Macroeconomics

James K. Galbraith / William Darity Jr.

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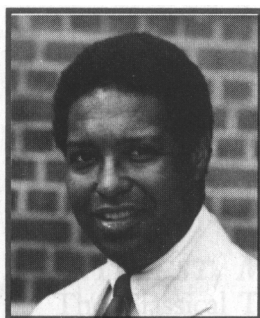
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Jamie Galbraith and William (Sandy) Darity met as Marshall Scholars in England in the fall of 1974, and have been fast friends ever since.

CONTENTS

PREFACE

In the late 1990s, the United States achieved an economist's dream. Unemployment was below four percent of the labor force for three years in a row. Jobs were plentiful, and job markets were tight. Growth was strong, the stock market was extremely high. And yet there was no increase in the rate of inflation. Moreover the federal budget went into surplus, with tax revenues exceeding public expenditure for the first time in thirty years.

Since that happy moment, dark times have come again, with a recession in 2001, accompanied by lost jobs and rising unemployment and punctuated – though not caused – by terrorist attacks on New York and Washington on September 11, 2001. There followed two years of near-stagnation, with recovery resuming only in mid-2003. But now, as we write in the fall of 2005, the U.S. economy is again growing, and the unemployment rate is stable near five percent. Still the economy has problems that worry many. Budget deficits have returned. Trade deficits are exceptionally high. Interest rates are rising. The dollar has been sliding against the new mega-currency across the Atlantic, the euro.

Meanwhile in Europe, a debate rages over the future of the great project of European Union. Europe is racked by high rates of joblessness, especially among the young. Many European leaders – fortified by the advice of many economists – are determined to make their labor markets more "flexible," to better follow what they believe to be the "American model." In most cases, this means adjusting wages so that workers with low skills receive less pay and enjoy fewer social protections.

In this way, Europe's leaders claim to hope to make such workers more attractive to hire, and so reduce unemployment. But European electorates are unhappy and distrustful. The French and the Dutch have even voted to reject the European Constitution, largely from fear that the new Europe would weaken the role of national governments in the social sphere. Globalization, privatization, deregulation and competition are turbulent and troublesome forces, and it is perhaps not surprising that many would prefer to keep them

at bay. But beyond this, it appears that many ordinary Europeans simply do not believe that the solution to unemployment lies in cutting wages.

None of this is new. Ever since the 1930s, the question of whether and how the government should take an active role to fight unemployment, to promote economic expansion, and to protect the living standards of working people has been hotly debated. The lines of argument are broadly the same now, though with variations and innovations, as they were then. The divisions and disagreements are broadly the same.. It is mainly the circumstances, the facts, and the personalities that have changed.

Employment, growth, inflation, interest rates, deficits, exchange rates and globalization are the substance of modern macroeconomics. You have no doubt encountered all of these words before. But what do they mean? How do they interact? What are the chains of cause and effect between policy instruments, like the interest rate, and policy outcomes, such as unemployment? If you are new to this subject, very likely you have no clear idea. That is about to change. We believe – anyway we hope – that you won't regret it.

THE AIM OF THIS BOOK

This book aims to provide a broad exposure to issues in macroeconomic theory and in the conduct of monetary and fiscal policies. Our emphasis is, above all, on thinking clearly, and in presenting macroeconomics as it is, rather than as we, or anyone else, might like it to be.

For this reason, we do not plan to present a single body of doctrine (or "mainstream model"). In our view macroeconomics contains no such single coherent doctrine. Indeed, we believe that the attempt to patch together such a single view, so characteristic of the "textbook approach," leads to more confusion than it resolves.

We hope instead to teach students that the many current controversies in macroeconomics, including some of the most important policy issues of our time, are deeply rooted in disputes over points of theory. These disputes are between schools of economics that are opposed in very important and basic ways; they are longstanding. Macroeconomics originated in an intellectual revolution that was never definitively settled; and like the history of France for a century after 1789, the history of macroeconomics has been a history of conflict between revolutionary and counter-revolutionary traditions. It is not the case that macroeconomists agree on all of the major issues of theory and disagree only on secondary questions, such as of fact and of measurement. Instead, we believe, the disagreements extend through every root and branch of the theory and its practice, which is to say that disagreements over theory have profound consequences for the policy decisions that economists and those in authority must make in the real world.

THEORY AND POLICY

Many students seem to believe that there exists a kind of intellectual wall that separates questions of theory from decisions of policy. The theorists sit in their ivory towers, or so it seems, spinning abstract tales, while policymakers toil with the facts and figures, guided by the "common sense" of "practical men."

John Maynard Keynes, the man at the origin of our subject, provided the most famous refutation of this view:

> … the ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influeoces, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back … soon or late, it is ideas, not vested interests, which are dangerous for good or evil.[1]

We, the authors, have experience both with the development of economic theory and with its application to policy questions. On this point, we believe that almost all economists (there are exceptions, even to this!) would agree with Keynes. It is not true, as some suppose, that policy issues are decided by an engineering process, in which economists sharing a common perspective argue only about the interpretation of new information. Quite to the contrary: the most critical policy choices depend on the theoretical perspective one takes as a point of departure. The critical policy changes occur, as with the arrival of the Reagan Administration in 1981, when the controlling theoretical perspective changes.

So how does theory get translated to policy? We believe that the design of good policy in this complex and difficult field is a craft. It is a skilled craft, one that requires the blunt and rigorous evaluation of evidence within a coherent framework of theory. There are rules, and it is important to know and to use them. The macroeconomic artisan is ever alert to assure consistency between assumptions and results, and always looking at the facts, to seek out the guidance they offer and the problems they pose.

Many who participate in policymaking, or attempt to, do not possess these skills, or perhaps have motives or special interests that would in any event preclude their use. The policy arena is crowded with aspirants to power and influence, from politicians to journalists to business and union leaders, who lack training in economic theory and have a tin ear for relevance in their use of economic fact. We expect students will learn from this book how to

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[1] John Maynard Keyncs, *The General Theory of Employment Interest and Money*, London: MacMillan, 1983, p. 384-5.

distinguish the amateurish, the imprecise, and the dogmatic, from those who have mastered the craft and who abide by its rules.

The devilish thing is that mastering the craft is not the same thing as arriving at a single "right" answer. For within the basic framework of scientific macroeconomics, competing theoretical traditions flourish, and these interpret the same facts through opposing theoretical lenses, to arrive at opposing policy conclusions. To take the most fundamental point of difference, which we have already mentioned, some economists believe that the role of government in ending recessions and stabilizing growth is necessarily large; others believe that it must be ideally small. And this disagreement, unlike the views that we spoke of in the previous paragraph, does not stem from logical error nor from blatant disregard of the facts on either side.

Disagreements between well-trained and careful economists flow from the co-existence of competing theoretical traditions. Each of these competing traditions is honestly arrived at and carefully developed. Each has fervent partisans. Neither accounts for all the facts, but each has adherents who believe that the broad mass of facts fits better under their theory than under any other. We stress again, these are honest disagreements. And the job of this textbook is to provide a road map to the sources of the argument, so that students can decide for themselves.

Our approach to the "roadmap problem" is to present models in roughly chronological order and include some of the historical context in which they actually appeared. This too is a departure from much standard practice and from the many textbooks that emphasize the integration of strictly modern facts with modern theory. Our own primary interest is not, in fact, historical. But our teaching experience convinces us that presenting the context and development of theory helps students to grasp, order, and retain a complex presentation. On the other hand, we have built some flexibility into this text. Those instructors who do not share our view of the framesetting importance of the Great Depression and its dispute between Keynes and Classical economics are welcome to plunge in at Chapter 4, which is where the modern models make their appearance.

The roadmap is necessarily complex. For while the broad theoretical division in macroeconomics is between conservatives and liberals, classicals and Keynesians, each tradition has its own subdivisions. Each has a program of research and interpretation of the facts, which has over the years forced it to evolve and change as changing evidence and new situations present new puzzles for theory. And this has led to a diversity of schools and sub-schools, so that among "conservative" economists we have Classicals, Monetarists and New Classicals (not to mention Austrians and some other groups), while among the liberals we have Keynesians, New Keynesians and Post Keynesians (as well as institutionalists, new institutionalists and some self-described "eclectics").

We hope that this course will help students, to learn how to understand the basis for opposing points of view that exist between cconomists in the real world. It should also help them to recognize and expose inconsistent arguments that draw (often unwittingly) on opposing analytical frameworks. It cannot teach students how to make choices of their own between theories that are in conflict, but it can help them to recognize what the precise choices are. This process may not lead to simple and clear-cut solutions to the policy questions of the day. But it will, we hope, help them to understand the complex and fascinating world of macroeconomic policy debate. For there is nothing so alive, so vibrant, and so important, as a subject whose biggest questions remain unsettled.

HOW TO USE THIS BOOK

The most important thing about any book is readability. We have tried to make this an interesting book to read. To do that, we have tried very hard to tell a story about macroeconomics, to convey some of the history and context, at the same time that we teach the basic and the advanced concepts.

You will find the main elements of the story in the body of the text itself, along with all the essentials of the theory. At the beginning of each chapter, a box entitled Looking Forward gives a brief outline of where we are going, and structured learning objectives for this chapter. As you go along, boxes entitled Taking a Closer Look explore particular extensions of the theory, or provide a window onto illustrative data, including macroeconomic data from Europe andJapan as well as the United States. At the end of every chapter, an extended Special Section provides an opportunity to read about additional theoretical, historical or policy matters related to the main body of the chapter. Each chapter closes with a few essentials: a *Summary*, *Review Questions* to think about and discuss, and *Problems* to work on.

ACKNOWLEDGMENTS

This book first appeared in 1994. The idea of preparing a new version has been pressed on us over the years by readers of that book as it became increasingly hard to find, and was eventually taken up by José Enrique Garcilazo, then a Ph.D. student at the University of Texas at Austin, who reassembled the text from our electronic files. For the present reprint, we acknowledge gratefully the initiative and highly efficient labors of Jacques Schievink of VSSD. As ever, we thank Kirsten Mullen and Ying Tang, with love.

J. K. G.

W. D., Jr.

TO THE STUDENT

A NOTE ON NOTATION

In this text we have tried to develop a consistent and logical way of identifying our economic variables, so that you, the student, can tell at a glance what type of variable each symbol refers to.

The simplest kind of economic variable is the plain dollars-and-cents expression, which may be a wage rate, the price of a good or service, or the dollar value of all goods and services sold in the economy (gross national product and its components: consumption, investment, government spending, exports and imports). We call these nominal variables and use capital letters – W (wages), Y (national product or income), C (consumption), I (investment), G (government spending), X (exports), M (imports) – to express them in symbolic notation. We also use the block capital P to indicate the aggregate price level – an index number that tells you how much inflation there has been between any one time period and any other. And we use capital letters for the volume of employment (N) and the rate of unemployment (U), which are not dollars-and-cents expressions to begin with.

Often in macroeconomics our interest lies not so much in dollarsand-cents expressions, but in the underlying physical quantities, such as the volume of goods and services produced, or the amount of physical machinery purchased (investment). The measurement of these variables starts out in dollars-and-cents terms, but then an adjustment is applied to remove the effect of changing prices and so arrive at a measure of the underlying quantities. We call these derived expressions real variables, and say that they have been "deflated," which means that the effect of price inflation has been taken out. In this text, we will denote deflated variables with small letters. Thus, if

nominal national income is "Y", real notation income is "y".

