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The Economics of the Great Depression

Mark Wheeler
Western Michigan University

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A black and white photograph of a muddy road. In the foreground, a man wearing a hat and a child are standing next to a truck. The man is looking towards the right. In the background, a woman is holding a child, standing next to another truck. The ground is very muddy with deep tire tracks and puddles. The sky is overcast.

*The Economics
of the*
**GREAT
DEPRESSION**

Mark Wheeler
Editor

The Economics of the Great Depression

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1998

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W.E. Upjohn Institute for Employment Research
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Introduction

Mark Wheeler
Western Michigan University

“To understand the Great Depression is the Holy Grail of macroeconomics” (Bernanke 1995, p. 1). It can be argued that understanding the Great Depression is the Holy Grail of *all* economics. The economics profession has paid much attention to the Depression years. As Stephen Cecchetti notes in this volume, “EconLit, the CD-ROM index compiled by the *Journal of Economic Literature*, lists over 400 articles on the Great Depression that have appeared since 1969 alone.” However, as the various chapters demonstrate, the complexity of the subject warrants further investigation.

Drawing on a wide variety of subdisciplines within economics, the six authors in this volume explore the immediate effects of the Great Depression, the dramatic fall in output, and the legacy of the Great Depression’s monetary policy.

In the first chapter, Margo examines the impact of the Great Depression on labor and labor markets. Unlike most previous studies, Margo analyzes labor during the Depression at both the macroeconomic and microeconomic levels. The main focus of the chapter is the microeconomic level.

Margo draws heavily on the public use microdata sample (PUMS) to examine the Great Depression. Drawing on his previous research (Margo 1988, 1991), he notes that “the unemployed were disproportionately young or older and tended to have fewer skills and less education than employed persons. These differences were starker comparing the employed with the long-term unemployed . . . or . . . with persons on work relief.”

In addition, Margo notes that the PUMS is useful in examining New Deal work-relief programs. A particularly interesting question, which Margo also addressed in a series of previous papers (Margo 1988, 1991, 1993), concerns the impact of work relief on labor supply.

Conventional wisdom holds that the Great Depression helped produce a more equal income distribution. Margo examines this conventional wisdom and finds that the data do not support it. He finds that, "What appears to have happened is that wage differentials between skilled and unskilled labor widened in the early years of the Depression." Margo further states, "The wage structure snapped back, however, and by 1939 it appears to have been little different from its counterpart in the late 1920s." Margo goes on to note that the Great Compression of the 1940s "produced a substantial narrowing in wage inequality."

Margo also examines self-employment during the Great Depression and concludes, "Although there is much more work to be done, clearly it seems that self-employment *was* an option for many of the jobless . . ."

In the second chapter, Heim explores the effects of the Great Depression on different industries, regions, and nations. As Heim notes, "the impact of the Great Depression was highly uneven. . . Although one-quarter of the U.S. labor force was unemployed at the low point in 1933, those who kept their jobs saw their purchasing power increase as prices fell."

Heim examines the impacts of the Depression on different regions in the United States and the United Kingdom. She concludes that the Great Depression worsened the problems of the older industrial areas in the United Kingdom. In the United States, government policies that resulted from the Great Depression had positive long-run impacts on the South. Most important among these policies were the New Deal agricultural and minimum wage policies, which helped link southern labor markets with those in the rest of the U.S. economy.

Heim shows that in both the United Kingdom and the United States, some industries were much more affected than others. For example, Heim notes that shipbuilding in the United Kingdom fell by 90 percent during the 1929–1932 period. However, during the same period, output in the United Kingdom actually rose in industries such as paper and printing, leather, and food (Aldcroft 1970). Heim states that in the United States, "Throughout the 1930s, the food, leather, petroleum, and tobacco products sectors were relatively 'depression-proof.'"

Heim notes that industrialization accelerated in many less-developed countries during the Great Depression and subsequent decades. She concludes that this industrialization resulted from the less-devel-

oped countries being delinked from the international economy. This delinking caused countries in parts of Latin America, Africa, and Asia to shift production away from exports such as agricultural products and minerals and toward production of manufactured goods.

Bernstein provides an interesting mix of economic history and history of economic thought in the third chapter. Bernstein views the Great Depression through the eyes of several authors who, over the years, have tried to explain the event. Bernstein's analysis contains a summary of the well-known views of such macroeconomists as Friedman and Schwartz (1963), Keynes (1964), and Temin (1976). However, Bernstein's major contribution is an analysis of the views of economists who attempted to examine the Great Depression outside the realm of what we now consider standard macroeconomic theories. In this analysis, Bernstein draws on a rich body of economic theory.

Bernstein notes that Harris (1948) and Sweezy (1939, 1968) argued that the distribution of income had become increasingly skewed in the 1920s. This, they argued, decreased the average propensity to consume and reduced national income. Other economists, such as Kindleberger (1973) and Lewis (1950), "focused on a secular shift in the terms of trade between primary products and manufactured goods, due to the uneven development of the agricultural and industrial nations."

Bernstein also notes that industrial organization economists, such as Means and Berle (1968), "sought an explanation of the Depression in the increasing extent of imperfect competition in the American economy of the early 20th century." Schumpeter (1939, 1946), on the other hand, "held that the inter-war period was an era in which three major cycles of economic activity in the United States (and Europe) coincidentally reached their nadir." Bernstein goes on to discuss Steindl's (1945, 1966, 1976, 1984) ideas on economic maturity.

In the fourth chapter, Fackler reviews and tests theories of the propagation of the Great Depression. The money view, due to Friedman and Schwartz (1963), argues that inappropriate monetary policy played a key role in the propagation of the Great Depression. The autonomous spending view of Temin (1976) argues that a fall in autonomous consumption was the major cause of the decline in output during the Depression. Fackler also draws on the recent work of Romer (1988) who argues that "uncertainty effects due to stock market vari-

ability can explain most of the unusual behavior of consumer spending on durable and semidurable goods in the first year and a half of the Great Depression.” Fackler also examines Bernanke’s credit view and the debt-deflation hypothesis. As Fackler notes, “The credit view model demonstrates how a deflationary shock can disrupt the credit intermediation process and cause a sustained decline in output.”

Fackler constructs an econometric model to examine the degree to which the various theories explain the path of output during the Depression. The model is an IS-LM, AD-AS model augmented to incorporate the various theories of the propagation mechanism.¹ Fackler finds that for the entire Depression period, there is not “a single, dominant explanation of the Depression.” However, shocks to the IS curve best capture the characteristic phases of the Great Depression. Furthermore, the credit view works well in explaining the fall in output over the period of the stock market crash and around the bank panics in the early 1930s.

In the fifth chapter, Wheelock maintains that the Great Depression caused lasting changes in monetary institutions that ultimately gave monetary policy an inflationary bias.² Wheelock goes on to argue that the Federal Reserve’s inflationary policy led to the collapse of the Bretton Woods System and abandonment of international linkages altogether. A key event in the collapse of the Bretton Woods System was President Nixon’s 1971 decision to suspend the convertibility of the dollar into gold in response to the increasing balance of payments deficit in the United States.

Wheelock outlines the institutional reforms, enacted during the Great Depression that have the most important consequences for present monetary policy. Wheelock notes that the most significant reforms were

the Glass-Steagall Act of 1932, which permitted the Federal Reserve to use government securities to back its note issues; suspension of the international gold standard by executive order on March 6, 1933 (ratified by Congress on March 9); the Thomas Amendment to the Agricultural Adjustment Act of 1933, which, among other things, permitted the Federal Reserve to adjust commercial bank reserve requirements; the Gold Reserve Act of 1934, which authorized the president to fix the dollar price of gold and established the Treasury’s

Exchange Stabilization Fund; and the Banking Act of 1935, which markedly altered the structure of the Federal Reserve System and expanded the Fed's authority to adjust reserve requirements.

According to Wheelock, these reforms, together with the rise of Keynesian policymaking, led to the Fed's inflationary bias.

As Wheelock notes, permitting Federal Reserve notes to be backed by U.S. government securities enhanced the Federal Reserve's ability to monetize government debt and removed a major constraint on monetary policy. Suspension of the gold standard made possible the rising balance of payments deficit, as well as Nixon's response to it.

In the final chapter, Cecchetti spells out lessons for current policy that can be gained from examination of monetary policy during the Great Depression. Cecchetti begins by examining four common beliefs associated with the Great Depression:

1. The Great Depression was caused by the stock market crash of 1929.
2. The banking system of the 1920s was fundamentally unsound.
3. The fact that nominal interest rates were approaching zero meant that Federal Reserve policy was loose and ineffective.
4. Tariff wars were primarily responsible for the spread and depth of the Depression.

Cecchetti demonstrates the fallacious nature of these four statements. Of particular interest is Cecchetti's discussion of the tightness of monetary policy during the Great Depression. He points out that nominal interest rates were low during the Depression, but that real interest rates were extremely high due to the nature of the period's deflation. If we consider real rates of interest, the Federal Reserve's monetary policy was, in fact, extremely tight.

Examination of the four fallacies leads Cecchetti to three lessons for current policy:

1. The central bank's function as the lender of last resort is of primary importance in the short-term stabilization of the financial system.

2. Deflation is extremely costly.
3. A gold standard is very dangerous.

Margo, Heim, Bernstein, Fackler, Wheelock, and Cecchetti expand our understanding of an important period in economic history. The papers in this volume take fresh approaches to the study of the Great Depression, evidence that the search for the Holy Grail of economics remains productive and interesting.

These papers developed from lectures given at Western Michigan University as part of the 1996–1997 lecture series entitled “The Economics of the Great Depression.”

Notes

1. Shocks to the IS curve incorporate Temin’s theory, in addition to capturing aspects of investment and shocks for the rest of the world.
2. In particular, an inflationary monetary policy emerged in the 1960s.

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1 Labor and Labor Markets in the 1930s

Robert A. Margo
*Vanderbilt University and
National Bureau of Economic Research*

This essay surveys recent research on labor and labor markets during the Great Depression. Fascinated by an economy in which unemployment reached nearly a quarter of the labor force and unemployment rates hovered in double digits for a decade, economists have been studying the Great Depression ever since it occurred. For the most part, the perspective taken has been an aggregate one, as befits the most important macroeconomic event of the century. However, much of the most interesting current research has delved into the “black box” of aggregate statistics by examining microeconomic evidence. Such evidence has highlighted important features of labor market behavior that were masked in aggregate data. It has also altered conventional interpretations of various government policies adopted in the 1930s, such as work relief, that were aimed at combatting high unemployment. While my primary objective is to survey this research, I also attempt to add to it by presenting some preliminary findings on patterns of self-employment in the late 1930s.

LABOR AT THE MACRO LEVEL

Although this survey is centered on recent microeconomic research, it is appropriate to begin by reviewing some of the basic aggregate statistics. These are shown in Table 1, which gives two series of unemployment rates along with a “real wage” index.

The aggregate statistics tell a familiar story. According to the first unemployment series, labeled “Lebergott,” unemployment rose to unprecedented levels between 1929 and 1933, peaking at nearly 25 percent of the labor force. Moreover, the rate of unemployment

Table 1 Unemployment and Real Wages in the 1930s

Year	Unemployment rate (%)		Real wage index (1940 = 100)
	Lebergott	Darby	
1929	3.2	3.2	69.4
1930	8.7	8.7	75.7
1931	15.9	15.3	83.2
1932	23.6	22.9	80.8
1933	24.9	20.6	79.5
1934	21.7	16.0	84.3
1935	20.1	14.2	80.4
1936	16.9	9.9	81.1
1937	14.3	9.1	85.5
1938	19.0	12.5	93.9
1939	17.2	11.3	97.3
1940	14.6	9.5	100.0

SOURCE: Margo (1993), p. 43.

remained very high through the decade, although it did decline (except during the recession of 1938). On the eve of World War II, fully 14.6 percent of the labor force was out of, and looking for, work. By American standards these rates are extraordinarily high, although recent experience in Western Europe (particularly Spain) makes them seem somewhat less unusual.

The second unemployment series, labeled “Darby,” tells a rather different story. The run-up in unemployment between 1929 and 1932 is still present, but the series diverge sharply afterwards. The Darby series is different because it considers anyone who had a “work-relief” job as no different from anyone who had a regular job. This assumption is certainly debatable (see, for example, Kesselman and Savin 1978), and I will return to this point later.

Aside from the levels of unemployment, the duration of unemployment was also severe in the 1930s. Prior to the 1930s, the “incidence” of unemployment—the fraction of the nonfarm labor force experiencing unemployment in a given year—was relatively high. Using census

data for 1910, I have estimated that approximately 19 percent of the nonfarm labor force experienced unemployment during a year's time, compared with roughly 14 percent in the late 1970s (Margo 1990a). In 1910 and in the late 1970s, the aggregate unemployment rate was approximately the same (4.8 percent). The implication is that the "duration" of unemployment was much briefer in 1910 than in the late 1970s, while the probability of becoming unemployed was higher.

The probability of becoming unemployed was certainly very high for the average worker in the early 1930s, but what changed was the duration of unemployment. Many people who lost jobs in the 1930s remained unemployed for long periods of time. According to the Massachusetts state census of 1934, fully 63 percent of the currently unemployed had been out of work for a year or longer (Margo 1991). These percentages fell as the decade progressed, but even in 1940, fully 41 percent of unemployed adult males in the nonfarm labor force had been out of work for over a year.¹

Exactly why the average duration of unemployment increased in the 1930s is unclear, since the obvious institutional mechanisms that produce such outcomes today were not yet in place. For example, long-term unemployment is high in Europe today partly because European welfare states have a dizzying array of policies that subsidize it. "Insider-outsider" models, popular among neo-Keynesians, are difficult to apply to the 1930s because the internal labor markets that produce outsiders were largely (although not wholly) irrelevant. Later I will suggest that excess duration may have been an unintended by-product of the New Deal, in particular, the work-relief programs.

The final column in Table 1 gives the standard "real wage" series for the 1930s—average hourly earnings of production workers in manufacturing. In 1930, when unemployment was 8.7 percent, the index stood at 75.7 (relative to a base of 100 in 1940). In 1933, when unemployment peaked at 24.9 percent, the index was *higher*—79.5 percent. Moreover, the unemployment rate understates the depressed level of labor utilization, since weekly hours of work also fell between 1929 and 1933. After 1933, real wages continued to rise, despite double-digit unemployment. The total increase over the decade is about 25 index points, pretty good performance in light of labor market conditions.

There are a number of possible interpretations of Table 1. Unless one is prepared to argue that labor supply schedules shifted inward from 1929 to 1933, it is difficult to come up with a convincing equilibrium explanation of why labor utilization fell but real wages increased.² Disequilibrium stories are easier to fashion. The first, and most common, is wage rigidity. Labor demand sloped downward, but for reasons that are not fully clear, wages were rigid downward, producing unemployment. Some developments in modern macroeconomics have filtered into this interpretation. Martin Baily (1983) argues that “aggressive” wage cutting would have lowered worker morale, even in the 1930s. Others, such as Richard Jensen (1989), suggest that firms had been adopting “efficiency-wage” policies for some time prior to the 1930s, and these mitigated against wage cuts. Peter Temin (1990) has pointed out that wages were apparently less rigid downward in Germany, and this may be a key reason why German employment rose smartly after the initial downturn in that country (although others attribute the recovery to Nazi tinkering with employment statistics). Anthony O’Brien (1989) suggests that business leaders in the early 1930s firmly believed that wage cuts in the early 1920s had exacerbated the post-World War I recession, and therefore, they were reluctant to cut wages in the 1930s.

Still others point the finger at the New Deal, specifically the National Recovery Act (or NRA). In an influential book, Michael Weinstein (1980) argues that the NRA substantially raised wages above what they would otherwise have been, particularly for unskilled labor (which dominates the series in Table 1). However, in a recent study that (in my opinion) took great care econometrically, Ben Bernanke (1986) found much smaller effects of the NRA. Bernanke’s study is also noteworthy because it investigated the interaction between wage rigidity and “work-sharing.” Work-sharing occurs when firms cut weekly (scheduled) hours instead of employment. Bernanke argues that, beyond a certain point, it paid to reduce hours more at the margin than employment. However, hours reductions came at a price—workers would accept further reductions in hours only if their hourly wages did not decline (since this would make their weekly earnings fall less than their weekly hours).

An alternative explanation is that the wage series in the final column overstates the extent of rigidity. The idea here, which is familiar

from recent studies of wage changes over the business cycle, is that the employed are not a random sample of the labor force (and are less so during downturns). In particular, if low-productivity (and hence low-wage) workers are laid off first, then the wages of employed workers may look more rigid downward than they actually are. Some evidence that this is the case has recently been put forth by Stanley Lebergott (1989). Lebergott has looked at wages at the firm level (General Electric and Westinghouse—both of which are included in the series), finding that wages fell by 10 percent from 1929 to 1931 yet the industry average did not. In effect, Lebergott is arguing that the aggregate data are misleading about actual labor market outcomes in the 1930s, a point of view that is consistent with evidence on the heterogeneity of unemployment.

THE MICROECONOMICS OF DEPRESSION UNEMPLOYMENT

A great deal of research on the Depression by labor economists has proceeded as if the statistics in Table 1 applied to a representative worker, implying that the behavior of the representative worker tells us everything we need to know. This is more than a little odd because, even at its worst, 75 percent of the labor force was employed during the Depression—the average employed worker could not have been, almost by definition, the same as the average unemployed worker.

Heterogeneity has come back into fashion in macroeconomics. We know that heterogeneity can inform about the nature of both supply and demand in the labor market. Investigation of heterogeneity in the 1930s is at an early stage, but it has proceeded far enough to report to a wider audience.

The heterogeneity of unemployment has received the most attention, primarily because of the availability of the 1940 public use micro-data sample (PUMS), a large random sample of the original responses given to census enumerators. The great advantage here is the availability of individual level responses—we can, in other words, study what happened to individuals during the 1930s as individuals, not as repre-

sentative “agents.” It is true that 1940 is not 1933, but there are other sources—albeit none as good as the 1940 PUMS—to investigate.

The 1940 census is one of the great documents of American statistical history. The census was the first to ask about many things, including income, educational attainment, and weeks worked. It also included questions on unemployment that, because of various quirks, allow the investigation of many questions relating to the operation of the New Deal work-relief programs, a point that I will return to shortly.

Analysis of the 1940 PUMS reveals that the unemployed were disproportionately young or older and tended to have fewer skills and less education than employed persons. These differences were starker comparing the employed with the long-term unemployed (those out of work for more than a year) or (in certain respects, such as race) with persons on work relief (Margo 1988, 1991). Although it is an overstatement to claim that unemployment before the 1930s was “egalitarian,” it is true that the unemployed were less distinctive in their (observable) personal characteristics before, as opposed to after, the Great Depression (Margo 1990b).

One important implication of heterogeneity concerns wage rigidity. The fact that the unemployed were a nonrandom sample of the labor force means that aggregate wage series, such as in Table 1, are biased. It is likely that the evolution of the characteristics of the unemployed over the 1930s is such that the standard aggregate wage index overstates the degree of wage rigidity, although the extent of such overstatement is open to question.

Although the 1940 PUMS is useful for examining the heterogeneity of unemployment, it is even more useful for what it reveals about New Deal work-relief programs. As the Depression unraveled, it became painfully evident that old-style “relief,” primarily the work of private agencies and churches, was inadequate to deal with the volume of unemployment. As a result, public relief was expanded, and work relief—literally, the combination of welfare and work—became an important mode of delivering assistance to the unemployed. (Unemployment insurance, another form of relief, was also adopted in the 1930s, after several decades of relative inaction.) The best known work-relief program was that undertaken by the Work Projects Administration (WPA), although there were many others (such as the Civilian Conservation Corps [CCC]).

By design, and also by a strange statistical quirk, the 1940 PUMS contains a great deal of information about work relief. I say, “by design,” because the census permitted “work relief” to be one of the answers to its question on labor force status. At the time, persons with work-relief jobs were counted as “unemployed,” and this convention was accepted by Stanley Lebergott (1964) when he constructed his now-famous unemployment series. In an equally famous paper, Michael Darby (1976) argued that persons working for the WPA were, in fact, “employed.” Treating them as such has a dramatic effect on the aggregate unemployment rate, as Table 1 demonstrates.

Like many questions in macroeconomics, deciding which of these two points of view is “right” is basically a theological matter. In a series of papers (Margo 1988, 1991, 1993), I have tried to redirect attention away from the metaphysical question of “who is employed” to a different question: Did the WPA affect labor supply (or labor demand)? The conventional wisdom among economists is that the unemployed of the 1930s were simply that—unemployed, with zero opportunity cost. Indeed, the very concept of the fiscal multiplier of Keynesian lore is predicated on the point of view that the opportunity cost of unemployed labor is zero.

