i>	Kate Schroeder
<i>Copy Editors:</i>	Gillian Dickens, Matthew Sullivan, Karen Wolf
<i>Typesetter:</i>	C&M Digitals (P) Ltd.
<i>Proofreaders:</i>	Kristin Bergstad, Sally Jaskold
<i>Indexer:</i>	Joan Shapiro
<i>Cover Designer:</i>	Candice Harman
<i>Marketing Manager:</i>	Amberlyn McKay