We calculate real national income by dividing the nominal value for a given year by the index value of the price level ($P/100$)[1] in that year.

The price index is measured from an arbitrarily chosen base, a year whose value in that index is sct to 100. (For most of thc deflated series in this book, the index base year will be 1982, or 1987.) This gives us the value of real national income in terms of what the dollar was worth in the base year.

$$y_t = \frac{Y_t}{P_t / 100}$$

Thus, if we are using a price index that uses 1982 for thc base year, and the current value is 160, this would indicate $160/100 = 1.6$ or 60% inflation since 1982, which tells us that we must "deflate" nominal or "current" dollar national income by 1.6 in order to find real national income as expressed in "constant" 1982 dollars.

We use a dot on top to indicate the *rate of change* of economic variables, and we sometimes use a subscript to indicate the year in which a variable holds a certain value. Thus, if Y_t is nominal national income in year t, then

$$\dot{Y}_t = \left(\frac{Y_t - Y_{t-1}}{Y_{t-1}} \times 100\% \right)$$

is the percentage change of Y since the last period, and $\dot{y}_t$ indicates the corresponding percentage change of real national income.

Next, we frequently will make reference to the *equilibrium* values of a variable, usually in the "Walrasian" sense of the values at which markets clear (quantities supplied equals quantities demanded), sometimes in the "Marshallian" sense of a stable value that does not normally change. We will use asterisks to denote equilibrium values in either sense. Thus N^* denotes the equilibrium value of employment. When we need to denote different values of a variable that are not necessarily equilibrium values, for example in a figure, we will use a prime mark (N', not to be confused with the functional notation such as $N'(w)$, described below). If we need more than one such value, we will use numbered subscripts: y_1, y_2 and so on.

Finally, from time to time we need to express variables as *functions* of other variables – meaning simply that onc variable depends on another. For

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[1]   By convention, we divide the index number by 100. Thus, if 1982 is the base year, so that the price level in 1982 equals 100, the real or deflated value of any economic variable in that year is equal to the nominal value.

example, we may wish to say that labor supply (N^s) is a function of the real wage (w), so that when real wages go up, more people seek employment. We do this with parentheses, as follows:

$$N^s = N^s(w)$$

When we wish to show how a function changes with respect to one of its variables (a variable in a function is known as an argument of that function), we will use a prime (′) to indicate the direction of change. Thus

$N^{s\prime}(w) > 0$ is the same as
$d[N^s(w)]/dw > 0$

in the routine notation of derivatives, meaning (in this case) that labor supply rises when the real wage rises.[2]

By arranging our notation in this way we hope to help clear the often critical distinction between nominal and real values, and to help keep them clear as you work your way through theoretical models that sometimes use one, sometimes the other. We also hope to provide a ready key that will help you distinguish equilibrium from dis-equilibrium values and rates of change from level measures. Finally, we hope that this system can clearly indicate the functional dependence of one variable on another.[3]

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[2] If we need to show a seeond derivative (rate of ehange of the rate of ehange), we will use a double prime (″). Thus: $y\prime(N) > 0$ and
$y\prime\prime(N) < 0$
would indicate that real production increases with employment but at a diminishing rate.

[3] In particular, we try to show functions without resort either to formal calculus notation or to restricting ourselves to linear equations. Linear equations are simpler, but they would not be consistent with the curves with which we frequently illustrate such relations.

PART 1

THE MACROECONOMIC REVOLUTION

1 REVOLUTION AND COUNTERREVOLUTION

Looking Forward

These first three chapters describe the Keynesian revolution. Read them with your eye on the big picture. What were the economic conditions on the Great Depression? How did prevailing economic theory attempted to account for mass unemployment? Why did Keynes rebel against this accounting, what what did he attempt to put in its place? Do not try to master every detail of macroeconomic theory at this state. There is a lot of material in these chapters, and some of it may not become clear to you until you have had a chance to work through the formal models later on. But if you come away from these chapters with some appreciation of the climate of that time and in understand of how Keynes attempted to "shift the goal posts" in economic thinking with respect to both labor and capital markets, then you will be well prepared for the task that lies ahead.

The decisive event at the beginning of macroeconomics was the publication in 1936 of *The General Theory of Employment Interest and Money*, by the British economist John Maynard Keynes (1883-1946). In large measure, all subsequent developments in macroeconomics have been reactions, either direct or indirect, to this book.

The General Theory attempted in one blow to overturn most of economics as it then existed. Keynes considered the theoretical positions of his fellow economists to be both mistaken and dangerous. Indeed, his objections were to positions that he had himself held at one time, although never uncritically.[1] In

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[1] Keynes was always less than orthodox in both his public and his private life. Robert Skidelsky's masterful biography of the young Keynes, *John Maynard Keynes: 1883-1920, Hopes Betrayed* provides the essential details of Keynes' early life, personal life, and philosophical development.

the Preface to *The General Theory*, he wrote: "The composition of this book has been for the author a long struggle of escape ... a struggle of escape from habitual modes of thought and expression." He warned his readers that they, too, would have to wage such a struggle if the "assault upon them was to be successful...."[2]

Escape from what? Assault on what?

1.1 The Classical Economics

Keynes mounted his rebellion against a body of belief that he called "the classical economics." Classical economics had, by 1936, been dominant for precisely 160 years – since the publication of Adam Smith's *Inquiry into the Nature and Causes of the Wealth of Nations* in the American independence year of 1776. Its greatest 19th century masters had included the Englishmen David Ricardo, W.S. Jevons, and John Stuart Mill, and the Frenchman Jean-Baptiste Say. If there was, in Keynes' mind, a single leading modern master of the classical economics, it was probably his own teacher, Alfred Marshall (1842-1924), author of the first authoritative textbook in economics and inventor of the modern analysis of supply and demand.

The classical economics was a loose set of doctrines, rooted variously in moral philosophy, Newton's physics and Darwin's biology, substantially non-mathematical and lacking the systematic development and internal consistency that has come to characterize economics in our own time. We will present a synopsis, or more precisely a model, of the classical system when we get to Chapter 4. For now, we may content ourselves with a mere description of three main points of doctrine.

First and foremost, classical economics held that the total volume of employment in society was determined in a labor market, by the supply of labor and other resources available and by the demand for them. Wages were the price that balanced the supply of labor with the demand. If, for some reason, the supply of workers increased relative to demand for them, wages would decline. In that event, it would become attractive for the additional workers to be hired. And wages would continue to fall, and additional workers would continue to be hired, until there were no more workers who were willing to work at the prevailing wage. At that point, in a phrase, *the labor market would clear*. There would be no unemployment, except for workers in transition between jobs and those who were unwilling to work at the prevailing wage. In particular, there could not be a persistent excess supply of labor, of people willing to work at the prevailing wage but unable to find jobs, a condition otherwise known as mass unemployment.

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[2]   *The General Theory*, hereafter **GT**, p. viii.

Second, classical economics held that the interest rate, which is the rate of return on savings, investment and capital formation, was also determined in a market. The classical capital market weighed the demand for investment funds against the willingness of savers to defer present consumption; to classical economists the interest rate represented the balance of these two forces. If savings went up, interest rates would come down, and investment would go up to match the savings. Consequently, thrifty and virtuous nations (like the English!) would be rewarded with accumulating capital and wealth, while the feckless, live-for-today populations of other countries would remain mired in poverty. Since there was no possibility of mass unemployment, investment and consumption were the only possible uses of current production, and an increase in consumption (at the expense of savings) could come only at the expense of future investment, capital formation and wealth.

The notion of a balance between savings and investment was captured by a classical proposition known as *Say's Law*. Say's Law asserted, in effect, that all savings would necessarily be invested, that resources withdrawn from consumption by savers would return, automatically and necessarily, , in the form of demand for investment goods, to the general flow of demand for goods and services. Therefore, there was no possibility of what 19th century economists called a "general glut," or an "underconsumption crisis," a persistent excess supply of good that could not be sold. In a popular phrase that summarized Say's Law, "supply creates its own demand."

The third main principle of the classical economic system concerned money. In an odd way, classical economics had almost no role for money. According to the *quantity theory of money*, the total amount of circulating money in an economy, in comparison to the total volume of circulating goods, was responsible for the general level of prices. And the relationship between the two was thought to be quite steady over time. Since money earned no interest, while savings in other forms (such as bonds) did, it was not rational to hold money except as needed for transactions. And so, if the money supply increased more rapidly than the supply of goods, there would be price inflation; if it decreased, the general level of prices would fall.

Aside from that, classical economists believed, changing the quantity of money in an economy had no effects. It did not change the interest rate[3], and so would not change the balance between investment and consumption. It did not affect either the supply of goods, nor the demand for them, nor the supply of labor, nor the demand for it. People had no reason to hoard money (over and above what they needed for transactions) so there was no possibility that savings could disappear into idle money holdings, disrupting the smooth operation of Say's Law. With inflation, deflation, or price stability, the real volume of output, the level of employment, and the living standards of

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[3]   At least not after taking out any (purely cosmetic) effects of inflation on the interest rate.

workers would remain exactly the same. Hence, in a phrase you will encounter again and again in this text, *money was neutral*.

1.2 Keynes' Revolution

John Maynard Keynes by 1936 had come to reject each and every one of these ideas. He had come to believe that there existed no labor market mechanism that would automatically keep the economy at full employment. Nor did he believe that the smooth functioning of the capital market would assure that realized investment would always equal planned savings. Instead, he now believed that the supply of goods and the volume of employment depended on the demand for them, on the levels of consumption and planned investment – exactly the opposite of Say's Law. Keynes had also come to believe that the realized supply of savings, the amount that actually occurred as opposed to the amount that savers might plan for, did not depend on the interest rate, but instead on the level of income – on whether the economy was at full employment. And contrary to the quantity theory, he had come to see an intimate link between the money supply and the interest rate, and through them on the level of demand for output, and employment. In these links between topics that classical economics had kept separate, we find the very origin of macroeconomics as a distinct subject.

In consequence, where the classical economics emphasized the virtues of thrift and savings, monetary stability, and *laissez-faire* (non-intervention) in labor markets, Keynes came to exactly opposite conclusions. In a comprehensive and dramatic break from the orthodoxies of his time, Keynes called for increased mass consumption, public spending, low interest rates, and easy credit. And he opposed the classical remedy of wage-cutting for the then-inescapable problem of mass unemployment.

For Keynes this was no academic parlor game; the stakes were extremely high. The *Great Depression*, an unparalleled disaster, had been going on in Britain by that time for more than a decade. Double-digit unemployment had emerged in Britain as far back as 1921, when the rate jumped from 3 to 19 percent. From 1930 to 1933, estimated British unemployment rates exceeded 20 percent[4]. Moreover, by September 1926 the index of economic production had declined to half of its September 1920 value; it was not to reach the 1920 level again until June 1936.[5]

The Great Depression in the United States of America was no less dramatic. Between 1929 and 1933, the unemployment rate rose from 3 percent to 25 percent, the U.S. economy's output fell by one-third, money-wages and

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[4]   Not until the British mobilization for World War II did the unemployment rate fall below 10 percent. See Forrest Capie and Michael Collins, *The Inter-war British Economy: A Statistical Abstract* Manchester: Manchester University Press 1983, 62-9.