The first piece of evidence I uncovered is more tantalizing than a “smoking gun.” Table 2 shows the distribution of weeks of unemployment among those currently unemployed (but not on work relief) in March of 1940 (the census week) and the distribution of weeks of unemployment among those on work relief. Recall that the census (and later, Lebergott) considered those on work relief as unemployed, so they asked a question: When was your last private sector job of one month or more? Note that the two distributions differ quite radically, in that persons on work relief were vastly more likely to have been out of work for over a year.

By itself this is not a particularly novel finding. The WPA knew that its “workers” were disproportionately the long-term unemployed. However, there are two interpretations of this result. The first, a benign one for the “zero opportunity” cost model, is that work relief was a “last resort,” chosen after an exhaustive but fruitless search for a real job. The second, potentially not so benign, is that people remained with the WPA for a long time.

Table 2 Distribution of Weeks Unemployed among the Currently Unemployed, March 1940

Weeks	Not on PEW ^a	On PEW	All unemployed
$0 \leq x < 13$	28.1	9.5	20.8
$13 \leq x < 26$	22.7	16.3	20.2
$26 \leq x < 39$	9.2	10.2	9.6
$39 \leq x < 52$	8.3	7.7	8.0
$52 \leq x$	31.6	56.3	41.5

SOURCE: Margo (1991).

^a PEW = public emergency work relief.

Because of a quirk it is possible to use the 1940 PUMS to see which interpretation is correct. The census asked people how many weeks they worked in 1939, treating weeks with the WPA the *same* as weeks in a regular job. Thus, for example, it is possible to find people in the 1940 census who were (a) on work relief in March of 1940, and (b) reported that they had been unemployed for 65 weeks (all of 1939 and the first quarter of 1940) but who had worked 39 to 52 weeks in 1939. These are people who could only have been “employed” on work relief (assuming they answered the census questions correctly), essentially full time.

As it happens, approximately 50 percent of all persons on work relief in March of 1940 and “unemployed” 65 weeks or more actually worked 39 weeks or more in 1939. It is but a small step to infer that full-time employment on work relief reduced job search activity and that, perhaps more controversially, work relief was “preferred” to the next best alternative.

Why might work relief have been preferred? First, while work-relief jobs were low-paying, there were private sector workers making less per hour. The exact percentages are hard to determine, but 25 percent is a good round number (Finegan and Margo 1994, p. 67). Second, and perhaps more important, work relief was a pretty steady job. This seems surprising, because the WPA was always ending projects, and turnover from project employment was always quite high. But project employment was not the same as WPA employment, as some

workers simply rolled over into a new project, albeit with a few weeks of vacation.

Some “smoking gun” evidence that work relief affected labor supply directly is provided in a paper by T. Aldrich Finegan and myself (1994), which reexamines an old chestnut of labor economics—the famous debate between W.S. Woytinsky and Clarence Long over the relative sizes of the added-worker and discouraged-worker effects in the late 1930s. The added-worker effect is the idea that other family members have an incentive to seek employment when the head of the household becomes unemployed. The discouraged-worker effect is the idea that persons without jobs are discouraged from looking for work when the unemployment rate is high. Woytinsky (1942) believed that there were large numbers of added workers who would withdraw from the labor force once conditions improved. Long (1958) thought Woytinsky was wrong and had a table from the published 1940 census to prove it, or so he thought. The table showed the labor force participation rates of married women cross-classified by their husband’s employment status. If Woytinsky was right, reasoned Long, the labor force participation rate of women with unemployed husbands should exceed the participation rate of women with employed husbands. In fact, according to Long’s table, there was no such difference in 1940—if anything, the participation rate of women with unemployed husbands was slightly lower than the participation rate of women with employed husbands. The added-worker effect, in other words, appeared to be negative.

Subsequent generations of labor economists (including Professor Finegan) were taught that Long was right. However, Long was wrong, and for an interesting reason: the WPA actually reduced the incentive for “secondary” workers to enter the labor force.

Table 3 gives the labor force participation rate of married women by their husband’s employment status, as computed from the 1940 PUMS. Note that, if the husband was on work relief, the labor force participation rate was very low (about 6.6 percent), while if the husband had a regular job, the participation rate was 16.1 percent. However, if the husband was unemployed but not on work relief, the participation rate was 22.8 percent—a clear added-worker effect.

The table from the published 1940 census that convinced Long was quite different from the evidence in Table 3, in that Long’s table

Table 3 Labor Force Participation Rates of Married Women, by Husband's Employment Status, March 1940

Husband's status	N ^a	LFPR ^b (%)	% of wives in labor force in 1940 who were		
			Em- ployed ^c	On PEW	Unem- ployed
Employed in 1940	100,499	16.1	96.7	0.5	2.8
On PEW in 1940	7,714	6.6	80.5	3.1	16.4
Unemployed in 1940	8,172	22.8	85.9	3.6	10.5
On PEW in 1939 ^d	1,112	16.8	89.3	3.7	7.0
Not on PEW in 1939	7,060	23.8	85.5	3.6	10.9
Out of labor force	5,439	24.5	76.1	16.8	7.1
Total	121,824	16.3	93.8	2.0	4.2

SOURCE: Finegan and Margo (1994, p. 71).

^a *N* is the sample size.

^b LFPR is the labor force participation rate, the proportion of women in the sample who were employed, on public emergency work relief (PEW), or unemployed, during the census week (March 24–30, 1940).

^c “Employed” means employed in a private sector or non-PEW job.

^d “On PEW in 1939” identifies husbands who were unemployed in the census week and who held a PEW job at some time in 1939.

lumped unemployed husbands and husbands with work-relief jobs together in a single category. (We know this from a note in very tiny print elsewhere in the volume that Long cited.) If we replicate the census procedure in Table 3, the labor force participation rate of married women with unemployed husbands (now counting the ones with work-relief jobs as unemployed) is 14.9 percent. As far as Finegan and I know, Long's mistake was inadvertent—he had no way of knowing of the association between work relief and the added-worker effect.

Why would the WPA have inhibited the added-worker effect? Finegan and I think eligibility requirements are the key. Not just any unemployed worker was eligible for a work-relief job; the family had to pass a means test, and the earnings of other family members (to varying degrees) were counted. Although wages on WPA projects were relatively low, they were better than what many married women

could command in the labor market. Thus for many couples, a job with the WPA for the husband with his wife at home was better than no job and his wife working. We reinforce this conclusion in our paper by showing that labor force participation by married women jumped when their husbands left work relief but had not found a regular job by the census week.

Finegan and I think the importance of this work is not the resolution of a crusty old debate between two deceased labor economists, but rather that, even under extremely trying macroeconomic circumstances, incentives “mattered.” Had the WPA been smaller, it is possible that the unemployment rate among adult males would have been higher, but our results suggest that more married women would have entered the labor force. In designing welfare programs, there is always a tradeoff between the desire to help those in need and the desire to minimize deadweight loss. The architects of Roosevelt’s New Deal could not avoid this tradeoff any more than their modern day counterparts have been able to do under much less trying macroeconomic circumstances.

THE GREAT DEPRESSION AND THE GREAT COMPRESSION

One of the central policy issues of the last 25 years has been the surge in wage inequality. Simply put, the earnings of college graduates relative to high school graduates are far higher today than they were ca. 1970. Wage differences within labor market groups—for example, the dispersion in wages among college graduates—are also much higher. The increase in wage inequality has taken place against a backdrop of very little aggregate real wage growth, so that for some population groups (such as the bottom 40 percent of high school graduates), real wages are lower today than in the early 1970s.

Much has been made by the popular media (not to mention in the political arena) of the alleged uniqueness of this recent episode in the history of American inequality. It is believed that the long-run trend in wage inequality—“long-run” here meaning since the turn of the 20th century—has been distinctly downward, and recent changes are a

reversal of that trend. In particular, the benchmark most in use is inequality in the period 1950 to 1970.

Until recently it was widely believed that the Great Depression helped produce a more egalitarian income distribution (Williamson and Lindert 1980). The Great Depression was a great “leveller”—that is, the distribution of income became much more equal in the 1930s, continued to do so in the 1940s, and then stayed that way for some time. Recent research on American wage history, however, has modified this view (Goldin and Margo 1992).

Exactly what happened to the distribution of wages in the 1930s is still in the process of reconstruction. What appears to have happened is that wage differentials between skilled and unskilled labor widened in the early years of the Depression. The extent of widening was considerably greater in the case of weekly wages than hourly wages, because there were substantial declines in weekly hours worked in the early 1930s, and the decline in weekly hours was greater among the unskilled. The wage structure snapped back, however, and by 1939 it appears to have been little different from its counterpart in the late 1920s. This is a little surprising, since unemployment was far higher in 1939 than in 1929. As already mentioned, unemployment in the 1930s was far worse among the less-skilled and less-educated. We might have expected the vast reserve army of unemployed and underemployed among the less-skilled and less-educated to have bid down their relative wages, but it did not happen, perhaps because various New Deal policies (such as work relief) propped up wages in the lower tail of the distribution.

If the Great Depression did not usher in any vast changes in wage distributions, what did? The answer: the “Great Compression,” which occurred in the 1940s and produced a substantial narrowing in wage inequality.

What is remarkable about the Great Compression is that the quantitative dimensions of change were nearly the mirror image of recent experience. The gap between the 10th and 90th percentiles in weekly wages declined by nearly 25 percent between 1940 and 1950, approximately the same percentage as the increase that occurred between 1970 and 1985. The narrowing in wage inequality took place at both tails of the wage distribution. The gap between the median wage and the 90th percentile fell by 14 percent, and the gap between the 10th percentile

and the median decreased by 11 percent. Consistent with these changes, the earnings of skilled and educated workers fell relative to the earnings of less-skilled and less-educated workers between 1940 and 1950. Relative to the nonfarm average, the weekly earnings of white-collar workers declined between 1940 and 1950, while the relative earnings of factory operatives, personal service workers, and unskilled laborers increased.

Like the surge in earnings inequality that has occurred recently, the Great Compression was not solely, or even mostly, a narrowing of wage differentials *between* groups. Wage compression also occurred within groups, as defined by educational attainment, labor market experience, and occupation. One (very important) point of difference between the Great Compression and recent experience is that during the 1940s, real wages for everybody rose substantially. Redistribution was not achieved at the expense of declining real wages for some occupation or educational group, as is the case recently: rising inequality in the past 20 years has occurred against a backdrop of stagnant or barely rising real wages for the average worker. The increased dispersal of wages around the average implies that some groups have gained purchasing power in absolute terms, while others have lost absolutely. From a political economy perspective, redistribution is less a “problem” when living standards are generally rising than when they are not.

Although their relative significance is a matter of debate, the factors behind the Great Compression are not difficult to identify. Some portion of the Compression occurred early in the decade as a direct result of wartime shifts in labor demand and of government regulation of the wartime economy. Various bits of data suggest that the industries that expanded output during World War II were disproportionately employers of less-skilled and less-educated labor. Federal government policy also played a role. The National War Labor Board (NWLB), established in 1942, was responsible for approving all wage increases. Given the volume of cases under its purview, the NWLB reached decisions using various rules of thumb, several of which undeniably compressed the wage structure at its left tail.³

World War II eventually ended and the NWLB went out of business. With respect to the immediate postwar period, three factors maintaining wage compression were an unexpectedly large increase in the relative supply of educated workers (partly a consequence of the GI Bill

of Rights, which subsidized college attendance by veterans); increases in the level and coverage of the federal minimum wage; and a robust union movement. Only the latter two factors can be traced to the Great Depression: the federal minimum wage was first enacted in the 1930s, and the Wagner Act enhanced the ability of unions to organize.

The Great Compression was not to last much past 1950. By the early 1950s, there is evidence of a shift in relative demand towards better-educated workers. By 1960, the Great Compression had been partly reversed, evidently because the increase in relative supply of educated labor in the 1950s simply did not keep pace with the increase in relative demand. Still, the wage distribution on the eve of the Kennedy administration was far more equal than it had been 30 years earlier or than it would become a quarter century later.

SELF-EMPLOYMENT IN THE 1930s

All of the research I have reviewed thus far is of the published variety. I would like to take a few moments to talk about some work in progress involving self-employment in the 1930s.

One of Herbert Hoover's more infamous quotes concerned the unemployed. In the early 1930s, Hoover remarked that "[m]any (unemployed) persons [have] left their jobs for the more profitable one of selling apples on streetcorners."⁴ If selling apples was so profitable, why create make-work government jobs when the unemployed could, so to speak, do it on their own?

The self-employment option is an interesting one, since it is, apparently, always available. If the unemployed *choose* to look for a job with someone else, as opposed to self-employment, it is hard to argue that unemployment is "involuntary" because the self-employed are, by definition, employed. For most of the 20th century, self-employment was in decline in the United States, although in recent decades it has been on the upswing. During the recent recession, self-employment was widely reported on in the press, as downsized managers, frustrated by their lack of success in the conventional job market, hung shingles outside their bedrooms and called themselves "consultants."

Table 4 Aggregate Nonfarm Self-Employment Rate (%)

1920	14.5
1930	13.4
1931	12.7
1932	11.8
1933	11.5
1934	11.3
1935	11.3
1936	11.6
1937	11.7
1938	11.5
1939	11.7
1940	11.7
1950	10.9

SOURCE: Lebergott (1964, Tables A-3 and A-4).

Table 4 shows the aggregate nonfarm self-employment rate in the United States—that is, the number of self-employed in the nonfarm sector as a fraction of the total nonfarm labor force—over the 1930s, with 1920 and 1950 as benchmarks. It is traditional to look at the nonfarm labor force, since the great majority of farm labor was self-employed and the farm labor force has been declining in proportion for two centuries. Note that the self-employment rate fell in the early 1930s and was otherwise stable during the decade. On the basis of the aggregate data, it does not appear that self-employment was much of an option at all for the unemployed.

However, the aggregate self-employment rate is a function of an entry “hazard” rate and an exit “hazard” rate. The entry hazard is the probability of entering self-employment from some other labor market status, while the exit hazard is the probability of leaving self-employment (the business goes bust, for example). These flows could have been rather substantial and yet the aggregate self-employment rate quite stable.

Table 5 provides some preliminary evidence on the flow into self-employment. It is based on the 1940 PUMS: the sample consists of nonfarm adult men, ages 30–49, who did no work (for pay or profit) in 1939 but who were in the labor force in March of 1940 (there are a few other restrictions on the sample). The table shows what these men were doing during the census week, one possibility being self-employment. Not very surprisingly, the majority were unemployed as of the census date. As already suggested, flows into work relief were relatively small. The big surprise is the relative importance of self-employment, which captured a bigger share of the flow into employment than wage and salary

Table 5 Self-Employment in the Late 1930s^a

	N	% of total
Self-employment, total	443	20.2
Proprietors, etc.	227	51.2 ^b
Proprietors in wholesale-retail trade	170	38.4 ^b
Work relief	137	6.2
Nonrelief wage and salary work	366	16.7
Unemployment	1,251	56.9
Total	2,197	

SOURCE: 50 percent random sample of the 1940 PUMS.

^a Sample consists of males, ages 30–49 who did no work in 1939 but who were in the labor force in March of 1940. Farm workers are excluded, as are professionals and unpaid family labor.

^b Percentages among self-employed (e.g., proprietors in wholesale-retail trade account for 38.4 percent = 170/443, of all self-employed).

work. (I note, in passing, that the absolute percentages would decline if the sample were expanded to include persons out of the labor force, but not the relative shares.) Furthermore, fully half of the flow into self-employment was accounted for by “proprietors” in general, and nearly 40 percent by proprietors in wholesale and retail trade (of which food dealers were by far the biggest category). Although there is much more work to be done, clearly it seems that self-employment *was* an option for many of the jobless, as Hoover seemed to think.

CONCLUSION

Let me conclude by mentioning a few other topics that I have not had space to cover. I have skipped over the effects of the Great Depression on women and African Americans, but these were certainly substantial. Claudia Goldin (1990) has demonstrated that “marriage bars”—employment policies adopted by firms and governments that restricted job opportunities for married women—became more prevalent in the 1930s. We know from the work of James Smith (1984; see also Margo 1990c and Sundstrom 1992) that the Depression derailed

economic progress for African Americans; the black-to-white income ratio in 1940 was no higher than in 1930. Other important topics not addressed concern the impact of the Depression on the subsequent economic behavior of those who lived through it (such as savings rates and labor supply at older ages), and the political economy of New Deal labor legislation.

I have also highlighted the 1940 PUMS in this lecture. There are, however, many untapped data sources from the 1930s, some of which refer to individuals, others that shed light on geographic variation in labor market outcomes, which was also considerable. There is much still to learn about labor and labor markets in the 1930s and, fortunately, a good deal of microeconomic evidence to guide our analysis.

Notes

1. “Out of work” here, as is traditional, counts those with work-relief jobs as unemployed. If persons on relief are counted as employed, the percentage falls to 32 percent (see Margo 1991).
2. One (rather far-fetched) argument goes as follows. Suppose that workers rationally expected that demand for their labor would rise substantially in the late 1930s and early 1940s with the onset of World War II. Then, more leisure would presumably be desired early in the 1930s—an intertemporal substitution effect. For the argument to make any sense, one would have to believe that World War II would have occurred even if the Great Depression had not. Alternatively, if one believes that real interest rates were expected to increase in the early 1930s (relative to the rate of time preference), one could also rationalize an inward shift in labor supply (as the outcome of a dynamic optimization on the part of workers).
3. For example, employers could raise wages to 40 cents per hour without NWLB approval; occupational wage “brackets” were established in each region, and wages could be increased to the lower end of the bracket. Exceptions to wage controls were frequently granted if the NWLB judged that the employer in question was previously paying “substandard” wages.
4. Hoover is quoted in Schlesinger, Jr. (1957, p. 241).

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2 Uneven Impacts of the Great Depression

Industries, Regions, and Nations

Carol E. Heim

University of Massachusetts, Amherst

The Great Depression of the 1930s brought hardship and suffering to many in the United States and in other countries around the world. The impact of the Great Depression was highly uneven, however. Although one-quarter of the U.S. labor force was unemployed at the low point in 1933, those who kept their jobs saw their purchasing power increase as prices fell. Statistical averages of economic performance conceal a wide variety of experiences for individuals and firms, as well as for larger aggregates.¹

In this essay, I examine uneven impacts of the Depression on industries, regions, and nations. In discussing industries and regions, I compare the United States and the United Kingdom; in discussing nations, I examine less-developed economies in Latin America, Africa, and Asia. Even during the depths of the Depression, some industries prospered. Regions differed both in the severity of the downturn and in the speed of recovery from it. Government policies created in response to the Depression treated geographic areas differently. New concepts of regions and experiences of regional planning also emerged.

In the United Kingdom, the Depression worsened the difficulties of problem regions, which were older industrial areas, and policy did little to help. In the United States, by contrast, government policies had positive (although largely unintended) long-run effects on its major problem region, the low-income, less-developed South. As Wright (1986) argued, these policies eventually linked the previously isolated southern labor market with the national labor market and stimulated development. In the international sphere, some less-developed nations also benefited from the Depression, at least in the sense of more rapid industrialization in the short to medium run. But for these countries, it

was delinking from a larger economy—the international economy—rather than linking, that helped. Import substitution increased, and as countries became delinked, some pursued more independent monetary and fiscal policies.

My aim here is not to reinterpret the Depression as an unambiguously positive historical event. If some industries or regions were doing better than the national average, that also means some were doing even worse. What I want to emphasize is that any major economic change, or policy, affects economic actors and areas differentially. Rarely, if ever, does it make sense simply to say that such a change or policy is good or bad for “the economy” as a whole. Wall Street often reacts negatively to “good” news of lower unemployment rates; such rates cause some to fear inflation. Similarly, the question of whether or not immigration is “good” for the United States does not have a simple answer. Even an episode as apparently straightforward as the Great Depression proves to have a complicated mix of effects.

INDUSTRIES

In both the United Kingdom and the United States, some sectors and industries were much harder hit than others. The United Kingdom saw industrial production as a whole, as well as the transport and communication sector, decline during 1929–1932, but output rose slightly in services and distribution. Shipbuilding fell by 90 percent, mechanical engineering by 36 percent, and ferrous and nonferrous metals by approximately 28 percent, a much steeper decline than the 11 percent drop for all industry. Above-average declines also occurred in the drink, vehicles, mining, timber, precision instruments, building, and metal goods industries. Many of the industries with large declines were capital goods industries and/or were export-sensitive industries. Textiles, although a major export industry, saw relatively little change during 1929–1932, as did clothing, chemicals, and tobacco. Output actually increased in paper and printing, leather, food, and gas, water, and electricity, at rates of 5 to 11 percent (Aldcroft 1970, pp. 42, 48–49). Employment and investment also rose in some industries even during the worst years of the Depression (Beck 1951; Feinstein 1965).

From the perspective of business firms, profitability is a key indicator of health and is essential for long-run survival. As with output, employment, and investment, profitability during the Depression varied widely among industries. Twenty-one of 78 trade groups had profits in 1932 that were equal to or greater than their profits in 1927, and in 4, profits fell less than 10 percent. The largest percentage increases were in telephones, grain milling, and electricity; profits in public amusements rose 24 percent. At the other extreme, in six trade groups profits fell more than 60 percent. For half of the trade groups, the drop was 20–50 percent (Worswick and Tipping 1967, pp. 64–68). Estimates of annual profit rates for major manufacturing industry groups also showed wide variation during 1929–1932 (Hart 1968, p. 274).

The Depression hit the United Kingdom against a backdrop of longer-run decline and expansion of different industries. The major declining industries were the 19th century export staples of coal, iron and steel, shipbuilding, and textiles, which were regionally concentrated in the North and West. These industries already were in difficulty in the 1920s as international competition intensified, but many industry leaders were convinced that their earlier good fortunes would return. The Depression finally quashed some of those hopes. By 1932, the Lancashire Industrial Development Council magnanimously announced that

now that some other countries have taken a part of the responsibility for supplying the world with cotton goods, Lancashire is able to turn with a freer mind to the development of those other industries which the mighty importance of the cotton trade tended for a long time to overshadow. (Lancashire Industrial Development Council 1932, p. 50)

Expansion was occurring in the inter-war years in a range of “other industries”: new manufacturing industries such as motor vehicles, electrical products, and rayon; diverse types of light manufacturing; and services. The percentage of English households owning a car rose steadily from 1924–1938, though at a less rapid pace during 1929–1933 (Bowden and Turner 1993, p. 245). Unfortunately, as we shall see below, the older industrial regions most in need of these expanding industries in the 1930s were not very successful in attracting them. The Lancashire textile region did better than the heavy industrial

regions in Wales, Scotland, and northern England, partly because Lancashire contained the second largest center of population and purchasing power in England (Manchester/Liverpool).

Electricity is a good example of an industry that could thrive in the midst of depression. Output in the electrical engineering industry (including supply) dipped slightly in 1931, but mainly due to exports; growth in the home market was rapid (Catterall 1979, p. 253). Investment in electricity supply peaked in 1932, with expansion due to strong industrial and consumer demand and to technical economies leading to lower charges. Heavy capital outlays were needed in part because of deficiencies in electricity supply resulting from earlier delays and difficulties (Feinstein 1965, p. 46). Consumer demand for new electrical appliances such as cookers, irons, vacuum cleaners, wash-boilers, washing machines, refrigerators, and radios remained strong in the 1930s (Aldcroft 1970, p. 195).

It was somewhat paradoxical that the growth of demand and output for electrical consumer durables should be so strong when unemployment was so high. In noting the paradox, Catterall (1979, p. 272) described the inter-war period as “years in which Britain began to enter Rostow’s ‘Age of High Mass Consumption’ in the midst of an age of mass unemployment.” George Orwell had observed in 1937 that the consumption of cheap luxuries, particularly movies and mass-produced clothes, increased during depression.

You may have three halfpence in your pocket and not a prospect in the world, and only the corner of a leaky bedroom to go home to; but in your new clothes you can stand on the street corner, indulging in a private daydream of yourself as Clark Gable or Greta Garbo, which compensates you for a great deal. (Orwell 1958, p. 88)

Gambling, “the cheapest of all luxuries,” rose almost to the status of a major industry. Many were underfed, but everyone in England had access to a radio. Orwell concluded (p. 90) that “it is quite likely that fish and chips, art-silk stockings, tinned salmon, cut-price chocolate (five two-ounce bars for sixpence), the movies, the radio, strong tea and the Football Pools have between them averted revolution.”

Recovery came more quickly in the United Kingdom than in the United States, where the Depression dragged on through the 1930s.

Bernstein (1987) sought to explain the delayed recovery in the United States by examining varying experiences of different industries. Focusing on manufacturing, he argued that delay was due to a combination of financial disruption and long-run trends in the structure of consumption and production. Dynamic industries could be found even in the worst years of the Depression, but taken together they were not yet large enough in the national economy to pull it into recovery. Szostak (1995) made a similar argument, claiming that there were too few growing industries. He emphasized the problem of market saturation and the lack of new product technology in the late 1920s and early 1930s. Szostak's study included nonmanufacturing; government was the only major sector to show an employment increase even during 1929–1933.²

While most manufacturing industries lost employment, the beverages sector did show an increase in employment during 1929–1933, as did rayon, buttons, corsets, and several industries in the foods sector (Fabricant 1942, pp. 264–332). Physical output rose in beet sugar, butter, cane sugar, chocolate, liquors (distilled, malt, and vinous), malt, corsets, knit outerwear, rayon, collapsible tubes, and mechanical refrigerators. By 1935 it also had risen in radios, washing and ironing machines, and a variety of other industries (Fabricant 1940, pp. 382–602).

Throughout the 1930s, the food, leather, petroleum, and tobacco products sectors were relatively “depression-proof.” Innovations in canning had become operational, and during the Depression households favored canned foods for their low prices and high nutritional value. The cigarette industry soared after a slight drop in 1932 (Bernstein 1987, pp. 53, 61–63, 70–72). Other individual industries also showed increases in output and employment (Fabricant 1940, pp. 382–602; Fabricant 1942, pp. 123–128, 264–332). Consumer credit facilitated purchases of consumer durables, as it did in the United Kingdom. Many households, however, cut back on purchases of consumer durables during the Depression (Olney 1991; Bowden and Turner 1993; Bowden and Offer 1994).

The aggregate net income of U.S. corporations declined drastically from 1929 to 1932 but, as in the United Kingdom, not all businesses suffered losses. In 1932, very large U.S. corporations still were making profits. Among seven broad industry groups, all were profitable in

1929 and 1930 except trade. But by 1931 and 1932, only public utilities and transportation had positive profits; that group was joined by manufacturing in 1933. Within manufacturing, profit rates varied widely. Even in 1932, three manufacturing subgroups were profitable: tobacco products (13.1 percent), chemicals and allied products (0.4 percent), and foods and beverages (0.3 percent). At the other extreme were forest products (−10.3 percent), textiles and products (−8.0 percent), and leather and products (−6.6 percent) (Fabricant 1935, pp. 3–4; Crum 1939, pp. 17, 45).

In both the United Kingdom and the United States, then, there were industries that were expanding and profitable during the worst years of the Depression, and there were even more such industries later in the 1930s. Changes in long-run patterns of consumption favored some of the same industries in both countries. There also were important differences. Building, for example, played a much more positive role in the United Kingdom than in the United States, where employment by construction contractors fell by 50 percent between 1928 and 1933 (Jaeger 1972, p. 139). Traditional light manufacturing industries that were adopting mass production methods somewhat later than in the United States were also expanding rapidly in the United Kingdom during the 1930s.

REGIONS

In the case of the United Kingdom, a focus on industries in the 1930s leads naturally into a discussion of regions. Many regions were highly specialized, and the fortunes of their leading industries were important determinants of their economic performance and welfare (Hatton 1986). This link was less close in the United States (and also less close in the United Kingdom later in the 20th century). In this section I examine short- and long-run impacts of the Depression on regions in both countries.

While both countries had problem regions, these were of different types. Problem regions in the United Kingdom—older industrial regions—were not helped significantly by the Depression or by economic policies of the 1930s. In the United States, the Depression ulti-

mately did improve the economic position of its main problem region—the low-income South. However, this was an unintended long-run result of New Deal policies; in the short run, such policies favored the richer regions.

The 19th century export industries in the United Kingdom had concentrated in northern and western regions. Coal, iron and steel products, and shipbuilding were found in South Wales, Mid-Scotland, Northumberland and Durham, and West Cumberland. The cotton textile industry clustered in Lancashire. These regions already were declining in the 1920s, and the Depression hit them especially hard. The unemployment rate in Jarrow, a northeastern shipbuilding town, was over 80 percent in 1932–1933 (Wilkinson 1939, p. 192). As we saw above, there were expanding industries and services in the United Kingdom in the 1930s, but they did not locate primarily in these older industrial regions. Instead, they concentrated in the South and Midlands, which were relatively prosperous throughout the inter-war years.

One might expect that unemployment would lower wages and attract new industry to depressed regions. Recent research suggests that local wages do influence business location (Bartik 1991, pp. 49–52). However, depressed industrial regions might be unattractive to business for other reasons even if wages did fall. Historically, resources (especially labor) often were not reallocated from old to new uses within a region. Instead, old resources remained unused, and growing industries incorporated new resources, often in new locations. In the United Kingdom, employers expressed a clear preference in the 1930s for labor without previous employment experience (Great Britain, Royal Commission on the Geographical Distribution of the Industrial Population 1937–39, p. 504).

Many of the expanding industries hired large numbers of young persons and women, rather than the older men being displaced from coal, iron and steel, and shipbuilding. Expanding industries also sought proximity to the market and concentrated in the South (near London). Young persons and women were readily available there (Heim 1984b). Norman Tebbit, Minister of Employment in the Thatcher government, observed in 1981 (a time of high unemployment) that during the 1930s, his father “got on his bike and looked for work” (Tebbit 1988, p. 187). But even if they had headed for the South in the 1930s, many of the unemployed would not have been hired.

During a time of general depression, there was little need to look to the older industrial areas for labor. Moreover, even if macroeconomic policy had succeeded in lowering unemployment and tightening labor markets in prosperous areas in the 1930s, organizational structures of firms in the South and Midlands were not yet sufficiently developed to manage distant branch plants in northern and western regions (Heim 1983). (By the 1960s this pattern had emerged, and in the 1980s Japanese firms investing in the United Kingdom located branch plants in northern and western regions, as well as in the new towns. Despite the availability of unemployed workers in the older regions, new labor often was hired instead. Workers without a history of trade union activism were preferred, and Japanese firms insisted upon a nonadversarial role for unions when they did accept them [Oliver and Wilkinson 1992, pp. 46, 186, 226, 247, 278–280].)³

The United Kingdom did not succeed in devising effective regional policy during the 1930s. After short-lived efforts to transfer workers out of depressed regions, programs were established to finance new industries there. The Bank of England, however, disliked these initiatives and sought to keep them just large enough to forestall more far-reaching government intervention on behalf of the depressed regions (Heim 1984a). Compared with governments in many other countries, however, inter-war U.K. governments were not highly interventionist on a regional or national scale. While limited public works spending was undertaken, and there were some efforts to stimulate rationalization and elimination of excess capacity in older industries, there was no equivalent to the U.S. New Deal with its wide range of spending and regulatory policies (Garside 1990).

U.K. macroeconomic policies since World War I had been oriented more toward defending the pound, protecting the gold standard, and limiting Treasury spending, rather than toward promoting domestic industry (Lewis 1949; Eichengreen 1992). What finally helped the declining regions in the late 1930s was rearmament and war, which increased employment in older industries such as iron and steel, coal, and shipbuilding (Thomas 1983). However, longer-run effects of the war and postwar military spending favored other regions. Research and development facilities in the research-intensive industries stimulated by the war, such as electronics, chemicals, and aircraft, tended to locate in the South near London (Heim 1987).

As a consequence of the Depression itself and the lack of effective policy response, unemployment differentials among regions in the United Kingdom widened. Taking the two extremes, in 1929 the unemployment rate in Wales was 18.2 percent, and in London and the South East, 4.5 percent. The difference between these two regions peaked in 1933, when unemployment was 34.1 percent in Wales and 10.7 percent in London and the South East. For Inner Regions (the South and Midlands) versus Outer Regions (Northern England, Wales, Scotland, and Northern Ireland), the difference in unemployment rates widened from 1929–1931, dropped slightly in 1932 and was fairly steady to 1935, then dropped further to 1937. It widened again with the 1938 recession, before dropping in the war boom to about the same gap as in 1929 (Beck 1951, Table 18 and p. 36; see also Garside 1990, p. 10).⁴

Recession in the 1970s and 1980s similarly increased unemployment differences among regions in the United Kingdom (Martin 1989, pp. 31–34; Champion and Townsend 1990, pp. 131–132). Gaps also widened in per capita gross domestic product (GDP) between 1975 and 1986. The South East, East Anglia, and the South West all saw their per capita GDP rise relative to the U.K. average, whereas that ratio fell for northern and western regions, and also for the West Midlands automobile region, which had become a declining rather than a prosperous region (Martin 1989, p. 40). This experience was shared by European regions generally: disparities in GDP per head widened slightly during the slow growth years in the first half of the 1980s, before narrowing in the second half of the decade and leveling off at the beginning of the 1990s (European Commission 1994, p. 37).

Did depression and recession lead to divergence (greater inequality) of per capita incomes in the United States? At the state level, the evidence is somewhat mixed. Divergence among states, measured by the standard deviation of the log of per capita income for states, or by the coefficient of variation of state per capita income, increased both during prosperous years of the 1920s and in the first years of the Depression (through 1932). The remainder of the 1930s saw convergence, which continued until 1978. Divergence occurred again from 1978–1988, after which convergence resumed (Barro and Sala-i-Martin 1991; Wheelock and Coughlin 1993; Sherwood-Call 1996). (Note that the 1920s and 1980s, when geographic disparities widened, also

were times of increases in other kinds of inequality, such as income distribution.)

Unlike what happened in the United Kingdom, in the United States in the 1930s the main problem region improved its position relative to other parts of the country. This region was the low-income, less-industrialized South, a very different type of region from the older industrial regions of the United Kingdom. Although Franklin D. Roosevelt still could refer to the South in 1938 as the nation's number one economic problem (Schulman 1991, p. 3), the Southeast's share of total personal income rose from 11.15 percent in 1930 to 13.23 percent in 1940, and the Southwest's share rose from 4.75 to 5.21 percent (Perloff et al. 1960, p. 274).⁵ Installed horsepower increased most rapidly in the Southeast and Southwest during 1929–1939, in the latter case at more than twice the national rate (Wardwell 1951, p. 91). Throughout the nation nominal per capita incomes fell in this decade, but the total percentage change during 1929–1939 was lower in the Southeast than in any other region and was also low in the Southwest (U.S. Department of Commerce 1995, p. 11). The South's relative improvement was even stronger in the 1940s.

The sharpest drops in real per capita income during 1929–1933 were in the Northwest, Central, and Far West regions; the smallest drop was in New England. The Southeast and Southwest regions, where income fell by 24 and 29 percent, did well compared with the U.S. average of 28 percent. The 10 states with the smallest income declines (12 to 23 percent) were North Carolina, South Carolina, New Hampshire, Maine, Virginia, Rhode Island, Georgia, Maryland, Massachusetts, and Connecticut; the District of Columbia saw an 18 percent drop (Hurwitz and Stallings 1957, pp. 248–249).⁶

The employment picture for southern regions also was positive. The total employment index for the South Atlantic region was the best in the nation in 1933 at 88.3, when national employment stood at 78.4. The worst-off region in that year was East North Central at 69.5. The other southern regions, East South Central and West South Central, were below the national average in 1933, but along with the South Atlantic region made a very strong recovery later in the 1930s (Wallis 1989, pp. 53, 56–64).

Some regional and local differences in income and employment were rooted in industrial structure, though it may have been less impor-

tant than in the United Kingdom. In 1939, *Fortune* magazine reported being told in Houston, home to a booming oil industry, that “this is the city that never knew the depression” (“Texas” 1939, p. 87). Tobacco manufacture, an industry discussed above as one of the most prosperous throughout the Depression, helps to explain the performance of some southern states. California benefited from motion pictures, citrus fruit, and later airplanes, while mountain states declined along with the mining and lumber industries (Szostak 1995, p. 307).

Wallis (1989) argued that the South’s strong performance during the Depression cannot be fully explained by the industrial composition of employment. It did not simply result from the South having its employment concentrated in industries that saw relatively small employment declines during the Depression. Nor were certain institutional changes associated with the New Deal (the Social Security and National Labor Relations Acts) primarily responsible. He concluded (p. 62) that “regional differences remain an important and unexplained part of the employment experience.”

In their working paper on manufacturing employment change during 1929–1937, Rosenbloom and Sundstrom (1997) sought to control for both industry and region. They argued that industry effects were important in some regions, especially during 1929–1933. For example, the East South Central, Pacific, and Mountain regions, which had heavy concentrations of manufacturing employment in the lumber products industry, were hit hard when construction collapsed. Similarly, the automobile industry had a negative impact in the East North Central region. But Rosenbloom and Sundstrom argued that region, rather than industry, effects were primarily responsible for the relatively good performance of the South Atlantic and West South Central regions during 1929–1937. Their view was that in these regions, strong regional trends in manufacturing employment growth overcame negative industry composition effects. More research remains to be done to clarify the reasons for the relatively favorable performance of southern regions during the Depression.

Might the New Deal have benefited the South in other ways besides the changes associated with the Social Security and National Labor Relations Acts? Earlier research showed that, at least in the short run, southern states were not disproportionately favored by New Deal spending. Despite the aim of reform (which might be taken to include

the raising of incomes in the poorest states), New Deal expenditures per capita were highest in wealthy western states (Arrington 1969). Relief and recovery, a restoration of income to (unequal) pre-Depression levels, and improvement of national assets such as land and highway systems, appear to have been primary motives. Expenditures favored states with the sharpest drops in per capita income during 1929–1933 (Reading 1973).

Wright (1974) concluded that southern states received less New Deal spending because they were perceived to be safely in the Democratic camp, whereas western states had exhibited much more variability in their voting behavior. Spending patterns of the New Deal did succeed in affecting the vote. Subsequent tests by Wallis (1987, 1998) confirmed the importance of both economic and political factors for the distribution of spending. Demand-side as well as supply-side considerations mattered: southern (and New England) states were less receptive than western states to federal programs (Reading 1973, pp. 804–805). The southern states were concerned about the potential threat to low wages and labor discipline (Wright 1986, p. 260). They also may have feared that unwelcome intervention (for example, on policies relating to racial matters) would accompany the funds.

The New Deal did create bodies that advanced notions of regional administration and planning, and ideas of a “new regionalism” (as opposed to the “old sectionalism”) flourished in the 1930s. One part of the South—the Tennessee River basin—was a major site of such initiatives. Created in 1933, the Tennessee Valley Authority (TVA) was a government agency with many attributes of a private corporation. Working with seven state governments and many more local ones, it embarked on the nation’s first comprehensive regional development program (Wecter 1975, pp. 154–177).

TVA had broad powers in navigation and flood control, hydroelectric power generation, land-use planning, and reforestation. It was highly successful for its first 20 years. After the 1950s, criticism mounted as socioeconomic gains slowed and TVA shifted from dams to strip-mined (and nonunion) coal and nuclear power, leading to concerns about environmental degradation. Much of the Tennessee River basin was still poor enough to be included in the Appalachian Regional Commission region in the 1960s (Raitz and Ulack 1984, pp. 347–349).

Even if New Deal expenditures did not favor southern states generally, the long-run impact of New Deal policies promoted southern industrialization. Wright argued in *Old South, New South* (1986) that two policies adopted during the Depression ultimately ended the isolation of the southern labor market and linked it with the national labor market. When the South experienced severe dislocation, unemployment, and underemployment as a result of these policies, its leaders began to welcome capital and people from outside that would help to develop the region. The policies that set this process in motion were New Deal agricultural policies and minimum wage legislation.

Agricultural policies created incentives for landowners to eliminate sharecropping, the system of farm production in the South that involved working on an owner's land and dividing the crop with the owner. Under the New Deal, landowners received payments for limiting their production of agricultural goods; the hope was to increase prices of those products and thus farmers' incomes. However, if a landowner had sharecroppers or other tenants, the payments had to be shared with them. As a result, many landowners decided to dispense with their sharecroppers and other tenants and hire wage-labor instead. Displaced sharecroppers migrated to northern cities in large numbers in the 1940s and 1950s, when mechanization also reduced the need for labor on farms.