[5]   Capie and Collins, *op. cit.*, 20.

consumer prices both fell about 30 percent, and the prices of farm products fell by 50 percent.[6] The event that signalled the collapse was the crash of the New York Stock Exchange in late October 1929. By November 1929, the average price of fifty leading stocks was half of what it had been in September of the same year.[7] And the fall continued until July 1932, when the Dow Jones Index of leading industrial companies' stocks dropped to 41, a 90 percent decline from its high in September 1929.[8]

The crisis in the securities market also hit hard at American commercial banking. After the Crash, bank failures soared as panicked depositors withdrew their funds. Without deposit insurance, those who were unable to withdraw their money before their bank closed lost everything. Between 1929 and 1933, 11,000 of U.S. banks failed, over forty percent of those in existence in 1929. About $2 billion in deposits were lost.

Keynes was convinced that these phenomena lay outside the comprehension of the economics and the economists of his day. Worse still, he had concluded that habitual economic modes of thought led to policies that would prolong, and perhaps perpetuate, the calamity. New policies, which were urgently required, could not be built on the old foundations. Rather, a new vision of how the economy functions, a new theoretical basis for policy, was required.

At first, and for quite a long time, Keynes' idea that the Depression broke with the past in a fundamental way was a minority view. There had been a long historical experience, particularly among Western countries, with financial panics and crashes, recoveries and collapses. The phrase "Prosperity is just around the corner" was commonplace among political figures in 1930. Keynes, however, could be heard warning, "The world has been slow to realize that we are living this year in the shadow of one of the greatest economic catastrophes of modern history."

Yet Keynes argued – and here was another radical departure – that the Depression was all a nightmare that could, with the design and execution of proper policies, be put right by tomorrow morning:

> If our poverty were due to earthquake or famine or war – if we lacked material things and the resources to produce them, we could not expect to find the means to prosperity except in hard work, abstinence, and invention. In fact, our predicament is notoriously of another kind. It comes from some failure in the immaterial devices of the mind, in the working of the motives which should lead to the decisions and acts of will, necessary to put in movement the resources and technical means

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6   Gary Smith *Money and Banking: Financial Markets and Institutions* Reading MA: Addison-Wesley 1982, 292.
7   "The Past," *Business Week*, September 3, 1979, 9-10.
8   Gary Smith, *op. cit.*, 292.

we already have. It is as though two motor-drivers, meeting in the middle of a highway, were unable to pass one another because neither knows the rules of the road. Their own muscles are no use; a motor engineer cannot help them; a better road will not serve. Nothing is required and nothing will avail, except a little clear thinking.[9]

1.3 Counter-Revolutions after Keynes

Unfortunately for Keynes, the "clear thinking" for which he called has never seemed quite so clear to other economists. Despite the fact that the policies he advocated have been widely implemented, Keynes' theoretical perspective was never embraced in full by the economics profession, and in that sense Keynes' revolution remained incomplete. The long history of "Keynesian economics" is one, in part, of repeated efforts to explain in simple, precise and rigorous terms "what Keynes meant", followed by repeated attacks both on these explanations and on the theoretical perspective behind them.

In the beginning, which is to say from the 1940s through the early 1960s, Keynes' revolution certainly dominated the field. In this period we see the elucidation of the simplest concepts of the Keynesian system, notably the relationship between the "multiplier" and the "marginal propensity to consume," from which Keynes had derived the first principles of his theory of the level of employment. These concepts provided a powerful way to explain why the mass unemployment of the 1930s did not reappear, as many expected it would, after the end of the Second World War in 1945. We explore multiplier models and theories of consumption behavior in detail in Chapter 4.

Multiplier models and consumption functions were, however, only a part of the whole Keynesian system. They helped explain how government spending could prop up consumption and so keep an economy out of Depression. But they ignored the roles of money, of the interest rate, and of demand for investment with which, as we have seen, Keynes was greatly concerned. And as the Keynesian era matured, many economists, especially in the United States, were drawn toward a much more complete effort to capture and represent the insights of the *General Theory*. This was the **IS-LM** model, generally attributed to Sir John Hicks of Oxford and Alvin Hansen of Harvard.

IS-LM, which we present in Chapter 5, has long formed the core of textbook Keynesianism and still does to this day. It represents an effort to integrate a model of the market for physical output (commodities), which incorporates the consumption function and the multiplier, with a model of the market for money, which incorporates Keynes' ideas about the determination of the rate

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[9] Keynes, "The Means to Prosperity - 1930", in *Collected Works* (hreafter **CW**).

of interest. IS-LM models are very broad, flexible and useful. In more recent years, they have been modified to underpin models of international economic inter-relationships (such as the exchange rate); we will present an exposition of such a model in Chapter 11.

In the 1960s, another relationship was added to the Keynesian system, in an effort (we believe) to make it even more relevant to the practical policy questions of the day. This was an empirical relationship between inflation and unemployment, known as the *Phillips Curve*, after its originator, A.W. Phillips of the London School of Economics. The Phillips Curve simply stated that the rate of inflation would be low so long as unemployment was high, and that it would tend to rise when unemployment fell. There was, it was said, a "trade-off" between the desired objectives of full employment and price stability; policymakers could choose what sort of economy they desired by picking from the Phillips Curve's menu of possibilities the particular combination of unemployment and inflation that they might prefer. We discuss the Phillips Curve in Chapter 5.

There were only two problems with the Phillips Curve. First, try as one might, one could not derive the relationship observed in the data from theoretical first principles in any fully persuasive way. And second, the relationship that was observed in the data disappeared, catastrophically, with the high inflation and low growth rates that began to plague the American economy after 1968. By pulling on that string, critics of the whole Keynesian system were able to re-emerge, reassert themselves, and in the end very nearly to cause the entire system to unravel.

The first round of counter-revolution emerged under the banner of *Monetarism*, led by Professor Milton Friedman. Monetarists, whose ideas we treat in Chapter 7[10], sought to re-establish the classical relationship between money growth and inflation, and to refute the Phillips relationship between inflation and unemployment. In the long run, the Monetarists argued, there was no trade-off between inflation and unemployment, and a slow rate of money growth would yield high employment with stable prices just as surely as a high rate of money growth would yield high employment with inflation.

The Monetarist effort to overturn Keynesian theory and policy recommendations attracted wide support among economists, but also generated a new round of theoretical criticism and innovation, largely among Friedman's own students and colleagues at the University of Chicago. This led, in the early 1970s, to a post-Monetarist grouping that styled itself the *New Classical Economics.* We present New Classical Economics in Chapters 8 and 9.

The New Classical Economics combined Monetarism with another idea drawn from the old classical repertory, namely the notion that markets for labor and

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[10]   After a chapter Six devoted to ideas about money.

capital are fully self-adjusting. To this they added a concept all their own, based on the notion that all individuals are able to make fully efficient use of all available information in making economic forecasts: the concept of *rational expectations*. With the triple tools of Monetarism, Market Clearing and Rational Expectations, the New Classical Economists sought to demolish Keynesianism once and for all, and to restore the basic non-interventionism policy conclusions that had prevailed among classical economists before the Great Depression.

They almost succeeded. For fifteen years or so, up until the late 1980s, the New Classical Economists dominated the theoretical side of macro-economics, and they remain highly influential to this day. But the initiative has shifted with the emergence of yet another group in the late 1980s. This group, in conscious imitation of and opposition to the New Classicals, has taken the designation of *New Keynesians.* The New Keynesians accept many of the theoretical arguments of the New Classicals, but reject the idea that markets self-adjust to assure full employment. Thus, for New Keynesians, there remains an important role for the government to play in fighting unemployment, something that New Classicals deny. We explore the New Keynesian position in Chapter 10.

In all of this complicated history, yet another group of macroeconomists has remained active. This group is usually known as *Post-Keynesian*, and is distinguished by its strong continuing interest in certain theoretical and policy issues which the other groups have tended to neglect. In particular, Post-Keynesians predicate their analysis on a world of uncertainty, in which public policy plays a powerful function of coordinating and shaping the expectations of businesses, consumers, savers and other economic actors. Post-Keynesians believe that their formulations of macro-economics are both closer to that of Keynes himself and more relevant to the politics of the modern world than the those of the other disputants. The Post-Keynesian group is both smaller and in many ways less influential than the Keynesians, Monetarists, New Classicals and New Keynesians, but in our judgment their views are important. The Post-Keynesians reject rational expectations, and work with a model that lays stress on interest rates, the pricing of assets in capital markets, the level of effective demand, and the effects of technological change – all of them topics that are highly relevant to today's world. We round out our text with a presentation of Post-Keynesian views in Chapters 12 and 13.

Thus, ever since Keynes invented macroeconomics in 1936 macroeconomists, whether self-consciously or incidentally, either have supported positions taken by Keynes in *The General Theory* or supported positions from which he sought to escape. And even if the matter has not always been cast in these terms by its protagonists, the debate between those who have been with Keynes and those who have been against him has dominated macroeconomics for the past sixty years and still dominates it today. The flux continues, and

the subject survives in part by a process of creative self-destruction. Which is another reason for learning about its evolution alongside its modern form. For one can be sure of only one thing about the subject on which you are about to embark: in a few years from now, it will be different.

Special Section
Keynes, Einstein and Scientific Revolution

One of the most intriguing and little-noted facts about Keynes' *The General Theory of Employment, Interest and Money* concerns the title itself. This is evidently cribbed, and quite consciously so, from Albert Einstein's historic 1915 paper, *The General Theory of Relativity*.[11]

The economists Hsieh and Ye have recently taken up this theme:

"Keynes was, probably, the first economist who recognized the importance of Einstein's theory of curved space-time. The following passage [from the *General Theory*] provides us with strong evidence that Keynes was well acquainted with Einstein's general theory.

The classical theorists resemble Euclidean geometers in a non-Euclidean world who, discovering that in experience straight lines apparently parallel often meet, rebuke the lines for not keeping straight – as the only remedy for the unfortunate collisions which are occurring. Yet, in truth, there is no remedy except to throw over the axiom of parallels and to work out a non-Euclidean geometry. Something similar is required in economics."[12]

In our view the parallelism that Keynes intended, between his revolution and Einstein's, runs very deep. It is therefore worthwhile to spend a few pages trying to explain how the two fields of physics and economics are related and what Keynes, apparently, had in mind.

Newton's Physics

Albert Einstein came of age in a world where the physics of Sir Isaac Newton still reigned largely supreme. Newton, the great seventeenth century scientist and mathematician, had developed the calculus to help explain the motion of

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[11] This point was first made to one of us in private conversation by Lord Robert Skidelsky, author of the definitive biography of Keynes.

[12] Ching-Yao Hsieh and Meng-Hua Ye, *Economics, Philosophy and Physics*, Armonk, ME Sharpe 1991, pp. 80-81.

matter in space, and had set forth a system of laws that governed gravity, one of the most basic forces known.

Two features of Newton's worldview are especially important.