Minimum wage legislation, which applied in all states, also brought the South into a unified national labor market. The immediate impact of federal policies on southern blacks was negative. But the combined effect of these policies, and the resulting migration flows, was

the final disappearance of the plantation regime . . . Having little of the old low-wage economy to protect, southern property owners opened their doors wholeheartedly to outside flows of capital, government funding, and highly paid labor. (Wright 1986, p. 15)

Initially they pressed for the South's "fair share" of military spending in the 1940s. The East South Central and West South Central regions did receive a larger share of wartime manufacturing facilities than their share of pre-war facilities, although the textile states of the South Atlantic region did not fare as well (U.S. War Production Board

1945, p. 36). Industrial development promotions exploded after the war, and especially after 1950 (Wright 1986, pp. 257–264). The South also benefited from spending on highways and from the federal home mortgage loan programs that had originated in 1933 and that stimulated city- and suburb-building after World War II. By 1990, per capita incomes in the South still were below the national average, but considerable progress had been made toward closing the gap (Heim, forthcoming).

In the United States, then, unlike the United Kingdom, policies adopted in response to the Depression did have a positive long-run impact on economic performance in the nation's problem region. The problem regions were of different types: in the United States, a low-income agricultural area, and in the United Kingdom, older industrial areas. The U.S. West, a less-developed region—although not one perceived as a problem region—also saw its development hastened by the water projects of the 1930s. The policies adopted in the United States (with the exception of the TVA programs) did not have as their explicit goal the development of lagging or newer regions. Nonetheless, in the case of the South, the linkage with national labor markets that resulted from New Deal agricultural and minimum wage policies did ultimately promote industrialization.

NATIONS

A fascinating contrast is presented by certain less-developed nations during the Depression and subsequent decades. Their industrialization also accelerated, but as a result of *delinking* from a larger economy—in this case, the international economy—rather than becoming more closely linked with it. During the Depression, export earnings for many countries dried up, and capital inflows from more-developed countries such as the United States were curtailed drastically. In parts of Latin America, Africa, and Asia (as well as in some Scandinavian and Eastern European countries, and in Australia), emphasis shifted away from exports of primary products (such as agricultural products and minerals) and toward more import-substituting production of manufactured goods.

The idea that the Depression had promoted industrialization in Latin America was advanced by structuralists (Prebisch 1962; Furtado 1963), writers in the dependency school (Frank 1967), and others (Lee 1969; Díaz Alejandro 1970; Fishlow 1972; Thorp 1984). Díaz Alejandro (1984) provided a useful survey of the issues. The international shocks of the Depression pushed countries in Latin America toward policy experimentation. Some countries were questioning the “rules of the game” as early as 1930. Commitments to the gold standard and to balancing national budgets were no longer seen as a necessary or desirable means of attempting to ensure national prosperity. The gold standard regime of the 19th and early 20th centuries had always worked less well as a stabilizing force for the periphery of the world economy, including Latin America, than it had for the more-developed countries of the center. Defending the gold standard became even less a priority under the pressures of the Depression (Eichengreen 1992, pp. 54–65).

Being delinked from the world economy, and from institutions such as the gold standard, allowed a different set of domestic policies to be pursued that were favorable to industrialization. Not all countries were able to take this path. Díaz Alejandro suggested that among Latin American republics with nominal sovereignty, largeness (as in the case of Brazil) and a relatively autonomous public sector (as in Costa Rica or Uruguay) led to more favorable performance. Smaller countries such as Honduras and highly dependent governments such as Cuba were less able to experiment with unorthodox policies. He noted that “paradoxically, some clear-cut colonies in the Caribbean appear to have performed better than Cuba or the Dominican Republic” (Díaz Alejandro 1984, p. 18).

What were these policies? They included balance-of-payment policies, monetary and fiscal policies, and other policies promoting structural change and reform. As export values fell and capital inflows turned negative, gold and foreign exchange flowed out of Latin American countries. Some responded by abandoning the effort to maintain the gold parities of the gold-exchange standard, thereby avoiding the difficult deflationary process that was part of the classical adjustment mechanism. Instead they devalued their exchange rates. By 1930–1934, real import-exchange rates with respect to the dollar had depreciated between 30 and 90 percent, as compared to 1925–1929, in seven Latin American countries (Díaz Alejandro 1984, pp. 22–26).

Imports also were discouraged by higher tariffs and by quantitative restrictions, such as import or exchange controls. Several countries (Mexico, Chile, Colombia, Brazil, and Cuba) used delinquency on their international debt payments to alleviate balance-of-payments difficulties (Maddison 1985, pp. 23–32). U.S. tolerance of partial or total defaults by Brazil contrasted with British insistence on repayment by both Brazil and Argentina. This tolerance was especially important for Brazil, which had a more binding foreign-exchange constraint than Argentina in the 1930s (Abreu 1984, pp. 150–152). Other outward flows were limited by Latin American authorities: importers seeking to settle their short-term debts, and foreign companies wanting to remit profits abroad, had to wait to obtain the necessary foreign exchange (Díaz Alejandro 1984, p. 27).

Latin American countries also had serious debt problems in the 1980s, following the difficult years in the world economy after 1973 and the recession of 1980–1982. Again, many debts were rescheduled. In this debt crisis, unlike that of the 1930s, the International Monetary Fund acted as a “system manager,” providing emergency credit and pressuring other creditors into helping. But it also imposed strict conditions on domestic policy, including budgetary restrictions and other deflationary measures that increased unemployment (Maddison 1985, pp. 45–66).

In the 1930s, Latin American governments could, and did, engage in more expansionary monetary and fiscal policies. The policies generally were not motivated by a conscious and deliberate program, but together they contributed to the maintenance of aggregate demand. Real money supplies increased in Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay. Central banks found creative ways to issue domestic currency and increase credit in their economies. Banks generally were not allowed to fail, in sharp contrast to the situation in the United States (Díaz Alejandro 1984, pp. 29–31). Increases in the money supply were facilitated by greater leniency in terms of bank reserves (Twomey 1983, p. 243).

Similarly, fiscal policy helped to maintain aggregate demand. Brazil’s policy after 1932 was deliberately expansionary, with planned deficits resulting from conscious additional expenditure. Government support for the coffee sector, through export taxes and acquisition of coffee, also helped to hold up that sector’s income

(Fishlow 1972, pp. 328–330). In other countries, despite declarations by policymakers that they sought to balance their budgets, “efforts to reduce the deficit induced by the decline in foreign trade and output were tempered by either common sense or the sheer inability to cut expenditures and raise taxes fast enough” (Díaz Alejandro 1984, p. 34). Regional or local governments sometimes took the lead in expansionary fiscal policies, as in Colombia where the role of central government was smaller than elsewhere in Latin America (Maddison 1985, pp. 28–29).

Finally, Latin American governments also engaged in other structural and reform policies that included wage flexibility and moderation, land reform, price regulation for rural products and public utilities, strengthening of credit institutions, and large public works programs (Díaz Alejandro 1984, pp. 36–37). In Mexico, for example, agrarian reform hastened a transfer of resources to the modern sector by increasing uncertainty about returns to investment in agriculture. Public outlays for road construction reduced transport costs and enlarged the available market (Cárdenas 1984, p. 233).

The outcome of this policy experimentation was growth rates of gross domestic product (GDP) during 1929–1939 that were steadier and higher for Argentina, Brazil, Colombia, and Mexico than for the United States and Canada. (Since population grew more rapidly in Latin America, the disparity in real per capita income growth was not as great.) More impressive than the growth rates was the extent of structural change and industrialization. There was substantial movement from activities oriented toward export markets to those involving domestic sales. As import substitution surged, manufacturing grew much faster than GDP. Manufacturing growth rates during 1929–1939 ranged from over 3 percent per year in Argentina to over 8 percent per year in Colombia, while remaining near zero in the United States and Canada (Díaz Alejandro 1984, pp. 38–44).

Africa also provides examples of the Depression stimulating structural change and industrial development. Egypt was hard hit by the fall in the price of cotton, its major export. The resulting drop in the country’s capacity to import created incentives for domestic manufacturing (Lee 1969, p. 152). By 1939, Egypt was meeting most of its local demand for simple products such as refined sugar, alcohol, cigarettes, soap, shoes, cement, and matches (Owen 1989, p. 142). Rather than

exporting almost all its cotton, Egypt began to use it in its own factories, and investment funds shifted from export-oriented agriculture toward industry generally (Lee 1969, p. 153).

The Egyptian government protected industry by tariffs, which were revised after a treaty with Italy expired in 1930. Tariffs were especially important in blocking textile imports from Japan, India, and Italy, which were less expensive than products made from Egyptian cotton. By 1939, textile imports, which were 40 percent of the value of all imports in 1920, had fallen to 16.5 percent. The government aided industry in other ways as well, such as purchasing locally made cement for public construction projects. Industrial growth was not the sole focus; Egyptian leaders also sought to maintain a high level of cotton exports (Tignor 1984, pp. 106–146).

Other parts of Africa under colonial control had relatively little of the independence in setting policy that Díaz Alejandro identified as being important in successful Latin American cases (though some colonial powers, particularly the Belgians, were more attuned to the needs of industry than others). The Depression still had some positive impacts on industrialization. Clarence-Smith (1989, p. 195) argued that in the colonies of equatorial and central Africa, the main contribution of the 1930s was the strong signal it provided to private industrialists about the potential of the home market and about the types of industries most suitable for the region.

Industries manufacturing cheap products for the African mass consumer market did well even in the worst years of the early 1930s and fared better than industries producing for European settlers in many areas. Settler purchasing power fell; many settlers were heavily in debt and were hurt by deflation. In some places their numbers declined. Import substitution in the African market proceeded in soap and textiles and in some intermediate goods such as cement. The overall level of industrialization in equatorial and central Africa did not rise dramatically in the 1930s, though the experiences of that decade did help to lay the groundwork for more rapid growth in Angola in the 1940s (Clarence-Smith 1989, pp. 170, 188–196).⁷

In Asia as well, there was less policy autonomy than in Latin America during the Depression. Colonies were less able to impose trade and exchange controls, to engage in expansionary monetary and fiscal policies that would generate some inflation, or to default on

debts. As in Africa, some colonial governments were more developmentalist than others. The Japanese practiced what Maddison called “military developmentalism” in Korea and Taiwan, which included encouraging some industrialization. Korean heavy industry provided intermediate products to Japan, and Taiwan produced fertilizers, textiles, metals, and chemicals. The British and Dutch followed more orthodox policies in their colonies (India, Indonesia), defending overvalued currencies and pursuing deflationary policies (Maddison 1985, pp. 22, 33–43).

The Depression did, nonetheless, stimulate industrialization in some parts of India such as Madras, as the terms of trade moved to favor industry over agriculture and rural moneylenders sought new avenues for their funds. Investments were made in sugar refineries, cotton textile mills, cement, and electricity supply, as well as in banks, insurance companies, and the film industry. Record numbers of joint stock companies were registered in 1933–1937 (Baker 1978, pp. 238–242).

Japan grew very rapidly during the 1930s, and in this case, being linked to the world economy was crucial. Japanese exports rose by 70 percent between 1929 and 1937, at a time when France, Germany, the United Kingdom, and the United States all saw their exports fall. But Japanese export success in this period was based partly on an earlier phase of delinking and import substitution. During World War I, developed economies such as Britain were unable to supply manufactured goods, and Japan began producing textiles both for the local market and for other Asian countries. Military spending in the 1930s also stimulated the growth of Japan’s heavy industry (Maddison 1969, pp. 35–39).

China was at the other end of the spectrum during the Depression and was perhaps best described as “unlinked” rather than “delinked.” The Chinese economy was so underdeveloped and internally oriented that it was largely immune to the shocks of the Depression. Myers (1989, pp. 256–259) summarized data showing that GDP grew in real terms at 1.55 percent per year during 1931–1936, and growth in manufacturing was considerably higher, at 2.11 percent. Some industries in the modern sector outpaced their Western counterparts. Coal production in modern mines grew at 7.81 percent per year (this figure includes Manchuria, which had been seized by Japan in 1931–1932). Growth

also was especially rapid in modern banking, electrical power, and postal services.

By the mid 1930s, China was engaging in relatively expansionary monetary and fiscal policies, had increased tariffs, and was continuing the debt default and readjustment it had begun in the 1920s (Maddison 1985, pp. 33–34). Internal trade boomed, much of the urban sector flourished, and new consumer goods became available. Rural distress occurred, but bad harvests were a major cause. Myers (1989, p. 274) concluded that “China simply did not experience any national economic depression as the world depression deepened.”

The import-substituting industrialization pursued by many less-developed countries during the Depression had its flaws. In Egypt, for example, locally produced goods were almost invariably more expensive than those of foreign producers (Owen 1989, p. 142). But as Maddison (1985, p. 23) argued, “In the conditions of the 1930s, the verdict must be in favor of the import substitution policies, for openness to the world economy of the type Cuba was compelled to follow meant large-scale unemployment of productive resources.” He quickly went on to assert that in the longer run these measures, which continued in the 1940s and 1950s, were a hindrance to growth.

By the 1970s, many critics were pointing to undesirable effects of import substitution policies and associated protectionist measures. They cited price distortions, resource misallocation, lack of competition in the industrial sector, and an anti-export bias. Movement away from inward-looking policies, initiated by Brazil, had begun in the 1960s. Other countries followed in the 1970s and 1980s, particularly following the second oil shock and the debt crisis (Corbo 1992). Long-lasting negative impacts on growth from some of the inward-looking policies first adopted during the Depression recently were estimated by Taylor (1998). However, when comparing countries in Latin America’s Southern Cone (Argentina, Brazil, Chile, Paraguay, and Uruguay) with other Latin American countries, Taylor (1996) noted that the “big push” into manufacturing also may have generated dynamic externalities with long-run benefits for at least some parts of Latin America.^{8,9}

CONCLUSION

Like most episodes in economic history, the Depression of the 1930s had winners and losers. In both the United States and the United Kingdom, certain industries flourished. Some of these industries produced the cheap luxuries that made the Depression more tolerable for those at the bottom of the income scale, as well as other new consumer goods (such as electrical appliances) whose use continued to grow even during these years of economic difficulty. However, while there were growth industries in both countries in the 1930s, these industries did not necessarily locate in the regions that most needed them. This was especially true in the United Kingdom, where expanding industries and services concentrated in the prosperous South and Midlands rather than in the older industrial areas of the North and West.

In the United States, it was the South—a poor, less-developed region—that had been the main problem region. The South was hit less hard than other U.S. regions by the Depression and recovered more quickly, for reasons that still are not fully understood. Short-run impacts of the New Deal were not responsible. New Deal spending went disproportionately to wealthy western states, where voting patterns were less reliably Democratic than those of the South and where there had been especially sharp drops in income in 1929–1933. But in the longer run, New Deal agricultural and minimum wage policies broke down the isolation of the southern labor market and linked it to the national labor market. Without the remains of a plantation economy to protect, the South became more open to economic development, especially after 1950.

Elsewhere in the world, the Depression of the 1930s had more immediate effects in stimulating industrialization. In these cases delinking, rather than linking, was what helped. As their export revenues fell and capital inflows dried up, less-developed countries found themselves less able to import. Several of the larger, more independent countries in Latin America began experimenting with unorthodox, expansionary monetary and fiscal policies that cushioned the effects of the Depression. They also instituted policies that encouraged more domestic manufacturing. There was less scope for this response in Africa and Asia, where colonial control remained stronger. Egypt did

follow a similar path of import substitution, and the Depression also created new awareness of the potential of African consumer markets in equatorial and central Africa.

It is interesting to speculate as to why, for the U.S. South, the Depression had positive effects through linking the South with a larger economy, whereas for less-developed countries it was delinking that proved beneficial. Delinking, of course, is not usually an option for regions in the same sense as for nations, although Jane Jacobs (1984) did argue that if it were possible there would be advantages to cities and their regions becoming independent sovereignties, issuing their own currencies and conducting their own policies. Perhaps part of the reason for the difference between the U.S. South and less-developed countries is that it was labor markets that were linked in the U.S. case. Is linking labor markets more beneficial than linking product and capital markets? Would less-developed countries have been better off in the 1930s and later decades if international barriers to migration had not been erected in the 1920s and more migration to richer countries had been possible (similar to the migration of displaced sharecroppers to the U.S. North)?

International labor markets were more linked, and migration widespread, in the earlier period from 1870–1914. A group of scholars has argued that certain European areas with large outmigrations (Ireland, Sweden, and Italy) were better off as a result; the departure of the movers raised wages, reduced unemployment, and eroded poverty at home (Boyer, Hatton, and O'Rourke, 1994; O'Rourke and Williamson, 1995; Williamson 1996; Taylor and Williamson 1997). However, southern Italy remained a less-developed region in the later 20th century. There also may be difficulties in applying these arguments to less-developed countries with very large populations, such as China or India.

Moreover, the U.S. South benefited from the outflow of labor partly because what followed were inflows of capital and skills. Would many less-developed nations or regions in the 1930s and later decades have seen similar inflows, on terms that would be beneficial to development, if their labor markets were more linked to international ones? And did they have institutional and political structures that would have allowed them to use such inflows effectively?

The timing of the linking or delinking also may be important for either regions or nations. Although stimulated by Depression-era poli-

cies, the actual linking of the U.S. South with the national economy came during the prosperous 1940s and 1950s. Clearly there are many questions that remain to be answered. My hope is that this consideration of the uneven impacts of the Great Depression on industries, regions, and nations will have illustrated the complexity of that experience and will stimulate further thought about its consequences.

Notes

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1. For individuals, experiences differed by race, age, gender, and other dimensions (Eichengreen and Hatton 1988, pp. 29–35 in the editors' introduction and chapters by individual authors; Szostak 1995, pp. 308–309). See Bresnahan and Raff (1991) on differences among U.S. firms in the motor vehicles industry during the Depression.
2. On the debate over the role of new industries in pulling the United Kingdom out of depression, see Buxton (1975) and von Tunzelmann (1982).
3. There is evidence of a preference for greenfield sites and new labor in the recent location of Japanese auto transplants in the United States. Locations in or near the Midwest were chosen partly for proximity to other automotive firms and supplier networks. But the transplants often avoided large, older urban centers and hired rural workers, some of whom maintained connections to farms (Bingham and Eberts 1990, pp. 317–320; Mair, Florida, and Kenney 1988; Helper 1991; Kingsolver 1992). For example, Japanese automotive facilities located in the 1980s "in the exurban counties around Dayton and Columbus" (Blair and Fichtenbaum 1990, p. 152). Smith and Florida (1994) sought to challenge this view, at least for Japanese-affiliated establishments in auto-related activities such as components, steel, finishing and processing, and rubber and tire manufacturing (i.e., not auto assembly establishments). There may be problems in their analysis arising from correlation between their population and population density variables.
4. Unemployment differentials among regions widened in some other countries as well. As in the United Kingdom, the absolute gap in unemployment rates increased by more than the ratio of rates in high- and low-unemployment areas (see the editors' introduction in Eichengreen and Hatton [1988, pp. 30–31]).
5. U.S. regions are defined differently by different authors. See the appendix for lists of states included in regions discussed in this paper.

6. Not all southern states did well. In the Southeast the range was from 12 percent (North and South Carolina) to 34 percent (Arkansas). In the Southwest it was 27 percent (Texas) to 40 percent (Arizona) (Hurwitz and Stallings 1957, pp. 248–249).
7. Interestingly, the food, beverage, and tobacco industries, which were relatively prosperous in the United States and the United Kingdom, fared rather badly. They were more closely tied to the settler market (Clarence-Smith 1989, pp. 194–195).
8. The section in Taylor (1996) comparing Latin America's Southern Cone and other Latin American countries was omitted in Taylor (1998), which focused exclusively on the costs of inward-looking policies. The results in Taylor (1996) do, however, suggest variation in the experience of Latin American countries with such policies. All experienced costs, but some also may have experienced benefits. It stands to reason that the larger Southern Cone countries, which embarked most strongly upon import-substituting industrialization, would reap the greatest benefits from the dynamic externalities that a long tradition of writers on economic growth have emphasized.
9. The question of whether any of the policies pursued by governments of less-developed countries during the Depression would have been appropriate in the 1970s to 1990s is a complicated one that is beyond the scope of this paper. Not all accept the idea that export-led industrialization was by the 1980s a universally desirable alternative to approaches maintaining some emphasis on domestic markets, nor do all accept a view of the state as primarily the problem rather than a part of the solution in less-developed countries. Fishlow (1990) argued that while more attention to market signals was appropriate, the degree of emphasis on liberalization and the invisible hand of the market that accompanied debt assistance plans of the 1980s went too far in denying a positive developmental role for the state. Earlier he suggested that even the import substitution of the 1930s to 1950s in Brazil might have suffered from an excessive reliance on the market, as it did not result in an articulated development bloc (Fishlow 1972, pp. 355–356). See Shapiro and Taylor (1990) for a survey on the role of the state and different developmental strategies. They noted that some successful export promotion strategies depended upon a previous phase of import substitution. Maddison (1985) and Thorp (1984, pp. 13–14) discussed comparisons between the 1930s and the 1970s and 1980s.

Appendix

Definitions of Selected U.S. Regions

Hurwitz and Stallings (1957)

Central:	Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin
Far West:	California, Nevada, Oregon, Washington
New England:	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
Northwest:	Colorado, Idaho, Kansas, Montana, Nebraska, North Dakota, South Dakota, Utah, Wyoming
Southeast:	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia
Southwest:	Arizona, New Mexico, Oklahoma, Texas

Perloff et al. (1960)

Southeast:	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia
Southwest:	Arizona, New Mexico, Oklahoma, Texas

Louisiana is included in the Southeast in Perloff et al.'s discussion on p. 274. Later in the book it is included in the Southwest, due to the growth of the petroleum industry and oil-using industries in more recent decades.

Rosenbloom and Sundstrom (1997)

U.S. Census Divisions

East North Central:	Illinois, Indiana, Michigan, Ohio, Wisconsin
East South Central:	Alabama, Kentucky, Mississippi, Tennessee
Mountain:	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming
Pacific:	California, Oregon, Washington (Alaska and Hawaii were included in this division from 1960 on)
South Atlantic:	Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia
West South Central:	Arkansas, Louisiana, Oklahoma, Texas

Rosenbloom and Sundstrom (*cont.*)

In the U.S. Census, the South includes the South Atlantic, East South Central, and West South Central divisions.

U.S. Department of Commerce, Bureau of Economic Analysis (1995)

Southeast: Alabama, Arkansas, Florida, Georgia, Kentucky,
Louisiana, Mississippi, North Carolina,
South Carolina, Tennessee, Virginia, West Virginia

Southwest: Arizona, New Mexico, Oklahoma, Texas

U.S. War Production Board (1945)

Regions are not defined on pp. 35–36, but appear to be U.S. Census Divisions, as for Rosenbloom and Sundstrom (1997).

Wallis (1989)

U.S. Census Divisions, as for Rosenbloom and Sundstrom (1997).

Wardwell (1951)

Southeast: Alabama, Arkansas, Florida, Georgia, Kentucky,
Louisiana, Mississippi, North Carolina,
South Carolina, Tennessee, Virginia

Southwest: Arizona, New Mexico, Oklahoma, Texas

Wright (1986)

South: At most, 11 states: 1) the Deep South states of Alabama, Georgia, Louisiana, Mississippi, and South Carolina; 2) broadened by the addition of Arkansas, North Carolina, and Tennessee; 3) plus the “swing” states of Florida, Texas, and Virginia, which sometimes are dropped. For example, for aggregates such as land-labor ratios, including Texas would cause problems; for migration, Florida would be the problem state.

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3 The Great Depression as a Historical Problem

Michael A. Bernstein
University of California, San Diego

It is now over a half-century since the Great Depression of the 1930s, the most severe and protracted economic crisis in American history. To this day, there exists no general agreement about its causes, although there tends to be a consensus about its consequences. Those who at the time argued that the Depression was symptomatic of a profound weakness in the mechanisms of capitalism were only briefly heard. After World War II, their views appeared hysterical and exaggerated, as the industrialized nations (the United States most prominent among them) sustained dramatic rates of growth and as the economics profession became increasingly preoccupied with the development of Keynesian theory and the management of the mixed economy. As a consequence, the economic slump of the inter-war period came to be viewed as a policy problem rather than as an outgrowth of fundamental tendencies in capitalist development. Within that new context, a debate persisted for a few years, but it too eventually subsided. The presumption was that the Great Depression could never be repeated owing to the increasing sophistication of economic analysis and policy formulation. Indeed, the belief became commonplace that the business cycle was “tamed” and “obsolete.”

The erratic performance of the American economy since the early 1970s has made this notion itself seemingly obsolete. Serious questions have been raised concerning the political obstacles to the effective management of cyclical instability and, as well, our skill in diagnosing and correcting economic maladies. Indeed, entirely new varieties of economic thinking have emerged, which have argued that the government cannot alter levels of real output (let alone rates of increase in output) except under exceptional circumstances that involve the execution of consistently inaccurate (or irrational) forecasts by eco-

nomic agents and/or the implementation of fiscal and monetary policies without the anticipation of the private sector. The confidence of the Keynesian Revolution has been shaken. A new “classicism” has come to prominence in economic thought.

In this climate of economic opinion, it is important to note that the optimism of the post-World War II era regarding the mixed economy and the new economics of Keynesianism had emerged at a time of dramatic reconstruction in the world economy and concomitant prosperity in the American. Such hope had been absent in the decade of the Great Depression; even during the war years there had been great apprehension that a return to depression would come close on the heels of victory. But the high growth rates of the 1950s and 1960s obscured the pre-war debates and dissolved for the moment any fears of a return to hard times.

Yet the concerns and misgivings of the depression and war years, far from being resolved, simply faded from view. While it has by now long been fashionable to claim that “Keynes is dead,” and that altogether novel approaches to economic policy formulation must be developed, it has nevertheless been deemed *passé* to engage with the ideas and theses of an older generation of economists who struggled to understand strange and devastating events at a time when orthodox theories and remedies no longer sufficed. Indeed, the vast majority of contemporary economists have grown decidedly hostile to arguments concerning the Great Depression that have not focused on the short run or on policy failure. In this respect they have avoided the structural, institutional, and long-run perspectives—more characteristic of their forebears—that sought to situate the great economic crisis of the interwar years within a historical framework that spanned several decades or more. By so doing, they have lost an appreciation not simply of some possible causes of the Great Depression itself, but also of the subsequent development and performance of the American economy since mid-century. It is for this reason that I seek, through a reassessment of particular aspects of these older analytical approaches, to persuade you of the usefulness and insight afforded by an understanding of “The Great Depression as a Historical Problem.”

The older literature concerning the Great Depression in the United States may be broadly classified into three categories. The first argued that the severity and length of the downturn was the direct result of the

collapse of financial markets that began in 1929. The main emphasis of such work concerned the causes of the 1929 crash and those factors that amplified its impact. The second concluded that the economic calamity of the 1930s was the direct result of poorly formulated and politically distorted actions undertaken by the government. The third category took a broader perspective and attempted to analyze the Depression in a long-run context. It suggested that whatever the origins of the slump, the reasons for its unparalleled length and severity predated and transcended the events of the last quarter of 1929. To this third category of analysis I shall devote most of my attention—but first I would like to survey the general arguments characteristic of those economists who focused on short-run dynamics and policy failure.

All short-run analyses of the Great Depression shared a common attribute. They focused on the immediate causes and impacts of the stock market collapse in 1929, and they asserted that the precipitous devaluation of wealth and the disruption of the banking system occasioned by it explained the intensity of the crisis. The “business confidence” thesis was perhaps the best example of this school of thought. It held that regardless of the mechanisms that caused the collapse, the dramatic slide of the stock market created intensely pessimistic expectations in the business community. The shock to confidence was so severe and unexpected that a dramatic panic took hold, stifling investment and thereby a full recovery.¹

A more comprehensive formulation of the short-run argument directly confronted the question of why financial markets collapsed. Looking to the political and institutional distortions created by the Treaty of Versailles, some writers (such as Irving Fisher, Lionel Robbins, and Jacob Viner) argued that the Depression was the inevitable consequence of the chaotic and unstable credit structure of the 1920s. World finances, of course, were significantly destabilized by the provisions of the Versailles Treaty itself. The principal irritant consisted of a dangerous circle of obligations and risks in which (as epitomized by the Dawes Plan of 1924) the United States lent funds to Great Britain, France, and Germany, while German reparations were needed to allow the Allies to liquidate their American debts. By 1928, American banks were already quite wary of the situation. Yet their predictable and understandable response, cutting back on loans to European governments, merely made the situation worse. Moreover, the demise of the

gold standard in international trade, and the demands by France and the United States that Germany make her reparations payments in gold rather than in the export of goods and services, created a net gold flow into the United States that led to a veritable explosion of credit. Extremely unstable credit arrangements thereby emerged in the 1920s, especially in mortgage markets. Given the relatively unregulated environment at the time, many banks were committed to questionable loan contracts. Once the crash came, the collapse of the banking system was quick to follow. Thus, excessive credit and speculation coupled with a weak banking network caused the Great Depression.²

Another version of the short-run argument concerned the immediate effects of the crash on consumer wealth and spending. The severity of the downturn, it was argued, resulted in a drastic devaluation of consumer wealth and incomes. The large stress placed on the capital markets and the lack of consumer confidence in banks ensured that effective demand could not be bolstered by increased credit. The large decreases in purchasing power, which emerged directly from the crash, left the economy saddled with excess capacity and inadequate demand.³

None of these short-run arguments were completely convincing or satisfying. Inasmuch as the business confidence thesis was subjective, it was virtually impossible to evaluate in the light of historical evidence. This weakness was perhaps best exemplified by the claim of Gustav Cassel who, in focusing on psychological factors in the slump, argued that "American puritanism stands out as perhaps the most important [example] . . . the stock exchange speculation of 1928–29 was regarded as particularly sinful behavior which had to get its punishment." There was also the major theoretical objection to notions like these that they mistook effect for cause, given that the objective circumstances of the 1930s may have generated the subjective responses of pessimism and panic. Such theories could not, therefore, occupy a central place in explanations of the Depression.⁴

The excessive credit and speculation argument was frequently rejected on the grounds that it abstracted too boldly from real rather than monetary events in the inter-war economy. Indeed, business cycle indicators turned down before the stock market crashed; indices of industrial production started to fall by the summer of 1929, and a softness in construction activity was apparent in 1928. Such critics as John

Kenneth Galbraith held that “cause and effect run from the economy to the stock market, never the reverse. Had the economy been fundamentally sound in 1929 the effect of the great stock market crash might have been small . . . the shock to confidence and the loss of spending by those who were caught in the market might soon have worn off.”⁵

As for the wealth and spending hypothesis, the evidence did not provide a compelling proof. The dramatic decline in consumption expenditures after 1929 may have been due to the wealth effects of the stock market debacle; it may have arisen once expectations had been dampened by the events after 1929; or it may have been an outgrowth of a declining trend in construction activity and in farm incomes during the 1920s. But even recent econometric investigations have been incapable of unambiguously explaining a large portion of the decline in spending. We can speak of an autonomous drop, but we cannot say for sure why it happened.⁶

Another approach to understanding the Depression evaluated the extent to which the slump was the result of systematic policy errors. Inadequate theory and misleading information, as well as political pressures, it was argued, distorted the policymaking process. Such investigators as Melvin Brockie, Kenneth Roose, and Sumner Slichter maintained that from 1932 onwards the American economy showed a great potential for recovery, only to be set back profoundly by the 1936 recession. They found that monetary conditions were not a factor insofar as the data showed low short-term interest rates, a strong bond market, and a high incidence of excess reserves. It was the impact of the New Deal, they asserted, which was responsible for negating whatever monetary stimulus did exist because of the tendency of the Industrial Codes to raise labor costs and material input prices. The rhetoric and ideology of the Roosevelt administration may have also played a role by jeopardizing the confidence of the business community.⁷ Not surprisingly, several investigators (as well as journalists and pundits) labeled the downturn of 1936–37 the “Roosevelt Recession.”

The monetarist criticism of New Deal policy, originally posed by Clark Warburton but most persuasively presented by Milton Friedman and Anna Schwartz, focused on the impact of the external dollar drain generated by Great Britain’s departure from the gold standard in 1931 and the internal drain created by the crash itself. To the extent that the Federal Reserve Board failed to understand the links between bank

failures, runs on deposits, and the international pressure on the dollar, it also failed to recognize the inappropriateness of the classical policy response undertaken—the raising of discount rates.⁸

It was not solely criticisms of actual government policy in which these writers indulged to explain the Depression's unusual severity. In some cases they also criticized the government for not doing enough. They maintained that the private sector moved too quickly in the mid 1930s in raising prices. As a result, by 1937 consumers showed an increasing resistance to higher prices, owing to their desire to liquidate the large debt incurred earlier in the decade and to maintain their savings in uncertain times. The average propensity to consume subsequently fell and a recession took hold.⁹ Pro-competitive policies presumably were the solution, but government action (such as the creation of the Temporary National Economic Committee to Investigate the Concentration of Economic Power) was too little, too late, and often inspired more by political than economic concerns.

The notion that the Great Depression was essentially an outgrowth of policy failures was problematic at best. To be sure, one could with the benefit of hindsight engage in some forceful criticism of economic policy during the 1930s, but it seems that was and is a futile exercise. After all, in many respects the Roosevelt administration (especially the Board of Governors of the Federal Reserve System) did what many of its predecessors had done in the face of a cyclical downturn. One must ask, therefore, how government officials suddenly became so inept in the inter-war period. Moreover, the question remains: why were traditional policies that had seemingly worked in the past and that represented a theoretical consensus among generations of economists suddenly so perverse in the 1930s? What had changed in the structure and operation of the national economy in the inter-war period that made orthodox economic theory and policy inadequate?

While concern with the problem of economic instability has punctuated the history of economic thought for several centuries, it is hardly surprising that the Great Depression of the 20th century inspired a vast literature on the issue of investment failure and the maladjustment of investment plans.¹⁰ In particular, the persistence of the Depression and the over-a-decade-long weakening of economic performance that it caused prompted several investigators to formulate a “stagnation thesis” concerning mature capitalist economies; it is within this context

that we can assess the work of those who regarded the crisis of the 1930s as a secular phenomenon. To their investigations, I now turn.

The literature that focused on long-run factors in the American Depression was distinctive in holding that the New York stock market crash of 1929 was less important than certain developments in the economy that had deleterious impacts throughout the inter-war period. Some authors—for example, Seymour Harris and Paul Sweezy—argued that during the 1920s the distribution of national income became increasingly skewed, lowering the economy's aggregate average propensity to consume. Others, such as Charles Kindleberger, W. Arthur Lewis, and Vladimir Timoshenko, focused on a secular shift in the terms of trade between primary products and manufactured goods, due to the uneven development of the agricultural and industrial nations. This change in the terms of trade, they argued, created a credit crisis in world markets when bad crop yields obtained in 1929 and 1930. At the same time that agricultural economies were losing revenue because of poor harvests and declining world demand, the developed economies were contracting credit for the developing nations and imposing massive trade restrictions such as America's Hawley-Smoot Tariff of 1930. As the agricultural nations went into a slump, the industrialized countries (most notably the United States) lost a major market for their output. Hence, the downturn of 1929 became more and more severe.¹¹

Industrial organization economists, Adolf Berle and Gardiner Means most prominent among them, sought an explanation of the Depression in the increasing extent of imperfect competition in the American economy of the early 20th century.¹² Downward inflexibility of prices after the crash of 1929, caused by the concentrated structure of American industry and the impact of labor unions, intensified the effective demand problem and prevented the price system from reaching a new equilibrium at full employment. On the one side, "sticky prices" further limited the already-constrained purchasing power of consumers. On the other, to the extent that noncompetitive pricing predominated in the capital goods sector, producers were less willing to buy new plant and equipment. Excessive real wages, helped up by union pressure and New Deal policy, further contributed to persistent disequilibrium in labor markets. Price inflexibility thus inhibited the recovery of both final product demand and investment demand.¹³

There were several weaknesses in all these theories. Those authors who focused on an increasingly unequal distribution of income or on administered pricing did not marshal unambiguous evidence to make their case, nor did they specify precisely how such factors came to life in the inter-war economy. While Berle and Means claimed to have demonstrated a relative price inflexibility in concentrated economic sectors during the 1930s, their critics were unconvinced. Insofar as the aggregate price-level fell by one-third in the early 1930s, they argued, how inflexible could the general price system have been? The sticky prices thesis also relied on an assumption of perfect competition in all markets other than those where the imperfections existed. If this assumption were relaxed, the thesis did not hold. As Michal Kalecki pointed out, if “sticky wages” were responsible for the length of the Depression, it followed that a reduction in wages would have eliminated the persistent disequilibrium. If, however, there were imperfections in product markets as well, a reduction in nominal wages would have lowered real wages, thereby exacerbating the effective demand crisis. Only if price adjustments were general and were followed *instantaneously* by increased investment would the sticky prices thesis concerning the 1930s hold.¹⁴

The terms-of-trade argument similarly had a major flaw. The major weaknesses in the American economy of the inter-war period were domestic, and the collapse of demand on the part of primary product-exporting nations was not highly relevant. America’s dependence on foreign markets was not significant in the inter-war years. During the 1920s, exports as a share of the nation’s gross national product had annually averaged only a bit over 5 percent. A fall in export demand then could not have played a major role in worsening or prolonging the Great Depression.¹⁵

Continued research on secular mechanisms in the Great Depression necessarily relied upon the work of Joseph Schumpeter on cyclical processes in modern economies. Schumpeter held that the inter-war period was an era in which three major cycles of economic activity in the United States (and Europe) coincidentally reached their nadir.¹⁶ These cycles were 1) the Kondratieff, a wave of 50 or more years associated with the introduction and dispersion of major inventions; 2) the Juglar, a wave of approximately 10 years’ duration that appeared to be

linked with population movements; and 3) the Kitchin, a wave of about 40 months' length that had the appearance of a typical inventory cycle.

Schumpeter's efforts were paralleled by those of Simon Kuznets and, more recently, Moses Abramovitz and Richard Easterlin. Kuznets was successful in documenting the existence of waves of some 15 to 20 years in length. These periodic swings, according to Abramovitz, demonstrated that in the United States and other industrialized countries "development during the 19th and early 20th centuries took the form of a series of surges in the growth of output and in capital and labor resources followed by periods of retarded growth." Significantly, "each period of retardation in the rate of growth of output . . . culminated in a protracted depression or in a period of stagnation in which business cycle recoveries were disappointing, failing to lift the economy to a condition of full employment or doing so only transiently."¹⁷

Most, if not all, of the "Kuznets Cycle" literature was concerned with the explicit dating of the long swings that appeared in the data. It seemed clear that these swings involved changes in resource endowments (including the size of population) and alterations in the intensity of resource utilization.¹⁸ The specific behavioral mechanisms that could account for the Kuznets phenomenon (and its precise manifestation in the United States in the 1930s) were necessarily the focus of continued debate. It is in this context that we can understand the large literature on "secular stagnation."

Broadly speaking, the so-called stagnation theorists of this century grouped into those who evinced a "Schumpeterian pessimism" about the declining incidence of innovations and new technologies, and those who shared a "Keynes-Hansen pessimism" concerning the shrinkage of investment outlets owing to a decline in the rate of population growth.¹⁹ Both groups agreed that stagnation or, as it was sometimes called, economic maturity involved a "decrease of the rate of growth of heavy industries and of building activity . . . [and] the slowing down of the rate of growth of the total quantity of production, of employment, and usually of population. It [also involved] the rising relative importance of consumer goods." They also believed that "the appearance of industrial maturity raise[d] profound questions concerning the ability of an enterprise system to produce a progressive evolution of the economy . . ."²⁰

The “Keynes-Hansen” pessimism held that as population growth fell off and as major markets in housing, clothing, food, and services consequently contracted, outlets for new investment were quickly limited to those created by the introduction of new technology or new products. To the extent that recovery from a depression required investment outlays above and beyond the level of depreciation allowances, an upturn would be dependent on the availability, in an adequate volume, of opportunities in new industries and processes. If these were not forthcoming, as some stagnation theorists believed was true of the 1930s, the only avenue out of the slump would be deficit spending to augment consumer purchasing power. But political barriers to such government action in the thirties left many economies mired in an environment of excess capacity and inadequate demand. Needless to say, contrary to popular perceptions, it was not the New Deal that demonstrated the efficacy of restitutive fiscal spending, but rather World War II. While hardly inspired by specific economic concerns, President Franklin Roosevelt’s “Arsenal of Democracy” nevertheless contained rather vivid policy lessons for economists, politicians, government officials, and the public at large.²¹

There was a serious inadequacy in the arguments concerning economic maturity and population growth. The theory conflated population with effective demand. As one critic put it,

[i]t is sometimes maintained that the increase in population encourages investment because the entrepreneurs anticipate a broadening market. What is important, however, in this context is not the increase in population but in purchasing power. The increase in the number of paupers does not broaden the market. For instance, increased population does not mean necessarily a higher demand for houses: without an increase in the purchasing power the result may well be crowding of more people into the existing dwelling space.²²

“There is no rigid physical relation,” another commentator declared, “between the number of families in the country and the amount and value of the housing they will pay to occupy. Demand depends not only on their number, but their incomes.”²³ A more systematic theory had to argue that, for secular reasons, the purchasing power of the population, rather than the size of the population itself, fell in advanced capitalist systems.