The first is that it presupposes an absolute separation of *space* and *time*. Space is Euclidean: an empty three-dimensional void stretching infinitely in all directions. The position of any particle in space can be defined, by means of a system of coordinates, with respect to any observer or any fixed reference point.[13] Motion is defined, simply, as the displacement of the particle from one position to another. Velocity is motion, divided by the number of ticks on a clock that it takes for the motion to occur. The clock that is used to measure velocity lies, in a strict sense, outside the universe itself. In other words, all observers of an event, provided they were equipped with accurate timepieces, no matter where they might be, would always agree on the exact time that the event occurred. Newton imagined time as an absolutely regular phenomenon that could not depend on the location of the clock or be affected by its movement or that of the observer or of any other physical force.

Gravity in Newton's system is the basic force exerted by one massive body on any other. Gravity produces the acceleration of a particle in space, according to the position and mass of all other particles in the universe that would be exerting gravitational force on the particle in question. And, in Newton's view, this interaction of each particle on every other *is all there is*. Once you knew the position, mass, direction and velocity of every particle in the universe (admittedly, a tall order!), you would not need to know anything else. Every future event would be fully determined by the laws of motion. We can say that this complete dependence of the behavior of the whole universe on its individual parts reflects the *linearity* of Newton's physics: the whole is nothing more than the sum of its components.

Newton & Classical Economics

Newton's physics influenced the development of what Keynes called the Classical economics as much as any single intellectual force. Indeed, as the economist Philip Mirowski has recently argued,[14] the imprint of Newton's mechanics is fundamental to economic thought even today. Without going into great detail, it is possible to trace out the role of each of the above features in the Classical economics of Keynes' time and in modern neo-Classical economics.

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[13]   This is done by placing the reference point at the origin of a (cartesian) coordinate system, and measuring the distance in each of the three dimensions of space from the origin to the projection of the particle on the coordinate axes – just as we locate points in graphs in this text by reference to an "x" and "y" axis.

[14]   See Philip Mirowski, More Heat Than Light: Economics as Social Physics, Physics as Nature's Economics, Cambridge, Cambridge University Press: 1989.

The absolute separation of space and time is deeply imbedded in the way economists reason, then and now. *The analog of space is the market.* Look at virtually any diagram in this text – for example the simplest labor market diagram such as Figure 2.1 in the next chapter. The graph itself is a two-dimensional space.[15] Every point on the graph is a position defined unambiguously and uniquely with respect to the origin. The relationships between variables are presented as forces in this space: demand aligns wages and employment in a downward sloping relation; supply aligns them along an upward slope. If two curves cross in that space, their point of intersection is an equilibrium position, where the forces balance. Where labor supply and labor demand intersect, there is the equilibrium of full employment.

The analog of Newtonian time, in the classical economics, is money. Just as time is separated from space, money is separated from the market. Prices and wages may be measured in money terms, but this is only a convenience. The prices being measured are "relative prices," prices in relation to the prices of other goods.

The wages being measured are "real wages," wages in terms of the commodities that wages purchase. Like time, money is only a unit of account. Just as it does not matter whether one measures time in seconds or in hours, it does not matter whether one measures prices in dollars, or dimes, or pesos, or yen. The quantity of money has no effect on the equilibrium of the market; nothing "real" depends on money in any important way.

The linearity of Newton's system is equally fundamental to classical economics – and remains so today. From the very beginning of their training, economists are taught that individual human action underlies all economic decisions. There is in this view no economic "society" with independent laws of its own; societies are nothing more than the sum of their individual components. Macroeconomic expressions, which purport to describe the behavior of "society as a whole," are in reality just a shorthand for the behaviors of large groups of individual people. In principle, therefore, it ought to be possible to develop a macroeconomics built strictly and rigidly from the theory of individual behavior, or "micro-foundations." If this has not yet been done, the problem must lie mainly in the difficulty of acquiring all the information that is necessary about all of the individuals whose preferences and behavior must be considered.[16]

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[15] In more technical presentations of modern microeconomics, we frequently hear it said that different commodities define a "space," and that utility is a "field in commodity-space." In this simpler two-dimensional representation, the y-axis represents price *in terms of all other commodities*; thus the many dimensions of a commodity space are approximated by the two dimensions of a demand-supply diagram.

[16] And this failure in no way invalidates economic laws, just as a failure to predict the future of the universe because of a lack of information about every particle in it would hardly invalidate the laws of motion.

Einstein and Newton's Mechanics

By the time Keynes came along, the Newtonian view of the physical universe had crumbled. Einstein's theories of relativity had done it in.

The absolute separation of time and space collapsed with Einstein's introduction of a new universal constant, the speed of light. If light traveled, everywhere and always and irrespective of the direction and velocity of the observer (as Einstein argued and experiments have confirmed) at the same identical speed (300,000 km per second), then the absolute simultaneity of two or more very distant events could no longer be defined. Clocks in different places will record these events at different times, and none is more "correct" than any other. Moreover, Einstein was able to show that space, time and motion were interrelated – time moves more slowly near massive bodies than it does in empty space.[17]

Furthermore, this newly unified concept, space-time, also destroyed the Euclidean concept of emptiness extending forever in all directions. Space-time is *curved*. Near any massive body the shortest distance between two points[18] curves around it. For this reason, parallel lines invariably meet if extended far enough. Keynes's reference to overthrowing the Greek geometer Euclid's "axiom of parallels" is an allusion to this feature of Einstein's theory.

But if space-time is curved by the presence of matter, then the shortest distance between two points is no longer defined independently of the distribution of matter in space. And then the system is no longer *linear*: you can no longer get to the whole merely by adding up the parts. The universe is, instead, more easily and more correctly understood by looking at the whole and placing the parts within it. The whole can impose rules on the parts: "space-time tells matter where to go; matter tells space-time where to curve."

Keynes, the Classics, and Relativity Theory

There can be little doubt that Keynes had both of these troubled features of the Newtonian worldview, as reflected in the Classical economics, in his gunsights when he wrote *his General Theory*.

In the first place, Keynes sought to disestablish the "absolute space" of classical markets, and to end the separation of these markets from the world of money. We shall see in the next chapters how he characterized his theory as a "*monetary theory of production*" and contrasted it with what he called the "*real-exchange economics*" of the classical view. In so doing, he broke down the traditional non-monetary concepts of a "labor market" and a "capital market",

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17 Experiments with atomic clocks in airplanes have since proved that increasing the altitude of a clock causes it to run faster (age more quickly).

18 and the path of a ray of light, as experiments confirming Einstein's hypothesis showed.

suffusing both of these subjects with concepts – "effective demand" and "liquidity preference" – that cannot even be conceived except in monetary terms. *Monetary production* is Keynes' space-time: the marriage of two concepts previously held to be absolutely distinct.

Second, Keynes disavowed the linearity, or reductionist, or "bottom-to-top" approach of the classical economists, the idea that the behavior of the system could always be explained by reference to the behavior of individuals within it. The pernicious influence of this view was especially apparent, in Keynes' opinion, where it came to the theory of employment. Classical theory had focused the attention of those concerned with employment and unemployment on a labor market, an act of cognition that places the actions of workers and the firms who hire them in a central perspective, while relegating all other influences to the background. This led the practitioners of the classical economics to the unshakeable conclusion that *involuntary* unemployment could not, in any strict sense, exist. If a person was *apparently* unemployed, in the classical view, it should always be possible for him to find work by cutting his wage a sufficient amount. Supply would intersect demand, eventually, if only this prescription were followed.

Keynes sought to show that this was not, in fact, the case. The act of dropping wages would generate feedbacks through previously unrecognized – monetary – channels in the system. These would reduce the demand for workers and prevent total employment from rising. The system interacts with itself, and an equilibrium *of* the labor market cannot be achieved *within* the labor market. Economic space-time is curved. When Keynes speaks of overthrowing the axiom of parallels, in the passage quoted above, he is referring specifically to the need to create a non-linear economic world. The analog to the axiom of parallels, in his mind, was the Classical theory of the supply of labor, the "second postulate of classical doctrine" – precisely that part of the classical vision that reduced unemployment to a matter of individual decision:

 "...We need to throw over the second postulate of the classical doctrine and to work out the behavior of a system in which involuntary unemployment in the strict sense is possible."

There is much more to macroeconomics, and to Keynes' economics in particular, than the mere imitation or attempted imitation of modern developments in physics. Nevertheless, the parallels between what Einstein did and what Keynes attempted to do give insight, not only into the nature of the revolution that he was attempting, but also into the scale of his ambition.

1.4 Summary of Chapter 1

The starting point for modern macroeconomic theory is *The General Theory* by John Maynard Keynes. All theoretic formulations since its publication have been either direct or indirect reactions to it.

The General Theory was itself seen by its author as a rebellion against what he called Classical economic theory. Classical economic theory is popularly said to begin with Adam Smith, but its actual formulation owes more to the economists that came between Smith and Keynes. In Keynes' view Classical economics has three basic tenets. The first is known as Say's Law and it holds that supply creates its own demand. The second is that the interest rate is determined in a market for loanable funds. The third tenet is the quantity theory of money for the determination of the price level.

Keynes rejected all three of these tenets. He instead offered an explanation for the Great Depression that did not depend on the "real" explanations of the Classicals. In the chapters that follow, explanations of, reactions to and extensions of the Keynesian system will be presented that include: multiplier analysis, "IS-LM" analysis, the Phillips' curve, Monetarism, New Classical Economics, New Keynesian Economics and Post Keynesian Economics. Also since it provides a convenient historical and theoretical counterpoint to Keynesian economics, the Classical economic doctrine will be examined in some detail.

1.5 Questions for Chapter 1

1. Where would you place the Keynesian and Classical schools into the current political debate? Which political parties line up with which schools? Since political parties are not homogeneous, it may be important to distinguish among personalities or "schools of thought" within the political parties at times.

2. How did the most recent economic downturn, that of 1989-1992, compare with the Great Depression? Make specific reference to economic statistics in your answer.

3. Policies suggested by a theoretical inquiry can sometimes be adopted by policy makers without their adoption of the actual theory. Can this be a problem? Explain.

4. At the end of Chapter One, a quick prospective view of the book is given, with specific reference to several schools and sub-schools of economics. For each of these give your quick (and as yet uninformed) assessment of how it would formulate policy to fight unemployment.

5.   How do the background and circumstances of Keynes and the Keynesian revolution compare with such other scientific revolutions as those associated with Newton, Darwin, and Einstein?

2 EMPLOYMENT AND UNEMPLOYMENT

Looking Forward

Can people be involuntarily unemployed? In the face of the Great Depression, the prevailing economics maintained that they could not. If there was mass unemployment, it must be because workers were demanding wages that were too high in relation to the value of what they produced. The problem would surely go away if only workers would let wages fall and allow the markets to work. Unemployment, therefore, was really the fault of those unemployed workers who were making unreasonable demands, and need not be a great concern of anyone else.

Keynes did not think it was so simple. Thinking afresh about the labor market, he came to believe that lower *money* wages might make unemployment worse rather than better, and that achieving lower *real* wages might be beyond the power of workers alone to achieve, even if lower real wages would, in principle, erase unemployment.

If the cure for unemployment lay beyond the powers of the unemployed, then, Keynes agreed, their unemployment was truly *involuntary*. And something more than passive faith in the market would be required to correct it. This chapter traces the intellectual steps that drove Keynes toward this conclusion.

As you read this chapter, bear in mind that we are not trying to present a formal macroeconomic model at this stage. Rather, we are trying to think our way through a conceptual dispute. As you go along, you can test your understanding by asking yourself the following questions:

- How was the classical labor market supposed to work? Why did that rule out involuntary unemployment?

- What criticisms did Keynes level at the classical labor market? How did these criticisms lead toward a coherent notion of involuntary unemployment?

- If a malfunctioning labor market was not the cause of mass unemployment, what was?

Keynes opens *The General Theory* with a one-page chapter, which makes the claim that the classical theory from which he sought escape is, at best, only a "special case". Of the many possible economic outcomes or positions of equilibrium, the classical theory acknowledges but one: the position of full employment. The *general* theory, Keynes' theory, asserts instead that many different equilibria are possible. And these are characterized, in general, by unemployment.

Keynes made a further claim: that a world with unemployment is qualitatively different from the world of full employment. Propositions that hold under the special classical condition of full employment do not hold when there is persistent unemployment. Moreover, the classical theory ruled out the very possibility of the particular type of unemployment that Keynes found especially relevant to the Great Depression. This he called *involuntary unemployment*. And so, a new theory would be required to analyze such a world.

2.1 The Classical Theory of Employment

Keynes himself provides a cogent description of the classical theory of employment, against which he would rebel. We shall follow his description, both because it is reasonably fair, and because in so doing we can most easily pinpoint the issues around which Keynes sought to foment his revolution.

Two postulates sum it up. The first of these describes labor demand: *the wage equals the marginal product of labor*. Firms determine how much many workers they wish to hire by adding employment until the last person hired is only just worth what he or she is paid. In Keynes' words: "...the wage of an employed person is equal to the value which would be lost if employment were to be reduced by one unit (after deducting any other costs which this reduction of output would avoid)...."[1]

As Keynes notes, the classicals admitted to one qualification: the equality between wages and marginal products will not hold "if competition and markets are imperfect." In that case, firms are employing fewer workers than under perfect competition, and the marginal product of labor may be higher

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[1]   [JMK, GT, p.5]

than the wage that is actually being paid.

The second classical postulate describes labor supply: *for any given amount of employment, the utility of the wage is equal to the marginal disutility of work.* People are willing to work up to the point at which the wage just ceases to compensate them for the inconvenience and effort of working. Again in Keynes' words: "...the real wage of an employed person is that which is just sufficient (in the estimation of the employed persons themselves) to induce the volume of labor actually employed to be forthcoming...." [2]

The qualification the classicals admitted here is that this equality will not hold if laborers combine (that is, if they form a union), producing circumstances "analogous to the imperfections of competition that qualify the first postulate." In that case, the wage may be higher than strictly necessary to bring people into the labor market.

With the second postulate in place, a classical economist could acknowledge the possibility of unemployment, but only of very particular types. The types of unemployment consistent with the classical vision are "frictional" and "voluntary".

Frictional unemployment involves temporary mismatches of jobs and skills or temporary bottlenecks in production, which might slow the movement of labor from one sector or from one region to another. Unemployment that is due to slow adjustment by workers to changes in patterns of supply and demand for goods, or to transitions from one job to another, also fall under this designation. Frictional unemployment is inherently transitory, and wholly compatible with the view that "the existing economic system is in the long-run self-adjusting, though with creaks and groans and jerks...." [3]

Voluntary unemployment arises when "a unit of labor" refuses or is unable "as a result of legislation or social practices or of combination or collective bargaining or of slow response to change or of mere human obstinacy, to accept a reward corresponding to the value of the product attributable to its marginal productivity." [4] In short, voluntary unemployment occurs if there are laborers who refuse employment at a wage equivalent to the value of what they produce. Such workers *could* have found jobs, had they been willing to work for a "market" wage. They were not willing, and their consequent unemployment is entirely due to their own choice. Hence, it is voluntary.

These are the only types of unemployment that are permissible in the classical analysis. From the standpoint of the classical theory they are "comprehensive." They flow, directly and logically, from the two classical postulates.

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[2]   ibid.
[3]   JMK, "A Self-Adjusting Economic System?" *The New Republic* Feb. 20, 1935 p.35.
[4]   GT, 6.

In the classical theory, the first postulate provides the basis for the *demand curve for labor*. Labor demand depends on the productivity of labor. The second postulate provides the basis for the *supply curve for labor*. Labor supply depends on how willing workers are to put in additional hours in response to changing rates of pay.

Where these schedules intersect, the level of employment and the *real wage* for the economy are determined. There is, in effect, an aggregate market for labor, and the position where that market clears establishes a *Walrasian general equilibrium*, in the classical theory. Notice that there is only one possible level at which the market can clear, since both schedules depend exclusively on the real wage rate. That position is given by N^* in Figure 2.1.
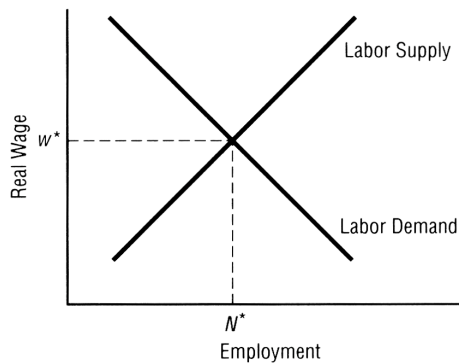
Figure 2.1   **The classical labor market.** *In the classical labor market the market-clearing real wage and employment levels are determined at the intersection of a downward sloping demand curve and an upward-sloping supply curve.*

In the classical view, if a policymaker thought the existing level of employment N^* was unsatisfactory for any reason, then he or she only could pursue long run strategies: strategies intended to change the mechanics of the labor market, or the tastes of workers for work, or the techniques of production available to employers and hence the demand for labor. For example, if there was a means of changing workers' tastes so that they had a lower marginal disutility of labor, the supply curve for employment could shift to the right, raising employment to N^{**}, as shown in Figure 2.2. If technical change could raise the productivity of labor in the sector producing consumption goods for workers, so that workers become cheaper, in effect, to hire, the demand schedule for employment could shift to the right, raising employment to the level N^{***}. But with given tastes and technology, and with real wages that can freely adjust to clear the employment market, N^* would be the only possible (Walrasian) equilibrium level of employment.
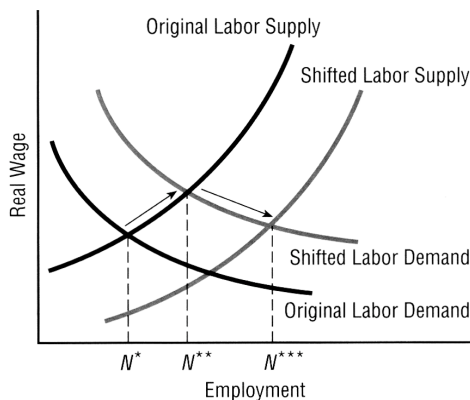
Figure 2.2   **Shifts in Labor-Demand and Supply.** *Shifts in the labor demand
                curve will cause a change in the equilibrium level of employment, as
                from N* to N**. A shift in the labor supply curve can cause a further
                shift, from N** to N***. Note that the equilibrium real wage will rise
                when demand shifts outward but will fall when supply shifts outward.*

Of course, if there were lags (and "creaks") in arriving at the market clearing
level of employment, then improved organization of the employment market,
improved information about job opportunities, and other reforms could
reduce the frictions. This would reduce the incidence of unemployment of the
frictional variety. Policymakers with concerns about the slow adjustment of an
employment market might resort to the development of labor exchanges, of
public offices where the unemployed could find out about available jobs. Such
exchanges were proposed by some economists in Britain in the 1920s,
convinced, as they were, that the new phenomenon of mass unemployment
was nevertheless mainly frictional in character.

Taking a Closer Look

Two Concepts of Equilibrium

We have seen that Keynes' idea of unemployment equilibrium stresses that
unemployment will not correct itself: it is an equilibrium. Yet to this idea, the
instinctive response of most economists, then and now, has been to argue that
a position of unemployment by its nature cannot be an equilibrium. And
many expositions of Keynesian economics have tried to reconfigure his theory
so as to explain unemployment as a persistent *disequilibrium* phenomenon
(caused, for example, by "sticky wages"). Therefore, we may usefully ask:
what did Keynes mean? And was his insistence on *unemployment equilibrium*
based on confusion, as some asserted, or was it fundamental as he believed?

Part of the puzzle comes clear as soon as we realize that the word equilibrium
has at least two commonplace meanings in economics. One is attributable to

Alfred Marshall, the great English economist and Keynes' own teacher. The other is owed to the French economist Leon Walras, (1834-1910)[5]

Walrasian equilibrium is a mathematical construct. It is the condition of equality between supply and demand in all markets, for all possible goods and services, at the same time. The economy is in "equilibrium" when *each* of the individual markets for goods and services are entirely free of "excess demands" and "excess supplies." All markets clear; Walrasian equilibrium means universal *market clearing*. The absence of equality between supply and demand in any one market means, from the Walrasian standpoint, that the economy as a whole is in *disequilibrium*.

The *Marshallian* concept of equilibrium is more clearly related to the descriptive notion of equilibrium in the physical and biological sciences. It is simply a condition where there is no tendency for the system to change. An economy in Marshallian equilibrium is at a resting point; the forces that might ordinarily bring on a change are in abeyance or in mutual balance. Short of an externally induced shock, the economy will simply maintain its status quo. The parallel with the natural sciences can be seen, for example, by comparison with the concept of a chemical solution that is in equilibrium; the solution is at "rest," and no further changes in its composition will take place, unless it is disturbed by the infusion of a new substance.

The Walrasian and Marshallian concepts of equilibrium are not the same. For example, all markets might clear, but rates of profit in different industries could differ. This would create an incentive for capitalists to transfer resources from low profit to high-profit activities. As long as profit rate differentials persist, the economy cannot be at a resting point; it still will be in a process of constant change. Therefore, an economy in Walrasian equilibrium need not be in Marshallian equilibrium.

Alternatively, all markets might not clear, but there might not be a tendency for further change to take place. The simplest case occurs when some price refuses to adjust. In this case there is stability, but a persistent condition of non-market-clearing. Therefore, an economy in Marshallian equilibrium need not be in Walrasian equilibrium.[6]

Keynes was a student of Marshall and a Marshallian in much of his thinking. Consequently, he was not much concerned with whether markets were clearing–they might be or they might not be–but he was deeply concerned with whether there were forces internal to the economic system that would

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[5] See Victoria Chick, Macroeconomics After Keynes: A Reconsideration of the General Theory Cambridge: MIT Press 1983 pp.21-4.

[6] An extreme example of Marshallian equilibrium and Walrasian disequilibrium occurs in socialist economies, where chronic shortages of goods of all kinds coexist with chronic excess supplies of money. In this case, rigid controls prevent the adjustment of prices and production, and the economy stagnates.

continue to alter its performance. When he argued that his general theory implied many possible positions of equilibrium – all, except the limiting classical case, being positions of *unemployment equilibrium* – he meant that there were ordinary circumstances under which an economy could get stuck producing at low output levels, and there would be no "natural" mechanism to restore full production and full employment.