Much like the population theory, the variant of the stagnation theory that focused on the decline of innovation and technical change as a factor in the distress of the 1930s embodied many inconsistencies and questionable assertions. The lower rate of technical change and the decline in the number of major innovations, which were posited as a primary cause of the inability of the economy to recover in the course of the Great Depression, were deemed to be exogenous factors derived from the state of technical knowledge at the time.²⁴ Little justification of this position was offered. Furthermore, meager attention was given to a seeming contradiction in the argument. If during the 1930s little technical change took place, why did not the eventual reduction in the amount of capital equipment available (owing to firm exits and the periodic obsolescence of plant) result in a revival of capital goods output?²⁵

There was one further objection to the technology argument that was apparent to some of the stagnation theorists themselves. There was an implicit assumption that new innovations were always of the capital-using type; thus, had innovation occurred in the 1930s, net investment demand would have absorbed large capital outlays, thereby generating a robust upturn. But if innovations were capital-saving, this argument foundered. Heavy investment in earlier stages of economic growth (in, for example, railroads, motor cars, and housing) may have given way (in later periods) to newer forms of investment in managerial technique and information processing. These latter innovations may not have absorbed very large amounts of investment expenditure at all. While they may have therefore improved the organization and efficiency of production, their impact on aggregate spending would not have been adequate to the task of systematic recovery. As Alvin Hansen succinctly put it in 1941, “[t]he transformation of a rural economy into a capitalistic one is something distinctly different from the further evolution of a society which has already reached the status of a fully-developed machine technique.”²⁶

It was the Austrian economist Josef Steindl who provided the most sophisticated version of the economy maturity idea. Not surprisingly, he did so in part by explicitly situating the Great Depression in the United States within a long-term development framework. His work linked economic stagnation directly with the behavior of capitalist enterprise, thereby avoiding the mechanistic qualities of many of the

stagnation arguments as well as their frequent appeals to exogenous factors. Steindl's version of the maturity thesis was that long-run tendencies toward capital concentration, inherent in capitalist development over time, led to a lethargic attitude towards competition and investment.²⁷ Specifically, the emergence of concentrated markets made difficult, and in some cases impossible, the expulsion of excess capacity required for revival after a trough.

Steindl argued that in any given industry there existed a hierarchy of firms based upon the relative level of prime production costs. Such a hierarchy existed because firms would have grown at different rates, entered the industry at varying times, and therefore installed equipment of assorted degrees of cost-effectiveness given their past profit performance (and their differential access to outside funds). The gross margin, E_i , for the i th firm, therefore, could be expressed as:

$$E_i = P_i Y_i / (wL_i + M_i)$$

where P_i was the firm's output price, Y_i the level of output, and where w , L_i , and M_i were respectively the wage rate, the size of the hired labor force, and the level of materials costs facing the firm. (Steindl assumed, at least initially, that the wage rate was not employer-specific.) This gross margin, Steindl held, was the fundamental competitive resource of the firm. It provided internal funds for investment and the securing of outside loans. For Steindl it was obvious that the magnitude of a firm's internal funds was often directly proportional to its ability to secure credit by means of bond sales, equity issues, and bank loans. This was primarily due, in his view, to the "good will" that was commonly associated with firm size. Larger firms clearly had access to funds (both internal and external) far in excess of those for smaller firms.

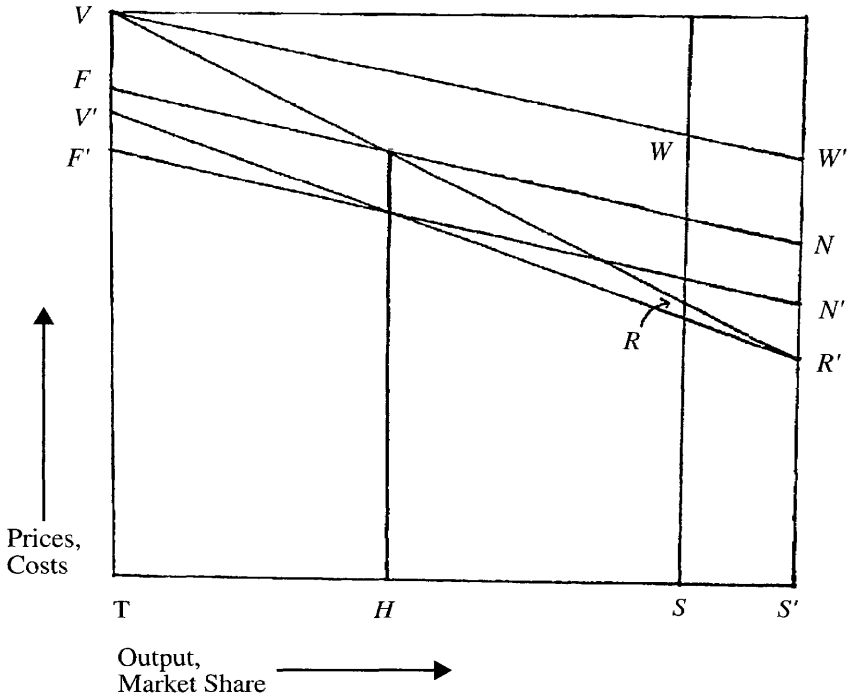
In addition, a larger gross margin would enable a firm to initiate sales and advertising efforts and quality campaigns (and, attendant upon this, product differentiation) that could possibly allow it to appropriate other (less powerful) firms' markets. Most important, the gross margin could provide the means with which a firm might innovate and apply technically superior methods to production. The resultant savings in costs would be the basis of price cuts to drive competitors out of

the market. Smaller firms that could not introduce these superior techniques would thereby experience a shrinkage in profit margins resulting from the price war. The inability of these firms to employ new techniques might simply be due to the fact that they could not pay the price to install them. In fact, to the extent that patent laws existed, they might not have the funds for research and development efforts to deploy new methods themselves.

Figure 1 provides a graphical depiction of the competitive process of which Steindl conceived. The ray VR expresses the cost hierarchy of the industry, with the most inefficient firms at the higher point of the ordinate—their output is lower, in keeping with the notion of their minimal share of the market. Assuming that a standard mark-up pricing rule is used in the industry, VW describes a gradient of prices that expresses the differences in costs incurred by the various firms. Triangle RVW is thus the gross margin of the total industry. The hierarchy of profit margins becomes immediately apparent. The firms with the larger margins (owing to lower costs) have larger shares of the market by assumption. Assume that demand increases in the industry, with the leading firms expanding output to S' from S . Their large margins allow for the introduction of cost-cutting techniques at R' . Should the resulting increase in profit margins cause the leading firms to accumulate such that their rate of expansion rises above the market rate, a price cut ensues in the struggle for a greater share of the market. At the new (lower) price level FN , the least efficient firms are forced out due to the excess of their production costs over the market price. Producers TH are thus eliminated.

Consider a situation where the market in question is more concentrated than in the foregoing case. Presumably, the cost differentials among firms are less severe insofar as, over time, a small number of firms have become dominant by means of similar technology, sales efforts, and so on. Thus, the spectrum of costs structures is now $V'R'$, not VR' . This being the case, the expulsion of a certain number of firms from the industry by a competitive drive for market share requires a larger price reduction than in the first case. The price level FN , sufficient to expel producers TH before, now threatens the economic existence of no one. To expel firms TH , at this point, would require a further cut in the price level to $F'N'$. The unwillingness to engage in more severe price cutting of this kind stems from the fact that large

Figure 1 Schematic Representation of the Competitive Structure of an Industry



SOURCE: Steindl (1976), p. 44 (Figure 3).

reductions in price can invite retaliation that may generate a downward spiral of the price structure in general. In other words, there is the risk that the market, to use modern business parlance, may be “spoiled.”²⁸

Price inflexibility in concentrated industries is intensified during depressions, and this has an important impact on the response of firms to economic fluctuations. The net revenue of firms tends to be so jeopardized in a slump that strategies of price reduction are viewed as unfeasible. There may even be incentives to raise prices in order to compensate for the reduction in the volume of sales—resulting in what James Tobin once named, during the celebrated 1962 confrontation of the Kennedy administration with the national steel industry, the

“Blough Effect.”²⁹ For a given industry, therefore, the impact of a decline in the rate of growth (i.e., the aggregate rate of capital accumulation) will depend on the extent to which the industry is concentrated. In a sector where the squeezing out of competitors is relatively easy, large declines in demand will result in the reduction of profit margins (for each firm) as prices are cut. By contrast, in a concentrated market, profit margins will tend to be inelastic in the face of reductions in demand.

At the macroeconomic level, the implications of inelastic profit margins for cyclical performance are most profound. Insofar as price reductions do not obtain in the event of a decline in the rate of growth, the necessary adjustment of sectoral rates of expansion to the aggregate rate will require reductions in the rate of capacity utilization. When viewed in terms of the sector as a whole, if prices are fixed, output must fall to bring gross margins down. If industrial structure were more competitive, excess capacity would not result from a decline in the accumulation rate; rather, prices would fall.

Reductions in capacity utilization imply not only declines in national income but also increases in unemployment. In the presence of underutilized capacity, firms will be increasingly disinclined to undertake any net investment. A cumulative process is thereby established wherein a decline in the rate of growth, by generating reductions in the rate of capacity utilization, will lead to a further decline in the rate of expansion as net investment is reduced. Individual firms, by believing (in another striking example of the “fallacy of composition”) that decreases in their own investment will alleviate their own burden of excess capacity, merely intensify the problem economy-wide. The greater the proportion of the nation’s industry that is highly concentrated, the greater the tendency for a cyclical downturn to develop into a progressive (and seemingly endless) decline.

A further consequence of the existence of highly concentrated sectors in the national economy is the impact it has on effective demand. The higher profit margins secured by large firms are indicative of an increasingly skewed distribution of output that, when combined with the reluctance of firms to invest (or otherwise spend) their revenues, generates a rising aggregate marginal propensity to save. Declining effective demand is combined with rising excess capacity when a slump occurs. The potential for recovery, barring the intervention of

exogenous shocks, government spending, or the penetration of foreign markets, is therefore greatly lessened.

What is central to Steindl's thesis is the conception of long-term alterations in industrial structure that make the economy as a whole more incapable both of recovering from cyclical instability and of generating continued growth. The emergence of oligopolistic market structure is taken to be inherent in the process of capitalist development insofar as that process is coterminous with the development of large-scale manufacturing techniques and of financial concentration. Economic maturity and the threat of stagnation result because the growing incidence of "[o]ligopoly brings about a maldistribution of funds by shifting profits to those industries that are reluctant to use them."³⁰ In order to escape stagnation, capital must be redistributed either to more competitive sectors or new industries, although such shifts can only proceed (given the difficulties of obtaining technical knowledge and good will in new product lines) with considerable time lags.

Indeed, during the Great Depression, some members of Roosevelt's "Brain Trust," such as Rexford Tugwell, argued forcefully for the imposition of an "undistributed profits tax" to prevent the accumulation of corporate surpluses and to stop the privilege firms had always enjoyed of investing their surpluses at will. The incentive of the tax, it was claimed, would lead firms to issue more of their surpluses in the form of productive investment commitments or in the form of dividends. There would thus obtain either direct productive expenditure, through firm-level investment or the allocation of funds to stockholders that would then be subject to the discipline of private capital markets. As a result, the mobilization of capital resources would be more efficient and more likely to generate recovery. Embedded in the Revenue Act of 1936, the undistributed profits tax proved to be one of the most unpopular and controversial pieces of legislation to emerge from the New Deal; it was repealed in 1938.³¹

Interestingly enough, no clear relationship exists between stagnation and concentration in American industry during the Great Depression. By applying a static conception of market structure, investigators have tended to focus on the number of firms in an industry as the primary determinant of a sector's competitiveness. The difficulty lies in the fact that cross-section data on firm numbers provide no information

concerning those differentials in costs that are the basis of pricing strategies. Given large disparities in techniques and costs, it is possible that a small number of enterprises may, over time, engage in large amounts of competition. Conversely, a sector with a large number of identical firms may prove to be quite lethargic, given the absence of cost differentials that can be competitively exploited. Not surprisingly, therefore, the historical record of the 1930s seemingly does not give Steindl's argument unqualified support.

As I demonstrated in my 1987 book, *The Great Depression: Delayed Recovery and Economic Change in America, 1929–1939*, some highly concentrated industries were relatively vibrant during the decade, while others less so appeared virtually moribund.³² In addition, the data on sectoral shares of wages in the value added, which Steindl cited as indices of competitiveness, were similarly misleading.³³ A rising (falling) trend in the wage-share may not necessarily indicate a competitive decline (noncompetitive rise) in the industry's gross margin, but rather may demonstrate changes in the labor intensity of that sector's technology over time. Clearly, the evidence concerning market structure was a frail reed upon which Steindl attempted to base his theory. Whether a given industry is dynamic or not involves several issues that are not directly linked with numbers of firms or the extent of capital concentration—issues having to do with the industry's position in the economy's input-output matrix, the durability of its output, and the relative maturity of the industry with respect to the shifting composition of the economy as a whole.

The weaknesses in Steindl's analysis do not, of course, obscure the importance of his contribution to an understanding of the Great Depression in particular and of maturity in capitalist economies in general. That importance derives from the fact that Steindl attempted to situate the decade of the 1930s within a larger historical framework. In this context, he could view the Great Depression as the outcome of an interaction between cyclical forces dating from 1929 and tendencies of long-run development spanning a half-century or more. In short, he was thus able to understand the Great Depression as a historical problem.

Steindl's conception of long-term capitalist development was obviously embedded within a theoretical tradition linked with the work of the classical economic theorists—Adam Smith, David Ricardo, and

Karl Marx. That tradition posited the concentration of capital as the major expression of secular growth. To attempt to grasp capitalist development in terms of the increasing concentration of capital, as the classical theorists and Steindl did, it was necessary to locate the primary determinants of growth in the production process itself—i.e., in the firm. Changes in the role of markets—markets being defined as both loci of purchasing power and as collections of needs for specific kinds of goods—had no place in the theory.³⁴

Conceptually, capitalist economies may avoid (and, in the latter half of this century, have avoided) tendencies toward stagnation through exogenous stimuli such as war, territorial expansion, international monetary networks that privilege some industrial systems relative to others, and of course through product innovation and technical change. Indeed, it is this last potential avenue for expansion that has been both common in fact and most germane to the extension of the neo-Keynesian, neo-Marxian, and neo-Ricardian theoretical frameworks. Even so, such compositional transformations in modern economies occasion a great deal of instability and unpredictability in performance.

Secular changes in the growth performance and potential of various industries must offset declines in certain groups with rises in others. The chance that such changes in sectoral performance will proceed smoothly is small, and economic history provides ample testimony to this fact.³⁵ While the possibility of terminal stagnation has not been realized in advanced capitalist states, economic performance in those economies throughout the last four decades of this century has nevertheless been erratic at times and often premised more on external developments than internal mechanisms of recovery and expansion.

Secular transitions in development involve the decline of old industries and the rise of new ones. These alterations in the composition of national output tend to be discontinuous and disruptive, not because of imperfections in markets but rather because of forces inherent in the accumulation of capital over time. First, the ongoing expansion of the capitalist economy is coterminous with the advance of scientific and technical knowledge, which transforms production techniques, cost structures, and the availability of raw materials, and which creates entirely new inputs and outputs. Consider, for example, the emergence of fossil fuels, the replacement of natural fibers with syn-

thetics, and the rise of internal combustion as a means of locomotion. Entire industries are made obsolete or virtually so, while new ones are created. Second, the structural milieu in which product and technical changes take place is itself a product of economic growth.

Concentration of capital may lead to unequal access to investment funds, which obstructs further the possibility of easy transitions in industrial activity. Because of their past record of profitability, large enterprises have higher credit ratings and easier access to credit facilities, and they are able to put up larger collateral for a loan. Equity issues by such firms are more readily financed and sold, and such firms can avoid takeovers more easily than small firms. Large firms, too, may have commonalities of interest with financial institutions through interlocking directorates. All these factors may impede the flow of capital out of old and into new sectors, thereby making shortfalls in aggregate economic performance much worse.

Compositional and structural change in economies may also precipitate serious unemployment problems that interfere with the achievement of full capacity output. New industries may have differing capital intensities and skill requirements, relative to older sectors, that complicate (or possibly even prevent) the absorption of unemployed workers. The problem may be twofold: newer industries may not grow fast enough to provide employment opportunities for those laid off in older sectors; but even if higher growth rates are achieved, the newer industries may require different amounts and altogether different kinds of labor for their production. Structural unemployment may be the troubling and persistent consequence. These were, in fact, many of the specific findings of my research on the Great Depression reported over the past decade.

Finally, changes in the relationship of a national economy to the world economic system may also be responsible for wide fluctuations in macroeconomic behavior. A resurgence of competition from other national systems previously excluded from or inadequately prepared for international commerce may seriously affect the fortunes of domestic industries grown used to protected or exclusive markets. Transformations in international currency systems, whereby a nation's monetary unit that had previously served as *numeraire* and means of international clearance is rapidly integrated into a general floating currency system, will also profoundly change the performance character-

istics of that economy. Inflationary pressures at home now may translate into an export boom as a currency is devalued, while deflationary patterns may yield an upswing in imports to the detriment of domestic producers. Policy flexibility and independence may also be constrained as a nation's economy becomes more open to economies elsewhere. Domestic changes in fiscal and monetary policy will now have international trade consequences as well. Modulations of interest rates, for example, will affect the flow of capital across national borders as investors compare rates of return in various nations. Interestingly enough, Keynes himself suggested to Roy Harrod in 1942 that "the whole management of the domestic economy depends upon being free to have the appropriate rate of interest without reference to the rates prevailing elsewhere in the world. Capital control is a corollary to this."³⁶

National economic performance may also, in a mature setting, require increasing involvement of the state itself. Maintaining sufficient outlets for net investment expenditure might possibly involve deficit spending to bolster effective demand, direct government purchases of goods and services (particularly of public goods such as infrastructure and military and law-enforcement equipment), and government oversight of the penetration of foreign markets. These efforts might conceivably be paralleled by rising outlays by private firms on sales efforts, distribution mechanisms, and various means to enhance consumer credit.³⁷ While for most neoclassical economic theorists, fiscal and monetary mechanisms stand as instruments of periodic counter-cyclical policy, for neo-Keynesian, neo-Marxian, and neo-Ricardian economists, governmental involvement in mature economies is a permanent (and ever-increasing) feature of modern industrial states.

Steindl had, of course, focused his work on the inter-war economic crisis of the 1930s. His central theses regarding maturity and stagnation in advanced capitalist economies seemed particularly compelling when viewed in terms of the long-run historical experience of the Great Depression. Yet both the postwar record, at least in the case of the United States, and some of the theoretical lacunae in his earlier claims led Steindl to modify some of the arguments of his 1952 book. With the 1976 republication of his *Maturity and Stagnation in American Capitalism*, Steindl allowed that technical innovation, product development, public spending, and research and development initiatives might

provide the means to escape from investment inertia. Even so, he was extremely concerned that most accumulation strategies in mature capitalist nations would be focused on military-industrial activity and war itself. Using both public and private investment funds for other purposes, while obviously desirable, would be “exceedingly hard” given “the workings of political institutions.”³⁸

The wisdom (not to mention the prescience) of Steindl’s 1976 observations is made apparent as soon as one surveys the more recent evolution of American capitalism. American accumulation in the latter half of this century has, on the one side, confirmed many of Steindl’s suppositions regarding expansion in advanced industrial states. On the other, it has demonstrated both the unique and abiding flexibility of capitalism in the face of contradictory tendencies toward underutilization and the importance (even at times the possible centrality) of political and social forces often understood by economists to be exogenous. In all these respects, contemporary history portrays the conceptual power and importance of what Steindl had to say when he first examined the crisis of the 1930s. But it also reminds us of the unyielding impacts of contingency and human agency in economic performance over time.

World War II had achieved in the United States, of course, what the New Deal could not—economic recovery. With the start of war in Europe, the unemployment rate had already begun to fall, so that by the time of the Japanese naval offensive at Pearl Harbor, only 7 percent of the labor force remained idle. American entry into the war brought almost instantaneous resolution of the persistent economic difficulties of the inter-war years. Between 1939 and 1944, the national product, measured in current dollars, increased by almost 125 percent, ultimately rising to \$212 billion by 1945.

Yet as World War II came to a close, many economists and business people worried about the possibility of a drop in the level of prosperity and employment to one far below that of the war. But these apprehensions proved to be unwarranted.³⁹ By 1946, gross national product fell less than the postwar reduction in government spending; unemployment did not even reach 4 percent; consumer spending did not fall at all, and eventually rose dramatically. Although recessions occurred between 1945 and the mid 1970s, most of them lasted only about a year or less, and none of them remotely approached the sever-

ity of the Great Depression of the 1930s. During these three decades, American output steadily increased, with only minor setbacks. According to the Federal Reserve Board's index, manufacturing production doubled between 1945 and 1965, and tripled between 1945 and 1976.

Such robust economic performance is hardly surprising in wartime—especially when conflict is global and, with a few exceptions, kept outside of national boundaries. What is most striking about the American economic experience linked with World War II was the enduring growth and prosperity of the postwar years. Consumption and investment behavior played a major part in this great prosperity of the late 1940s and 1950s. As soon as Germany and Japan had surrendered, private and foreign investment in the United States rose quickly. On the domestic side, reconversion was itself an investment stimulus. Modernization and deferred replacement projects required renewed and large deployments of funds. Profound scarcities of consumer goods, the production of which had been long postponed by wartime mobilization needs, necessitated major retooling and expansion efforts. Even fear of potentially high inflation, emerging in the wake of the dismantling of the price and wage controls of the war years, prompted many firms to move forward the date of ambitious and long-term investment projects. On the foreign side, both individuals and governments were eager to find a refuge for capital that had been in virtual hiding during the war itself. Along with a jump in domestic investment, therefore, a large capital inflow began in late 1945 and early 1946.

Domestic consumption was the second major component of postwar growth. Bridled demand and high household savings due to wartime shortages, rationing, and controls, coupled with the generous wage rates of the high-capacity war economy, all contributed to a dramatic growth in consumer spending at war's end. The jump in disposable income was bolstered by the rapid reduction in wartime surtaxes and excises. And the baby boom of the wartime generation expressed itself economically in high levels of demand for significant items like appliances, automobiles, and housing. G.I. Bill benefits additionally served to increase the demand for housing and such things as educational services, with associated impacts on construction and other industrial sectors.

Foreign demand for American exports grew rapidly in the immediate postwar years. In part, the needs of devastated areas could only be met by the one industrial base that had been nearly untouched by war-related destruction. Explicit policy commitments to the rebuilding of allied and occupied territories, such as the Marshall Plan in Europe, also served to increase the foreign market for the output of American industry. Even so, one of the most significant contexts within which the impressive postwar growth of the American economy took place was the unique and special set of arrangements developed for international trade at the Bretton Woods Conference in 1944.

When the allied nation's financial ministers gathered at Bretton Woods in New Hampshire just before the war's end, they were concerned to reconfigure world trade and financial flows such that the disputes so characteristic of the inter-war years of 1919–1939 could be avoided and stability maintained. Along with the creation of an International Bank for Reconstruction and Development and of an International Monetary Fund, the conference decided to establish fixed exchange rates between the U.S. dollar and all other internationally traded currencies. The value of the dollar itself was set in terms of gold at \$35 per ounce. This installed a benchmark against which the value of all other currencies was measured. As the American economy was, by far, the most powerful at the time, it seemed prudent and indeed necessary that its currency play such a central international role.

American postwar prosperity and the benefits of world economic leadership continued throughout most of the 1950s. The added fiscal stimulus of the Korean War also helped to maintain the high levels of growth and employment characteristic of the decade. Republican President Dwight Eisenhower, carrying on in the tradition of his Democratic predecessor Harry Truman, repeatedly committed his administration to the practice of compensatory demand management. But the prosperity of the 1950s, while robust and impressive, nevertheless weakened by 1957. This set the stage for the arrival of a new brand of economics in Washington, explicitly (and self-consciously) imbued with the doctrines of Keynesianism.

From the “New Frontier” policies of John Kennedy, to the “Great Society” agenda of his successor Lyndon Johnson, through the declaration of a “New Federalism” by Richard Nixon, there ensued an era of sustained central government intervention in the nation's economic

life. The self-assurance of many (but not all) of the “new” economists of the early 1960s that the goal of achieving simultaneously acceptable levels of unemployment and inflation could be realized has more recently been shattered. But throughout the 1960s and much of the 1970s, and for some even during the 1980s, the perceived obligation of government to secure overall economic stability was not seriously questioned and remained one of the more important changes of 20th-century American economic history.

Historical specificity notwithstanding, American economic performance in the latter half of this century appears to conform in many major respects to the general analytical propositions derived from a secular analysis of inter-war economics. The ability to forestall and/or overcome tendencies toward economic stagnation has depended upon a varied and uncommon set of circumstances both global and domestic in their genesis and impact. But a continuation of such a charmed existence is apparently no longer possible. Josef Steindl himself noted, in 1976, that “the cheerful extroverted era of [postwar] growth has apparently come to an end.” He held that the reasons for this were “the reduction of tension between the superpowers . . . the increase in tension within the capitalist countries . . . and . . . the emergence of environment, raw material, and energy problems . . .” And, in words that today seem as apposite as they did over 20 years ago, Steindl noted that

the political and psychological basis of the postwar boom has been sapped by such developments as these: public spending . . . [has] decreased . . . the competition in technology . . . and education unleashed by Sputnik has flagged; the development in these fields has been dominated instead by [an] internal reaction against intellectuals and youth . . . the cooperation between the capitalist powers has broken down . . . [and] the internal stresses of groups contending for shares in the national income have shown themselves [to be] inflationary.⁴⁰

In the midst of a return to the weak and intermittent growth of earlier decades of this century, there has also obtained an altogether reactionary (re)orientation of fiscal and monetary policy. A resurgence of general equilibrium approaches to cyclical phenomena has prompted the formulation of a “new classical macroeconomics” and the rise of a “rational expectations school.”⁴¹ These intellectual developments, linked with political events having to do with the backlash against the

progressive politics and redistributive programs of the New Frontier and the Great Society, eliminated Keynesian thinking from the formulation of responses to contemporary economic problems. Thus, we have the more recent attempts to balance fiscal expenditures (and, until recently, tighten monetary variables) in the face of unemployment and shortfalls in national product. In other words, we witness an attempt to embrace what Keynes once derisively called “the Treasury View.”⁴²

There is, of course, a major difference between past decades and today in this regard, at least in the United States. Timid countercyclical policy in the inter-war period was to some extent the result of ignorance and misplaced confidence in old remedies. Today, slow-growth policies are derived from the politics of reaction and resentment—a politics arrayed against the reformist agendas and civil rights initiatives of the 1960s. Whatever its social and cultural roots, this revanchist spirit has grounded its appeal, to a broad segment of the American electorate, in the pessimism and antagonism attendant upon erratic economic growth since the oil price shocks and hyperinflation of the 1970s. As the macroeconomic “pie” has grown more slowly and less consistently, distributional struggles—often deployed along racial, ethnic, and gender lines—have become more intense. Insofar as the national economy falls short of a full-employment approximation of potential output, the justifications for reversing the distributional gains of the activist fiscal policies of the 1960s gain ever greater force. To put it in the words of Josef Steindl once again, contemporary “arguments against full employment have got the upper hand in the councils of the powers, and thus we witness stagnation not as an incomprehensible fate, as in the 1930s, but stagnation as a policy.”⁴³ The ironies and the poignancy of this state of contemporary affairs are made strikingly clear as soon as we reflect upon the Great Depression as a significant and coherent historical problem.⁴⁴

Notes

1. For an exposition of the business confidence argument, see Morgan (1935).
2. See Fisher (1930, 1932). Also see Schumpeter (1946), Roepke (1936), Noyes (1930), Persons (1930), and Viner (1936). The notion of excessive speculation and “wild” stock prices was challenged by Sirkin (1975). Lionel Robbins (1934) argued that the crash itself may have been generated by attempts by the Federal

- Reserve, in 1927, to reverse the net gold inflow in order to alleviate the destabilizing pressures on sterling.
3. See Temin (1976) for a contemporary statement of this view. Also see Mishkin (1978).
 4. See Cassel (1932, p. 76).
 5. See Galbraith (1972, pp. 93, 192). Also compare Lewis (1950). The fact that the economy had significantly weakened before the crash was demonstrated by Moore (1950). Also see Erickson (1972).
 6. As most forcefully explained by Temin (1976).
 7. For a more recent statement, see Weinstein (1980). Also see Brockie (1950).
 8. See Friedman and Schwartz (1963) and Warburton (1944, 1945a, 1945b, 1946).
 9. See Roose (1948, 1954) and Slichter (1938).
 10. I have surveyed much of this literature (published in English, and as it applied to the United States experience) in Bernstein (1985).
 11. See Harris (1948), Sweezy (1968), Lewis (1950, pp. 55–56), Kindleberger (1973, pp. 292–293), and Timoshenko (1933, pp. 541–543).
 12. See, for example, Means (1935) and Means and Berle (1968).
 13. See Reynolds (1939) and Thorp and Crowder (1941). Interestingly enough, Backman (1939) challenged the empirical relevance of the administered prices theory and argued (on p. 486) that in order to understand the low levels of output that prevailed during the 1930s, one had to examine the “character of the market; durability of the product; capital goods versus consumers’ goods; joint demand, stage of development of an industry; [and] necessities versus luxury products.”
 14. See Kalecki (1969, pp. 40–59).
 15. See U.S. Department of Commerce (1975, part 2, series U201–206, p. 887).
 16. See Schumpeter (1939, vol. 2, pp. 905–1050).
 17. See Abramovitz (1961, p. 241).
 18. See Kuznets (1958), Abramovitz (1961), and Easterlin (1968).
 19. As suggested by William Fellner (1954). It should be pointed out that Fellner had earlier rejected all arguments concerning stagnation on the grounds that none of their propositions could be formulated in behavioral terms. See Fellner (1941).
 20. The quotations are taken from McLaughlin and Watkins (1939, pp. 1–14).
 21. See Hansen (1939) and Keynes (1937). A complete, if rather polemical exposition of the stagnation thesis may be found in Terborgh (1945).
 22. From Kalecki (1943, p. 88). Also see Sweezy (1940).
 23. From Terborgh (1945, p. 181).
 24. See Hansen (1941, p. 279ff) and Kalecki (1962). Kalecki did concede, on pp. 134 and 147, that innovations might not be wholly exogenous and might, in fact, be influenced (with appreciable lags) by changes in profit rates, output, and the size of the capital stock. Even so, he also argued, elsewhere, that the exogeneity of technical change indicated that “long-run development [was] not inherent in the capitalist economy.” See Kalecki (1968, p. 161).
 25. As admitted by Kalecki (1971, p. 30).
 26. Hansen (1941, pp. 310, 314–315). See also Kalecki (1968, p. 159).

27. The following exposition, both textual and graphic, is derived from Steindl (1976, Chapters 2–5, 9, 13) and Steindl (1945, pp. 48–54, 63–66). The idea that large concentrated firms eschew major investment opportunities, owing to a desire to maintain their dominant market position, also played a role in the conception of economic stagnation developed by Michal Kalecki. See Kalecki (1943, p. 92) and Kalecki (1968, p. 159).
28. This particular assertion obviously ties in with the kinked demand curve theory of oligopoly. See, for example, Sweezy (1939).
29. See Tobin (1975). This counter-intuitive price effect was named after Roger Blough, then head of the United States Steel Corporation.
30. From Steindl (1976, p. xv).
31. See Bernstein (1987, pp. 190–191).
32. Explicit documentation for these claims may be found in Bernstein (1982, Chapters 3–4).
33. See Steindl (1976, Chapter 8).
34. This is not to say that these theorists did not address the problem of effective demand, but rather that their conception of the role of markets was fairly limited in scope. Steindl, in particular, did not fully consider the effect of investment strategies geared toward product diversification and sales efforts.
35. See, for example, Aldcroft (1977), Bernstein (1987), Dahmen (1970), and Svernilson (1954).
36. See Crotty (1983, pp. 59–65) and Keynes (1980, pp. 148–149). Also see Keynes (1933) and Williamson (1985).
37. Steindl, at one point, noted that expanded systems of consumer credit were a means by which investment opportunities could be maintained in mature economies. See Steindl (1966).
38. See Steindl (1976, pp. xii–xiii).
39. In fact, it was this dramatic postwar economic performance, one that seemingly belied the stagnation theories of the inter-war years, that in part prompted Steindl to open the new introduction to the 1976 edition of *Maturity and Stagnation* with the observation that “[t]he first (1952) edition of this book appeared at a time which could not have been less propitious for its success.” See Steindl (1976, p. ix).
40. From Steindl (1976, pp. xvi–xvii).
41. See, for significant and influential examples, Lucas (1975, 1977). Also see Steindl (1984).
42. The “Treasury View,” that fiscal spending could not lower unemployment, emerged in Great Britain in 1929 in response to Liberal Party calls for more activist policy. See Bernstein (1987, p. 218).
43. From Steindl (1976, p. xvii). On the political constraints within which counter-cyclical policy is often formulated, see the pathbreaking essay of Kalecki (1972). Also of interest in this regard are Nordhaus (1975) and Fair (1978).
44. With apologies to my friend and colleague Arno J. Mayer (1975).

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4 Propagation of the Depression

Theories and Evidence

James S. Fackler
University of Kentucky

Despite the fact that it has been more than six decades since the onset of the Great Depression, the factors involved in propagating this dramatic decline in economic activity remain subjects of debate and interest. My objective is 1) to review the received wisdom on how the Great Depression evolved through time, and 2) to reintroduce into the discussion one of the original theories of the Depression that has been subjected to relatively little empirical analysis, the debt-deflation hypothesis.¹

Let me emphasize that my objective is to discuss the “propagation mechanism” operative in the early 1930s rather than to try to isolate the initiating factor(s) for the Great Depression. I omit lengthy discussion of the initial impulse only to keep the current discussion manageable and not because it is inherently less interesting or important.

Until fairly recently, the received wisdom on the propagation mechanism included two schools of thought. The first, developed by Friedman and Schwartz (1963) and now called the “money view” explanation, argues that inappropriate monetary policy caused what otherwise would have been a (perhaps severe) recession to become the Great Depression. The second, derived from Temin (1976), argues that the impetus for the Depression was the autonomous behavior of consumption.

Recently, a new view of the Depression has emerged. Bernanke (1983) has augmented the money view analysis with what is now called the “credit view.” The credit-view model demonstrates how a deflationary shock can disrupt the credit intermediation process and cause a sustained decline in output. Specifically, deflation lowers the net worth of borrowers by raising their real indebtedness. If the deflation is sufficiently severe, debtor insolvency jeopardizes the financial condition of creditors (banks), increasing the fragility of the credit

intermediation process. If bank failures result, local “information capital” on the quality of borrowers is lost, raising the cost of credit intermediation and lowering economic efficiency.²

THE BEHAVIOR OF OUTPUT

Figure 1 shows the behavior of output (measured as monthly levels of industrial production) over most of the inter-war period. This longer period provides a background against which to evaluate the time period of interest for present purposes, August 1929 to March 1933. As is evident, industrial production declined precipitously over this three-and-a-half-year period. Whatever the initial impulse, the objective here is to describe and evaluate the dynamics (i.e., the propagation mechanism) in the economy that caused this impulse to have its prolonged effect.

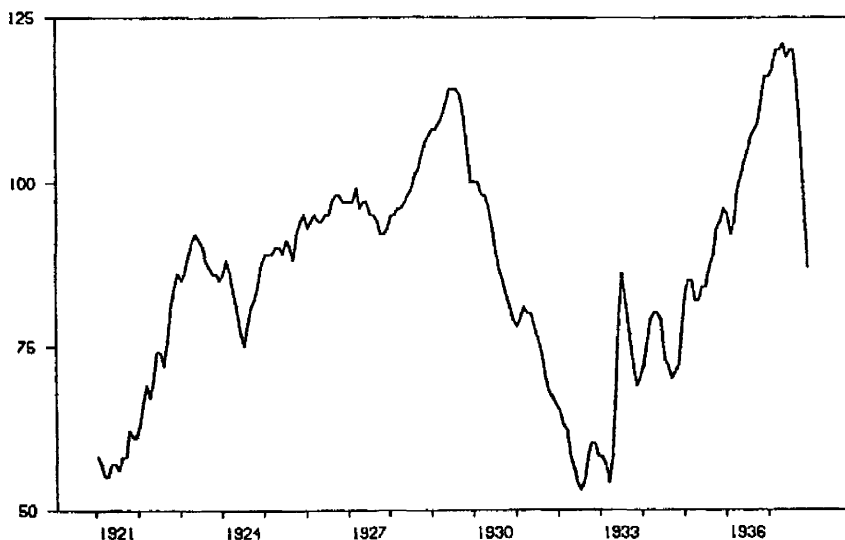
The path of output displayed in Figure 1 suppresses potentially important parts of the story. Specifically, the focus is on the behavior of a single, aggregate measure of output. An expanded analysis would also investigate the interactions among the components of this single measure of output; that is, attention would be paid to the “comovement” of output across sectors of the economy. For example, interesting elements of the story revolve around the agricultural and housing sectors. Unfortunately, time does not permit detailed analysis of sectoral interactions.

THEORIES OF THE PROPAGATION MECHANISM

The Money View

One time-honored interpretation of the decline in output that began in the fall of 1929 is the money view of Friedman and Schwartz (1963). Their argument proceeds by first building a statistical case, using roughly a century’s worth of data, that changes in the money stock cause subsequent changes in output. Second, beginning in late

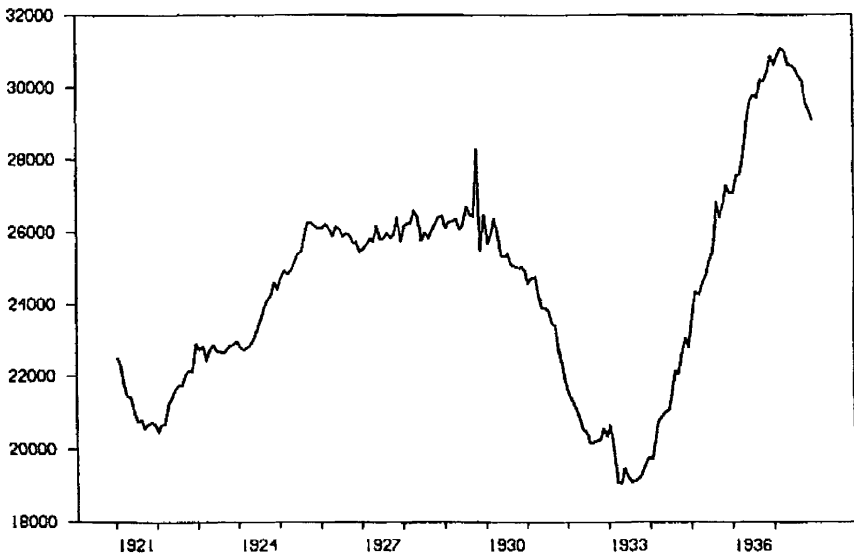
Figure 1 Industrial Production Index, January 1921 to December 1937
(base period 1935–1939 = 100)



1929 and accelerating in late 1930, declines in the money supply occurred due to what they referred to as the “inept” response of officials of the Federal Reserve System to the emerging crisis (Figure 2).³ The Friedman-Schwartz argument is that the Depression was both deeper and more prolonged than need be due to this inappropriate monetary policy.⁴ Finally, a contributing factor was the fall in wealth of both bank shareholders and depositors associated with widespread bank failures. Among other effects, these wealth shocks likely contributed to falling demands for consumption goods, further contributing to the downward spiral in production.

While the sharp decline in output certainly accompanies the dramatic fall in the money stock, a deeper look at the data suggests that the links between money and output may be decidedly more complex. In particular, the stock of money in the economy is the result of interactions among the Federal Reserve, the banking sector, and the non-bank public. The Fed sets the quantity of base money (B) in the economy. The banking system and the nonbank public then use this

Figure 2 M1 Money Supply, January 1921 to December 1937
(\$ millions)



monetary base to produce the money supply (M1). A “bare bones” expression of this relationship is the money multiplier model:

$$M1 = m * B,$$

where the money multiplier is

$$m = (1 + c) / (r_d + e + c)$$

with r_d being the required reserve ratio for demand deposits, with c being the ratio of currency to demand deposits (C/D) held by the public, and with e being the ratio of excess reserves to demand deposit liabilities (ER/D) held by banks. Note that the money supply is determined in part by Fed policy that sets the required reserve ratio and the monetary base, in part by banks as they choose the quantity of excess reserves to hold relative to deposit liabilities, and in part by the nonbank public as it chooses the level of currency to hold relative to deposits.