Still, in the classical view, if the economy were to settle at any level of employment besides N*, with given tastes and technology, it could only be because the market for employment persistently failed to clear. This would be the outcome of the failure of real wages – the "price" of labor – to adjust. Figure 2.3 shows the excess supply of labor that would result. If the real wage cannot fall below w_1 for some reason, then it can never reach the level w* that will clear the market for employment. The classical economist would admit to this possibility, but also would point out that the cure lies entirely in the workers' hands. If they only would allow their wages to fall to $\boldsymbol{w}$*, employment would rise to its market clearing position at N*. So the gap between N_1 and N_2 in Figure 2.3 represents voluntary unemployment, in the classical view. Note that the demand side of the market, not the supply side, sets the level of employment under conditions of excess supply. As the figure illustrates, there are more workers who want jobs at the real wage w_1 than there are jobs that employers are willing to offer at that wage. The classical conclusion is, if only those hard-headed workers would accept wage cuts then they would have jobs – at least, some of them would, while others who would have liked employment at the artificially high wages will no longer want it when wages fall.
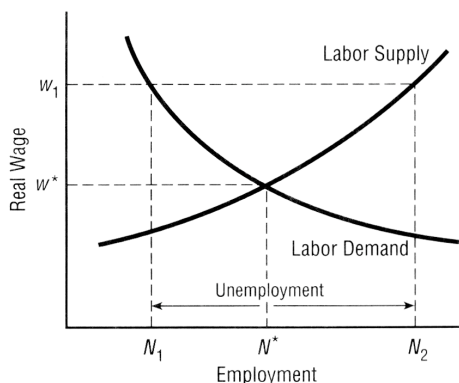
Figure 2.3   **Classical Unemployment.** *If the real wage is above the level consistent with equilibrium employment, labor supply will exceed labor demand and unemployment is the result. Such unemployment is voluntary because a fall in real wages will bring about a return to equilibrium employment.*

A classical economist may sympathize with labour in refusing to accept a cut in its money-wage, and he will admit that it may not be wise to make it to meet conditions which are temporary; but scientific integrity forces him to declare that this refusal is, nevertheless, at the bottom of the trouble.[7]

2.2 Keynes' Attack on the Classical Labor Market

Keynes' aim, as we will see, was to shift economics away from the use of labor supply-and-demand apparatus as the basis for determining real wages and the level of employment. For Keynes, employment and wages will not be determined in a "labor market;" rather they will flow from the conditions of demand, *in product markets*, for the goods that workers produce.

Keynes begins his rejection by repudiating the *second* classical postulate – that the utility of the wage equals the marginal disutility of employment – the postulate that provided the basis for the classical supply schedule for labor. There were two reasons for this repudiation. The first, which he described as "not theoretically fundamental", was that the classical supply curve did not accurately describe the way workers behave. Keynes pointed out that workers did not respond to reductions in their real wage rate caused by cuts in their money wages (the numerator of the real wage), in the same way that they would respond to real wage rate cuts caused by a small rise in the consumer price level (in the denominator).[8] They would withdraw their labor if money wages fell, but not if prices rose. Thus, labor's refusal to accept cuts in money wages does not mean a refusal to accept a lower real wage, and a supply curve based solely on the real wage would not accurately predict or characterize such asymmetric behavior.

Is such an asymmetry irrational? – "money illusion", as it has been called? Why should workers distinguish between a reduction in real wages caused by a one percent cut in their money wage and one caused by a one percent increase in prices? Keynes offered this reason: cuts in money-wages are conducted in piecemeal fashion, while the effects of a price inflation affect all workers alike. If a group of workers in the textile industry accepts a cut in their money-wage, they experience a fall in their wages *relative* to those workers in other industries that have not yet accepted a cut. They would view such a cut as deliberate action of their own managements, and they would resist it. An inflation of the prices of the goods workers purchase, however, is of an all-around character, an anonymous event for which no one can be directly blamed, and no group's relative position in the wage ladder will be affected.

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[7] JMK, GT, 1936, p.16.
[8] JMK, GT, 8.

Workers struggle over money-wages, not because of an irrational attachment to *money illusion*, but because, in Keynes' words, "the struggle about money-wages primarily affects the *distribution* of the aggregate real wage between different labour-groups...."[9]. The struggle over money-wages is a struggle to maintain the group's *relative wage*. If it were possible to reduce all labor-groups money-wages by the same proportion at the same time, then laborers would indeed be indifferent between a reduction in the real wage achieved via wage cuts and a reduction achieved via inflation. But it is not, and so the asymmetry will exist:

> Since there is imperfect mobility of labour, and wages do not tend to an exact equality of net advantage in different occupations, any individual or group of individuals, who consent to a reduction of money-wages relatively to others, will suffer a *relative* reduction in real wages, which is a sufficient justification for them to resist it. On the other hand, it would be impracticable to resist every reduction in real wages, due to a change in the purchasing-power of money which affects all workers alike; and in fact reductions of real wages arising in this way are not, as a rule, resisted unless they proceed to an extreme degree. Every trade-union will put up some resistance to a cut in money-wages, however small. But since no trade union would dream of striking on every occasion of a rise in the cost of living, they do not raise the obstacle to any increase in aggregate employment which is attributed to them by the classical school.[10]

In this argument, Keynes accepts the premise that to get more employment labor must accept a lower real wage. But, he argues, the superior practical method for achieving the required reduction is a price inflation, not a money-wage cut. Yet if workers were willing to accept a price inflation with no change in behavior but not a money wage cut, as Keynes argued they were, then the existing money-wage could hardly be tied tightly to the real wage it supposedly represents, as classical economists believed. Thus "the wage-goods equivalent of the existing money-wage is not an accurate indication of the marginal disutility of labour, and the second [classical] postulate does not hold."[11] Instead, Keynes suggested, the marginal disutility of employment sets only an upper limit on employment at a given real wage. The actual level of employment might be lower, leading to a margin of workers who would like to work at the prevailing real wage but who cannot do so.

The idea that employment shifts along a demand curve for labor implies that as employment rises, the real wage must fall, and in 1936 Keynes took the view that this was indeed necessarily the case. By 1939 the empirical

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[9] [JMK, GT, p.14, emphasis in original].
[10]   JMK, GT, 14.
[11]   JMK, GT,

investigations of John Dunlop and Lorie Tarshis convinced him otherwise. If anything, it appeared that real wages and employment moved together rather than in opposite directions.[12] This finding unsettled the idea that one could get to full employment via price inflation and money-wage stickiness, and forces us to move on to Keynes' second, fundamental objection to the second classical postulate.

The "more fundamental objection" stemmed from the observation that even if workers are willing to accept cuts in their *money-wage*, they still can not assure that a cut in their *real wage* will occur–if indeed such cuts are necessary to increase employment! The second classical postulate depends on the idea that real wages can be set by the money-wage bargains that laborers make with business firms. Labor and capital bargain directly over the money-wage; contracts are set in money terms. The classical theory presumes that labor can dictate its real wage by fixing its money-wage, that labor can lower its real wage by accepting a lower money-wage. Keynes argued that this is not necessarily true.

Why not? The reason is that the decline in the money-wage rate can spill over into a reduction in output prices, including the prices of wage-goods. A close to equiproportionate fall in money-wages and in prices would leave the real wage rate nearly unchanged. Keynes observed that this is exactly the argument one would have expected from a properly brought up classical economist:

> ... the classical theory [Marshall's in particular] ... has taught us to believe that prices are governed by marginal prime cost in terms of money and that money-wages largely govern marginal prime costs. Thus if money-wages change one would have expected the classical school to argue that prices would change in almost the same proportion, leaving the real wage and the level of unemployment practically the same as before....[13]

Keynes thought that Marshall's argument was indeed valid, and he used it in a detailed way in Chapter 19 of *The General Theory*, the chapter entitled "Changes in Money-Wages." There, he demonstrated that money wage flexibility would not insure that the economy would self-adjust to full employment. There was also direct evidence to support Keynes' belief, from the British experience at the onset of their depression between 1920 and 1923. As the government had maintained its resolve to return to the gold standard

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[12] JMK, "Relative Movements of Real Wages and Output" *Economic Journal* Vol.69, March 1939, 34-51. More recently Michael Dotsey and Robert G. King in "Business Cycles," (<u>The New Palgrave Dictionary: A Dictionary of Economics</u> London: Macmillan 1987, 302-10) argue, "Evidence concerning the cyclical behavior of the real wage is inconclusive; in part this reflects a variety of constructs used. In general, however, there does not appear to be a pronounced cyclical relation."

[13] JMK, GT, 12.

at a high parity, money wages fell precipitously under competitive pressure – more than 30 percent. But prices also fell by about the same amount. This left the real wage (for those who were lucky enough to be working) in 1923 unchanged from its 1920 level. For all the *sturm and drang*, the real wage was unaffected by the joint price and wage deflation; meanwhile unemployment had soared.[14]

The classical economists, while asserting the *neutrality of money* in the economy (we will come back to this in the next chapter), did not perceive this argument, which establishes the *neutrality of the money-wage rate*. Keynes thought that the classicals were "diverted from this line of thought" for two reasons. First, the classicals thought it was a settled matter that labor could fix its own real wage through the money-wage bargain. Second, they believed that the only determinant of the level of prices is the quantity of money. The classical economist simply ignored the interdependence between money-wages and output prices.

This, then, is Keynes' "more fundamental objection" to the second classical postulate: there may be no avenue for "labour as a whole...[to] bring [the] wage-goods equivalent of the general level of money wages into conformity with the marginal disutility of the current volume of employment."[15] There may be no way for labor to reduce its real wage by agreeing to a lower money-wage.

2.3 Involuntary Unemployment

Keynes now was prepared to introduce his third category of unemployment, the category ruled out altogether by the classical mode of thought, *involuntary unemployment*. He began with a negative definition. Involuntary unemployment was not "the mere existence of an unexhausted capacity," nor "the withdrawal of their labour by a body of workers because they do not choose to work for less than a certain real reward," nor was it frictional unemployment.[16]

His first definition of involuntary unemployment in *The General Theory* appears in the text in italics:

> *Men are involuntarily unemployed, if in the event of a small rise in the price of wage-goods relatively to the money-wage, both the aggregate supply of labour willing to work for the current money-wage and the aggregate demand for it at that wage would be greater than the existing volume of employment.*[17]

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14 S.N. Broadberry, *The British Economy Between the Wars*, Oxford: Basil Blackwell, 1986, 86.
15 JMK, GT, 13.
16 [JMK, GT, p.15].
17 [JMK, GT, p.15 italics in original].

This definition remains bound up with the market for labor. It could be interpreted, from the perspective of a classical economist, as saying no more than that the aggregate market for labor is in excess supply.

To move from this simple view toward Keynes' own view, we need to redefine the labor market in terms of money wages rather than real wages. Recall Keynes' claim that (because of the piecemeal nature of money-wage cuts) labor responds differently differently to a small reduction in the average money-wage rate than to a small rise in the price of wage-goods. This being so, the responsiveness of the supply of employment to a variation in the money-wage will differ from the responsiveness of the supply of employment to a variation in the price level. To be precise, the *elasticity of labor supply* with respect to the money-wage will be larger in absolute value than the elasticity with respect to the price level (workers resist money wage cuts more strongly than they resist inflation). We should now write the labor supply function as $N_s = N_s(W,P)$ rather than $N_s = N_s(w) = N_s(W/P)$, meaning that labor supply depends separately on the money wage rate and the price level, and not just on the ratio between the two.
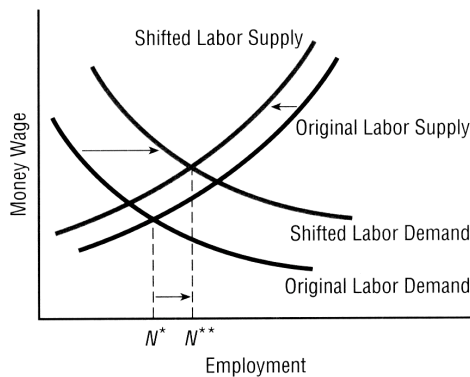
Figure 2.4   **Keynes's Involuntary.** *Unemployment. In Keynes's theory, inflation might cause a strong outward shift in labor demand but only a weak inward shift in labor supply. In that case, equilibrium employment will rise, and (by Keynes's definition) there was involuntary unemployment at the original equilibrium N*.*

The employment market now would have to be drawn in money-wage, employment space rather than real wage, employment space. We present just such a diagram in Figure 2.4. Now it is plausible to consider variations in the level of employment that correspond to different *market-clearing* positions in the labor market. Consider the initial market-clearing level of employment, N*, in an economy with flexible money-wages. Now suppose the economy experiences a small increase in the general price level. The *leftward shift in the labor supply schedule* will be small, since laborers are not inclined to reduce their supply significantly when their real wages fall due to a small increase in

prices. But businesses will be encouraged to hire more workers nevertheless. As long as the *rightward shift in the demand curve for labor* is strong enough, the labor market can clear at a new and higher level of employment N^{**} and at a lower real wage w^{**}. Although the money-wage has risen, its proportionate increase is less than the increase in the price level, so the real wage rate has declined. Otherwise, employers would not be willing to put more persons to work. Note that both the demand for and supply of labor are greater at N^{**} than at N^*. By Keynes' first definition, involuntary unemployment must have existed at employment level N^*, *despite the fact that the labor market cleared.*

2.4 A Two-Sector Economy

This is about as far as one can go with a simple supply-and-demand representation of a labor market. Keynes' own ideas required a further complication: that we distinguish between two sectors in the economy, a wage-goods sector and a capital-goods sector. The wage-goods sector produces the products that workers consume, while the capital goods sector produces machinery and equipment for business investment.

With two sectors to work with, we can find another route toward involuntary unemployment. In this alternative, there is no reason to assume that labor's supply elasticity with respect to changes in the money wage rate differs from its supply elasticity with respect to changes in the price of wage-goods. The aggregate price level is an index number, which merges the respective prices of each sector's output. In mathematical notation, $P = P(P_w, P_k)$, where P is the general price level, P_w is the price of wage-goods, and P_k is the price of capital-goods. An increase in the price of wage-goods will cause the general price level to increase, but the response of producers and workers to the increase in the general price level will not be precisely the same. Specifically, producers are concerned about movements in both components of the price index, while workers only are concerned about movements in the price of wage-goods. We will assume, to make our point, that producers respond more strongly to (small) price inflations than do workers.

We display the implications in Figure 2.5, which also is drawn with money-wages and employment on the axes rather than real wages and employment. We assume there is complete money-wage flexibility. The economy is at an initial position with money-wage rate w^* and employment level N^*, both market-clearing values.

Now consider the effects of small rise in the price of wage-goods. At any nominal wage rate, workers will experience a lower real wage. If they are predisposed to reduce their supply of employment, the schedule N^s will shift to the left to $N^{s\prime}$. Employers, however, will perceive the price rise as *beneficial to profitability*, and their demand for labor schedule will shift to the right from N^d to $N^{d\prime}$.
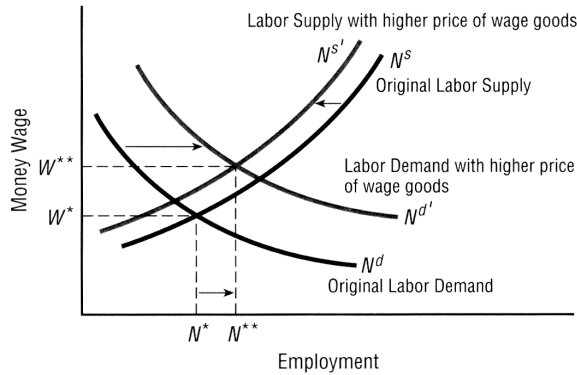
Figure 2.5 **A Two-Sector Model.** *In a model with two sectors, wage goods and capital goods, changes in the price of wage goods shitt both labor supply and labor demand. When there is inflation in wage goods, profits rise and labor demand shifts outward. Labor supply shifts inward but not by as much. Once again, equilibrium employment can rise.*

At the new market clearing combination of money-wage rate w^{**} and employment level N^{**}, both the demand for and the supply of labor exceed the level of employment N^{*} that prevailed before the inflation of wage-goods prices. Involuntary unemployment, in Keynes' sense, existed at employment level N^{*} even though the labor market cleared. Implicitly, although the money-wage is higher at employment level N^{**} than at employment level N^{*}, the real wage can be lower, because the price of wage-goods could have risen more than the money-wage rate.

Indeed, by making small changes in the price of wage-goods, resulting, in turn, in small changes in the general price level, we can trace out a set of market-clearing positions in the aggregate market for employment. Such a set appears as the curve *FF* in Figure 2.6. At the outermost point of the curve, which corresponds to employment level N^{f}, any further increase in the price of wage-goods finally leads the labor supply reduction to dominate the increase in labor demand. Although all levels of employment along the curve are associated with supply and demand equality in the aggregate labor market, only employment level N_{f} is *full employment*. Thereafter, further increases in the price of wage-goods purchase less employment rather than more.

Again, keep in mind that this definition of involuntary unemployment is developed with reference to an aggregate labor market. In The General Theory Keynes writes that there is an alternative definition to the first, which he says, "amounts to the same thing."[18] In this alternative, Keynes defines *full employment* as, simply, "*...a situation in which aggregate employment is inelastic in*

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18 JMK, GT, 15, 26.

response to an increase in the effective demand for its output."[19] In terms of Figure 2.6, this means nothing more nor less than that the economy is at N^f, the highest achievable equilibrium of employment. Full employment is the absence of involuntary unemployment. Involuntary unemployment prevails if more employment can be had by an expansion in aggregate demand.
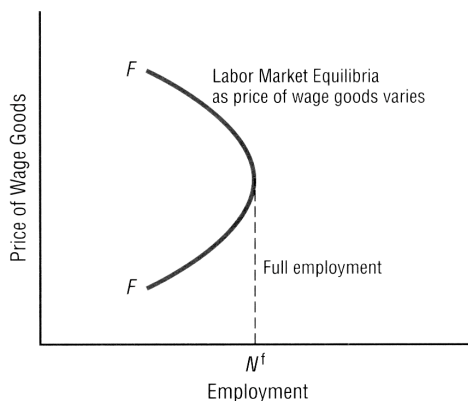
Figure 2.6   **Full Employment.** *By varying the price of wage goods, we can trace out different equilibria in the labor market. At low prices, profits are low and firms will increase their labor demand if prices of wage goods rise. If such prices rise too far, eventually workers will refuse to supply their labor. Thus there is a position of maximum employment at N^f*

But is this definition of *full employment,* as the maximum level of employment achievable by increases in effective demand, really equivalent to the definition of (the absence of) *involuntary unemployment* we have just discussed? The first definition sets up, as the criterion for the existence of involuntary unemployment, the necessity of lowering real wages measured in terms of wage-goods. The second definition makes no reference to the aggregate labor market, nor any statement about what direction movements in the real wage must take.

The second definition of involuntary unemployment simply means that the following experiment determines whether or not involuntary unemployment exists. If an expansion of *aggregate demand*–an expansion of purchases of final products–leads to a higher level of employment, then prior to the expansion involuntary unemployment prevailed. If not, then the economy already was at full employment. It does not matter what may have happened to the real wage.

With the second definition Keynes finally had begun to shed his own classical skin. It is the second definition that Keynes used in his discussion of involun-

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[19]   JMK, GT, 26.

tary unemployment in papers and correspondence after the publication of *The General Theory*.[20] Thus, while maintaining the formal equivalence of the two definitions, Keynes introduced the second in order to move the analysis of employment away from the market for labor.

Special Section
Keynes' Circus

"Keynes' Circus" refers to Keynes' circle of colleagues at the University of Cambridge in England in the 1920s and 1930s who played important roles in the development and immediate extension of the ideas that comprised *The General Theory of Employment, Interest and Money*. This was a remarkable group of individuals – a highly creative and tempestuous group that each placed enduring marks on modern economics.

Central to this group was Richard Kahn, the originator of the formal version of the multiplier[21] in English speaking economics. Also at the core of the group was Roy Harrod, aristocratic, the conservative voice in the Circus, consistently pushing Keynes not to stray too far from orthodoxy. Harrod made the major conceptual breakthrough that was to spawn the development of mathematical growth theory, with his combination of the multiplier principle and an "accelerator principle" to build a dynamic version of Keynes's system.

Perhaps the most charismatic and contentious member of the "Circus" was Joan Robinson, whose contributions encompassed the theory of underemployment, the theory of economic growth, capital theory, history of economic doctrine, and economic methodology. Robinson was unabashedly hostile to neoclassical economics. It was primarily she who sparked a famous series of debates (known as the "Cambridge Controversies") between Cambridge, England and Cambridge, U.S.A. over the orthodox concept of capital and the conceptual validity of the neoclassical aggregate production function. This was one of the rare instances where the leading neoclassical economists (Paul Samuelson and Robert Solow of MIT) were drawn into a substantive debate over the fundamentals of their theory. Robinson was equally hostile to the American version of her own theory; she dubbed the vast majority of what was called "Keynesian economics" in the United States "bastard Keynesianism." Her lack of tact and tea-sipping politeness probably played a role in

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20   Darity and Horn, SEJ, 1983 and Darity and Horn, JPKE, 1988.
21   We will present the multiplier in detail in Chapter 4.

her failure to receive a Nobel prize, although that prize certainly would have been well-deserved.[22]

Unlike the income-consumption multiplier that made its way into *The General Theory* Kahn's own version of the multiplier emphasized the relationship between investment in capital equipment and employment. Kahn's argument was very simple: a rise in capital expenditures would create jobs not only directly, as workers were hired to build machines, but also indirectly as workers were hired to feed and clothe the workers hired to build the machines. Most important, *it did not matter what the machines were for.* Nor did it matter who was doing the investment; if private businesses were depressed and unwilling, government could do just as well.

In his 1931 paper introducing the employment multiplier, Kahn had used government expenditure on roads as his example of "home investment," while observing that "this simplification must not be taken to imply [that] ... the building of more roads is a particularly desirable form of investment."[23] The circle of economists around Keynes drove this point home with *élan*. In the Depression, they were willing to countenance virtually any form of government expenditure as being superior to the extreme joblessness imposed by insufficient investment spending. Keynes wrote:

> If the Treasury were to fill old bottles with banknotes, bury them at suitable depths in disused coal-mines which are then filled up to the surface with town rubbish, and leave it to private enterprise on well-tried principles of *laissez-faire* to dig the notes up again ... there need be no more unemployment and, with the help of the repercussions, the real income of the community, and its capital wealth also, would probably become a good deal greater than it actually is. It would, indeed, be more sensible to build houses and the like; but if there are political and practical difficulties in the way of this, the above would be better than nothing.[24]

Keynes indeed argued that the great periods of prosperity in economic history, from the ancient Egyptians to the Middle Ages, could be viewed as having been caused by the multiplier effects of public investment:

> Ancient Egypt was doubly fortunate, and doubtless owed to this its fabled wealth, in that it possessed *two* activities, namely pyramid-

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[22] Joan Robinson was in no doubt of her own importance. One of us accompanied her on a tour of Boston bookstores one day in the early 1980s, just after Harvard had granted her an honorary degree. Momentarily waiting for something in a hotel lobby, she turned and said, "When they *finally* get around to giving me my Nobel Prize, I shall have to tell them what my contribution was. I shall say that I invented the distinction between a thought experiment, and a hypothesis."

[23] GT, 1-2.

[24] GT, 129.

building as well as the search for the precious metals, the fruits of which, since they could not serve the needs of man by being consumed, did not stale with abundance. The Middle Ages built cathedrals and sang dirges. Two pyramids, two masses for the dead, are twice as good as one, but not so two railways from London to York.

What a tragedy then, that in modern times political conservatism, doctrines of "sound finance" and "budget balancing" and the requirements of "profitability" prevent similar efforts:

> Thus we are so sensible, have schooled ourselves to so close a semblance of prudent financiers, taking careful thought before we add to the "financial" burdens of posterity by building them houses to live in, that we have no such easy escape from the sufferings of unemployment.[25]

In a similar vein, Joan Robinson made the following trenchant remark about the policy position she and others in "Keynes' Circus" took in the 1930s:

> ... we had to argue that any expenditure is better than none. Dig holes in the ground and fill them again, paint the Black Forest white; if men cannot be paid wages for doing something sensible, pay them to do something silly.[26]

Three other figures of note should be included in the Circus although their role was not as prominent nor as consistent as that of Kahn, Harrod, and Robinson. Among these was Dennis Robertson, who had been one of Keynes' students and one of Keynes' most intimate friends. Robertson and Keynes mutually built the Cambridge theory of money in the post-Marshall years. But as their friendship deteriorated so did their intellectual compatibility. They split over *The General Theory*. Keynes was insistent on its revolutionary message; Robertson was insistent that its central tenets could be incorporated into the loanable funds apparatus. Thus Robertson moved from inside to outside the inner circle.

The Italian theorist, Piero Sraffa, also played an important role in the development of *The General Theory*, particularly with his seemingly jesting creation of the concept of the "own rate of interest." Keynes took the concept seriously and made it the cornerstone of the value theory that he utilized in *The General Theory*. Sraffa published very little during his lifetime, although rumor has it that there are many, many papers he left unpublished in drawers, simply content to have resolved a problem to his personal satisfaction. However, what was published always took on striking significance–in particular, his brilliant insights about competition and equilibrium and his

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25 JMK, GT 131.

26 Joan Robinson,"What Has Become of the Keynesian Revolution" *Challenge* January-February 1974, p.11.

development of an alternative to the supply and demand theory of relative prices based upon classical political economy. The latter appeared in a deceptively slim volume, *Production of Commodities By Means of Commodities*, drafted in the late 1920's but not published until 1960.

Also part of the Circus was Ralph Hawtrey, who was not a Cambridge academician but who developed an idiosyncratic macroeconomic theory rooted in the importance of the financial and credit markets based upon his personal experiences as a speculator. Keynes drew inspiration from Hawtrey's work and corresponded with him extensively in the development of *The General Theory,* although subsequently it seems that Hawtrey had difficulty understanding the book.

Finally, mention should be given to Nicholas Kaldor and James Meade. Kaldor, feisty, rotund, was an intellectual risk-taker *par excellence*. Though he arrived in Cambridge (from the London School of Economics) only in the late 1940s, he had already in the 1930s seized upon various themes in *The General Theory*. From this starting point, Kaldor developed a profound analysis of speculation and an aggregative theory of income distribution. Seeing himself as a critic of neoclassical economics from a Cambridge (England) Keynesian vantage point, Kaldor went in a distinctly non-Keynesian but intriguing direction, that of exploring the consequences for economic theory of a world of increasing returns to scale. He was a regular adviser to Labour governments, commuting back to Cambridge on Saturdays to deliver lectures on growth and capital theory. (In London in the 1964 government of Prime Minister Harold Wilson, Kaldor and his fellow Hungarian Thomas Balogh of Oxford were known, not too affectionately, as "Buddha" and "Pest.") His career continued into the 1980s, when he published scathing criticisms of the monetarist policies of Prime Minister Margaret Thatcher and eloquently denounced her government from his seat in the House of Lords.

James Meade, finally, was somewhat on the perimeter of the inner circle. Probably the most mathematically proficient of the group, Meade's technically dense papers often left his significant contributions undetected by more rhetorically minded readers. But he has placed his stamp on growth theory, the theory of international trade, and the theory of economic planning. Interestingly enough, it was Meade, the technician of the Circus, who did the most to carry the policy message of Keynes' economics into the British Labour Party in the 1940s.

Keynes himself, a lifelong Liberal, never went that far to the left. In a radical mood at the end of the *General Theory*, he did advocate what he termed a "socialization of investment"[27]. By this, he meant that government would insure that investment expenditure was consistently at its full employment

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[27]   GT, 376-8.

level. But he realized that this also would mean a major transformation of the economic system, perhaps the eradication of capitalism itself. And these were revolutionary political positions, of which Keynes was sometimes accused, but that he never embraced. He carried the unresolved tension in his blueprint for the future of a prosperous capitalism to his grave in 1946.

2.5 Summary of Chapter 2

Keynes claimed that Classical analysis applied only to the special case where full employment held. The Classical theory of employment had two postulates. First, employers hire workers until the marginal product of workers in production is equal to the real wage. The second postulate is that workers offer their labor services until the marginal utility of the real wage is equal to the marginal disutility of work. Apart from imperfections, only frictional or voluntary unemployment could exist.

From a Classical perspective, the equilibrium level of employment could be affected by long run strategies that would enhance productivity or change the tastes of workers. Improvements in the efficiency of markets would reduce frictional unemployment.

Keynes' attack on the classical theory of wages and employment was two-fold. First, workers are concerned not only with *absolute* wages but with their wage *relative* to that of other workers. It is therefore difficult to extract nominal wage concessions in a piecemeal fashion. Consequently, when real wages are too high, a significant part of the labor force may be unable to find work unless there is a general price inflation that brings real wages down. The second and more fundamental part of Keynes' attack was an argument that prices move with wages. Since wages constitute a large part of costs of production, a reduction in money wages will be followed by a fall in prices. It is impossible in this framework for workers to alter their real wage downward by making nominal wage agreements.

Keynes thus switched from an analysis that considered the real wage as the relevant measure of wages, to an analysis that considered the nominal wage and the price level separately in the labor market. With this new conception and a more careful definition of involuntary unemployment, it is easy to show graphically the possibility of involuntary unemployment. Keynes differentiated between capital goods prices and wage goods prices, because in general the capital goods sector is more sensitive to price changes. A wage goods inflation could cause employment to rise until the full employment level is reached. After this point, (when the labor supply becomes more elastic with respect to price changes) price increases can cause employment to fall.

The multiplier introduced by Keynes was originally due to Kahn. Kahn argued that since the wage goods industry is driven by activity in the capital

goods industry, increases in investment result in a more than a one for one increase in employment in the wage goods industry. A simple extension of multiplier analysis is to government action to increase employment.

2.6 Questions for Chapters 1 and 2

1. Compare and contrast the background and circumstances of Keynes and the Keynesian revolution with some other historical "scientific" revolution (E.g. Darwin, Newton etc.).

2. As a practical matter what determines your success in the labor market? Compare your experiences or prospects with the views expressed by the Classical and Keynesian schools of thought.

3. The word "neutral" was used to describe money in the classical theory. What exactly does the word mean in this context?

4. As simply described up to now, place the Keynesian and Classical schools into the current political debate. Which political parties line up with which schools? Since political parties are not homogeneous it will be important to distinguish among personalities within the parties at times.

5. Compare with specific reference to economic statistics the two most recent economic downturns with the Great Depression.

6. Policies suggested by a theoretical inquiry can be adopted by policy makers without their adoption of actual theory. Is this a problem? Explain.

7. At the end of chapter one, a quick prospective view of the book is given with specific reference to several schools and sub-schools of economics. For each of these give your quick (and as yet uninformed) assessment of how policy is likely to be formulated.

8. State carefully the definitions for involuntary unemployment as given by the Classicals and by Keynes. Compare and contrast these definitions.

9. Although the Classical school may be wrong theoretically, it can offer some insights into the phenomenon of persistent unemployment. Explain these insights. Are the Classical theory and the Keynesian theory complementary?

10. The Classical Theory is described as being a special case of *The General Theory*. How is it a special case? In what ways is it not a special case but a theory independent of *The General Theory*?

11. What exactly is meant by the "marginal disutility of labor"? If necessary illustrate your answer with examples from everyday life, but do not limit your answer to these illustrations.

12. Empirically, how significant is the difference between the capital goods sector and the wage goods sector? (A good answer will describe the small as well as the grand differences, e.g. what is the computer industry?)

13. Which is more often the cause of rising prices, rising wages or an excess demand for goods? Or is there a third factor that is even more important?

14. Why would the price elasticity in the capital goods sector be different from the price elasticity in the wage goods sector?

15. Why is it that employment cannot increase indefinitely in the Keynesian system?

2.7 Problems for Chapters 1 and 2

1. On a graph like Figure 2.1 show the effects of an increase in productivity in production. Does the nature of the productivity increase make any difference in how you answer the question? For example can you image a technological improvement that did not improve labor productivity?

2. Again on a graph like Figure 2.1 show the effect of an increase in population. Will employment increase in the same proportion as the increase in population? Discuss what must happen for the entire increment of population to be absorbed into the economy? In what circumstances will the equilibrium wage increase through time?

3. It was mentioned in the text that a change in the tastes of the workers could increase employment. Show how this would happen with Figure 2.1. Explain how this simple analysis could turn into a cynical theory of unemployment, attributing unemployment to laziness.

4. An equilibrium condition in Keynes' system as described by Figure 2.4 might be the following equation: $N^s(W,P) = N^d(W,P)$

   Totally differentiate this equation.

   What are the conditions on the partial derivatives that will generate an increase in employment due to inflation? Describe these conditions verbally.

5. With a series of at least three diagrams like Figure 2.5 generate a diagram like Figure 2.6. Explain how these different diagrams translate into different assumptions about elasticities.

6. Draw side by side the Classical and the Keynesian representations of "involuntary" unemployment. Discuss the difference between the two explanations, especially with respect to equilibrium and definitional issues.

7. Suppose that the classical theory is in fact the theory that holds in reality. Show the effect of a government program to hire enough people to reach

a total employment goal. What would the Classical school say is the problem with this program? (Remember Say's Law)

8.   With Figures 2.5 and 2.6 show the effect of a labor enhancing productivity improvement. As discussed so far is there anything in these models that would lead you to believe that the economy can in fact generate these productivity increases? Explain.

9.   Show graphically the difference between a Walrasian equilibrium and a Marshallian equilibrium. Describe what you have done or not done in light of the differences in the definitions.