The money multiplier model suggests an investigation of the base and the multiplier separately. Figure 3 shows the behavior of the base over the inter-war period. Notice in particular the modest (relative to the decline in money) decline in the base over the 1928–1930 period. Figure 4 shows the money multiplier, m , which declined dramatically over the first three years of the Depression. This decline was driven by a rising excess reserve ratio, as banks struggled to maintain liquidity in the face of the possibility of bank runs, and by a rising currency-deposit ratio, as the nonbank public, fearing instability of the banking system in general and the possibility of the failure of their own banks in particular, preferred to hold currency rather than deposits.⁵

Do Figures 3 and 4 mean that the Friedman-Schwartz hypothesis, that the fall in the money stock was due to inept policy, is incorrect? Not necessarily, since the rises in the ratios of currency and excess reserves to deposits may reflect a lack of public confidence in Fed policies. The Fed, after all, could have chosen to flood the financial market with money, though perhaps at the cost of giving up alternative policy goals.

The initial impression from Figures 2 to 4 is that the Friedman-Schwartz money view certainly appears consistent with the data. But since advanced economies are complex, other hypotheses may also be supported by the data as well. We now turn to two popular alternatives.

Autonomous Spending Shocks

The second of the time-honored hypotheses about the propagation mechanism is due to Temin (1976), who argued that the impetus for the Depression was the autonomous behavior of consumption. In his view, the Depression began as a recession, which was brought about by a variety of factors. First, there was an oversupply in the housing market. Second, financial markets were uneasy because of the stock market boom and the Federal Reserve's efforts to burst this speculative bubble. These forces led to a fall in income. The stock market crash in October 1929 was an additional major force leading to the economic collapse. In Temin's view, the crash propagated its deflationary effect through consumption, which was in part depressed due to the decline in consumer wealth and an increase in consumer leverage.⁶ But even after considering the magnitudes of the negative effects of lower

Figure 3 Monetary Base, January 1921 to December 1937
(\$ millions)

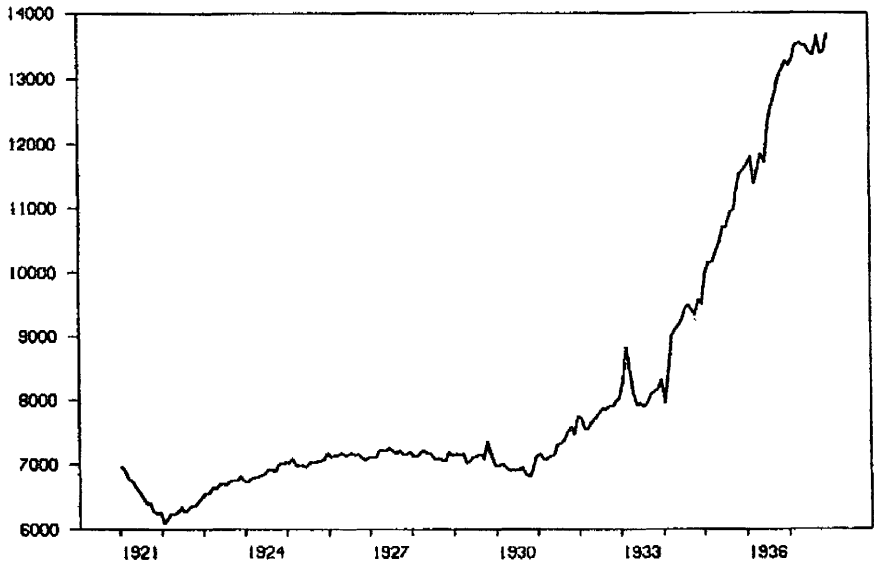
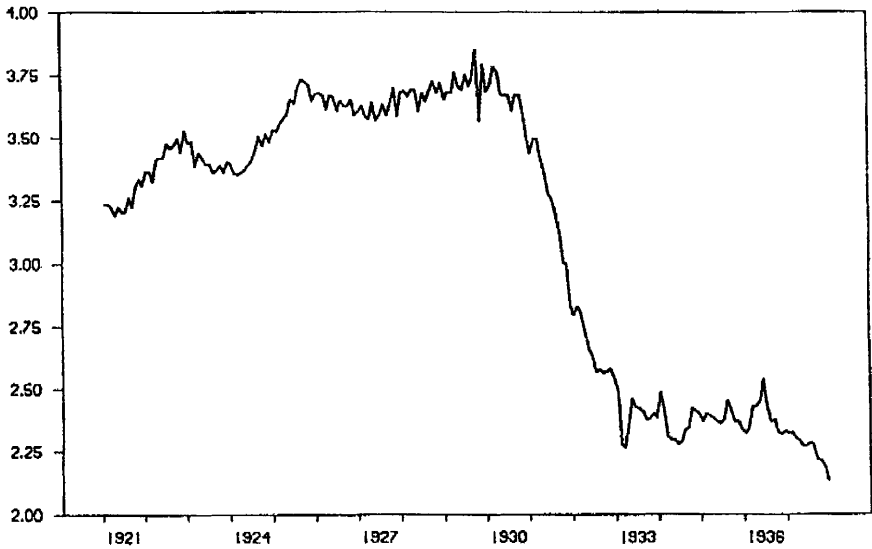


Figure 4 M1 Money Multiplier, January 1921 to December 1937



wealth, increased leverage, potentially pessimistic expectations, and deflationary shocks from the agricultural sector of the United States, there is still a large portion of the fall in consumption in 1929 that Temin considered unexplained or “autonomous.” He states (Temin 1976, p. 83): “It is somewhat unsatisfactory to say that the Depression was started by an unexplained event, but this alternative is preferable to statements that are inconsistent with the data.” Thus, he claimed that nonmonetary and nonfinancial forces played the primary causal role in the Depression.⁷

In contrast to Friedman and Schwartz, Temin views the behavior of money as responding to, but not causing, the economic decline; for Temin, money is a passive, endogenous variable. Specifically, he argues that “there is no evidence of any effective deflationary pressure from the banking system between the stock market crash in October 1929 and the British abandonment of the gold standard in September 1931” (Temin 1976, p. 169). Temin reached this conclusion because short-term interest rates fell, contrary to what would be expected during a period of monetary stringency. He argued further that the approximate constancy of the real money supply throughout this period hardly signals that contractionary movements in output are the response to monetary tightening.⁸

Romer (1988) has recently revisited the issue of the aberrant behavior of consumption in the early stages of the Depression. Consistent with the results of Mishkin (1978) and Temin, Romer argues that neither wealth nor income effects can account for all of the fall in consumption. Rather, her hypothesis is that the drop in consumption was the result of increased uncertainty during 1929.⁹

She concludes that “uncertainty effects due to stock market variability can explain most of the unusual behavior of consumer spending on durable and semidurable goods in the first year and a half of the Great Depression” (p. 29). That is, the stock market crash made consumers sufficiently uncertain of the future to induce them to decrease their consumption, and thus provided an impetus for the initial fall in economic activity in 1929 that marked the beginning of the Depression. She also provides contemporary accounts from business forecasters that suggest the uncertainty persisted well into 1930.¹⁰

Romer’s analysis suggests that a substantial portion of the drop in consumption was due to increasing uncertainty about the state of the

economy. Further, this decline in consumption may account for some of what Temin viewed as “autonomous.” For the consumption explanation of the propagation mechanism to be plausible, some type of proxy showing increased consumer uncertainty should be available. Figure 5 shows a measure of uncertainty: changes in the 12-month moving variance of stock prices. As expected, near the end of 1929, these changes become much more pronounced. Further, the plausibility of the argument that consumption declines were the primary driving force for the tailspin in output in the early 1930s would be enhanced with evidence that monetary policy was not unusually restrictive. Following Temin’s argument, Figure 6 shows the interest yield on Treasury securities maturing in three to six months, and at first glance it provides support for Temin’s claim that monetary policy was not “tight” at the outset of the Depression. Specifically, after the rise in rates engineered in 1928 by Fed officials concerned with stock market speculation, rates began to fall well in advance of the outset of the downturn and continued to fall through the middle of 1931.¹¹ Taken together, the casual evidence in Figures 5 and 6 does not obviously discount the hypothesis that consumption shocks played an important role in the decline in output.

Debt-Deflation and the Credit View

The debt-deflation hypothesis originated with Fisher (1933), who argued that there are two dominant factors that account for the “great” booms and depressions: overindebtedness and deflation. To see the mechanics by which debt-deflation operates, consider first some initial level of nominal debt. A “small” negative price shock raises the real obligation of the debtor. At the same time, the creditor is being repaid in dollars with higher real value. Under the usual assumption that distributional effects are at most of second-order importance, little macroeconomic effect is predicted. Next, assume an initial state of overindebtedness. A sufficiently large price decline forces debtors into insolvency; nominal incomes fall along with prices, so that not only does the real value of the debt obligation rise, the ability to service the debt declines. In the event of bankruptcy of the debtor, the creditor (a bank, for example), ends up owning the asset. The bank, with a given level of nominal liabilities (deposits), finds itself in possession of

Figure 5 Change in the 12-Month Moving Variance of Stock Prices, January 1921 to December 1937

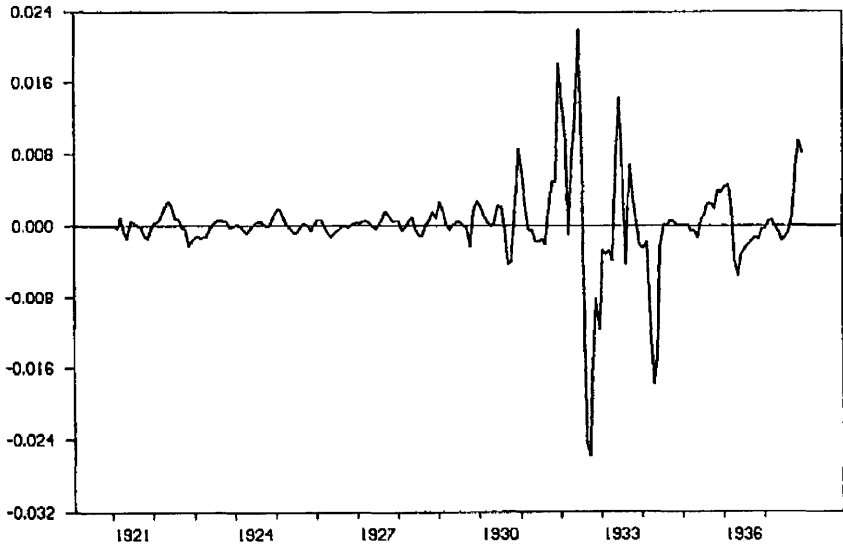
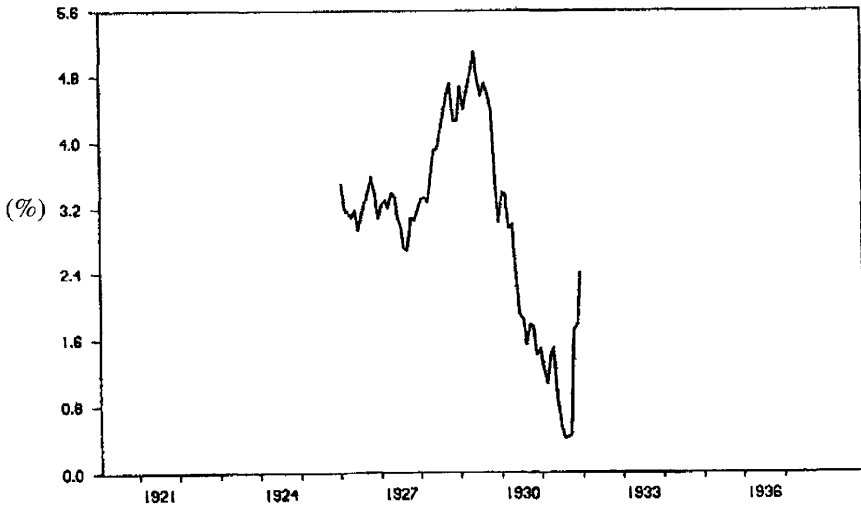


Figure 6 Interest Rate of Treasury Bills, January 1921 to December 1937



assets whose prices are falling and which are costly to sell. The decline in prices may lower the nominal value of (illiquid) assets below this nominal value of liabilities, forcing insolvency onto the bank as well. As banks find their balance sheets becoming increasingly precarious, they may respond by raising the fraction of their assets held in the form of “safe” assets (excess reserves and government securities), lowering funds available for loans. Further, as bank balance sheets deteriorate, concerned depositors may withdraw funds from the bank, increasing its vulnerability to a “run.” Thus, “excessive” debt combined with deflation may both lower wealth and jeopardize the credit intermediation process, contributing to a downward spiral in output and prices. If a bank fails, information capital in the form of specialized knowledge about borrowers by local creditors is lost.¹²

If debt-deflation is to explain at least part of the path of output during the Depression, then two important conditions would need to hold. First, there should be evidence of overindebtedness, so that price declines can have the potential of raising real obligations enough to cause a wave of bankruptcies. Second, there should be evidence that a major part of the deflation of the early 1930s was unanticipated at the time agents assumed debt, either in the open market or in the form of bank loans.¹³

Was there an “excessive” debt build-up prior to the onset of the Depression? This is a difficult question to assess. Fisher recognized the complexity of the issue when he noted that overindebtedness is always measured relative to a variable such as wealth or income and that overindebtedness depends in part on the maturity structure of the debt. Further, the assessment may be complicated when relative measures give conflicting evidence on a debt build-up.¹⁴ Some evidence does support the existence of a relatively large rise in debt. First, according to Clark (1933), in the early 1930s the ratio of debt service to national income rose from 9 percent in 1929 to 20 percent in 1932–1933. Second, Persons (1930) reported that urban real estate debt rose by nearly 150 percent between 1920 and 1929, from about \$11 billion to \$27 billion. Further, he notes that the \$16 billion increase exceeds by \$5 billion “the entire debt of this character amassed in all the earlier years of our urban development.” Third, issuance of corporate bonds and notes rose from \$26 billion in 1920 to \$47 billion in 1928.

The second issue, whether there was unanticipated deflation, has been the subject of recent literature, which is currently divided regarding whether the deflation was anticipated or not. The data on wholesale and consumer prices are plotted in Figures 7 and 8. Note that there was some precedent for deflation, as the data for 1921 show; agents would not need long memories to allow for the expectation of deflation. However, prices for most of the decade appear stationary, albeit with some variability. The most recent data, for agents assessing price trends as the end of the decade of the 1920s approached, may have suggested continued price stability.

Hamilton (1987, 1992) and Dominguez, Fair, and Shapiro (1988) present empirical evidence consistent with the view that the deflation was unanticipated. However, Cecchetti (1992) critiques Hamilton's findings and concludes that once deflation started, people expected it to continue. Nelson (1991) presents an extensive and detailed examination of the statements of business commentators from April 1929 through December 1930. He concludes that the business press anticipated deflation.

While the debt-deflation mechanism can explain a decline in output over the course of a business cycle, can it alone account for the massive decline in output experienced in the 1930s? Using the debt-deflation hypothesis as a point of departure, Bernanke (1983) presented a new explanation of the experience of the U.S. economy in the early 1930s. In Bernanke's credit-view theory, credit became unavailable for all but the very safest loan prospects, and that disrupted economic activity by eliminating sources of financing for both investment and production. Once the combination of overindebtedness and deflation raised problems of debtor insolvency, "the disruption of the financial sector by the banking and debt crises raised the real cost of intermediation between lenders and certain classes of borrowers" (p. 263). Banks became unwilling to loan to all but the most creditworthy customers, effectively forcing borrowers without access to other sources of credit to lower their levels of economic activity. As banks (and other creditors) engage in a "flight to safety," lending only to the safest prospects and not at all to others, the interest rate spread between "risky" and "safe" loans will widen substantially. This implication is supported in the data, as demonstrated in Figure 9, where the spread more than tripled in the early 1930s.

Figure 7 Wholesale Price Index, January 1921 to December 1937
(base year 1926 = 100)

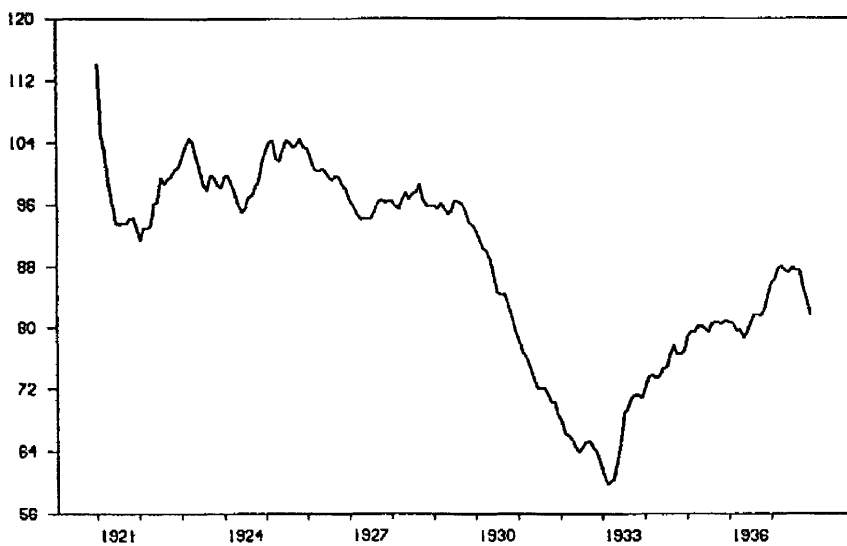
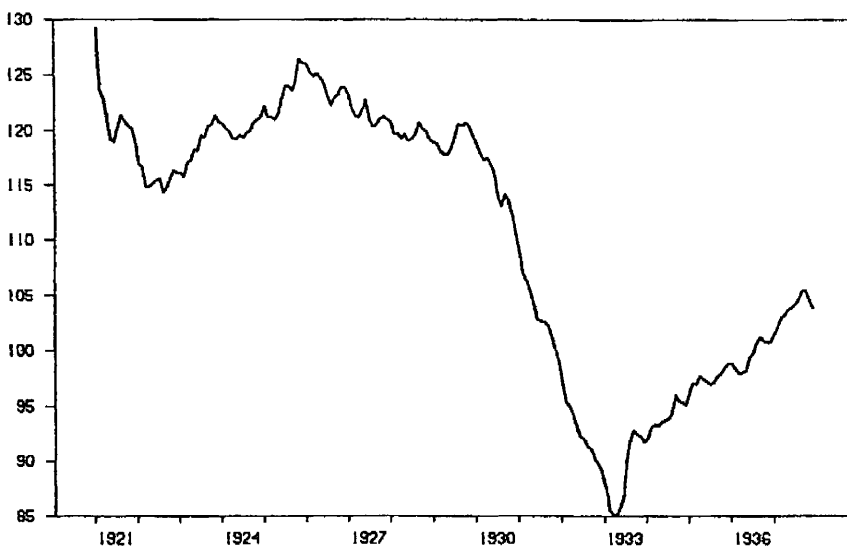
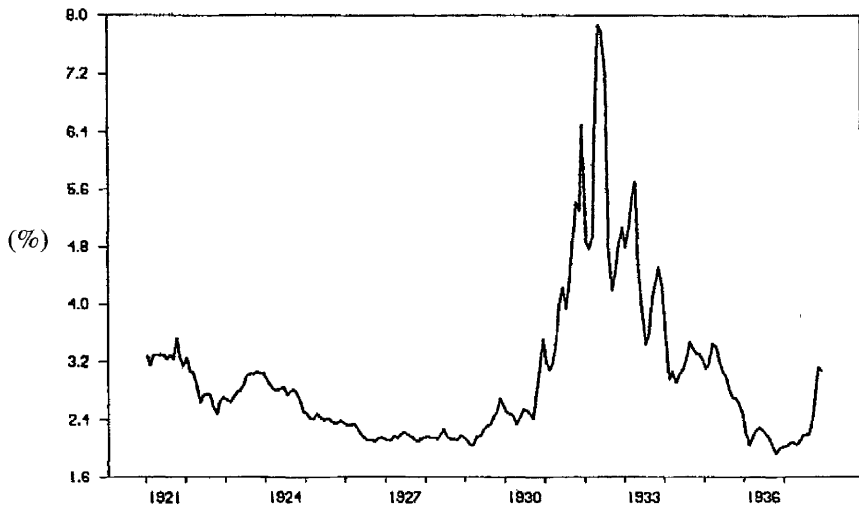


Figure 8 U.S. Cost of Living Index, January 1921 to December 1937
(base year 1939 = 100)



**Figure 9 Baa Interest Rate Minus Government Bond Interest Rate,
January 1921 to December 1937**



In the money view, it is the liability side of the balance sheet of the banking system, reflecting the quantity of money, that determines economic activity and prices. The asset side, and in particular how bank portfolios are allocated between securities and loans, is irrelevant to economic outcomes. In the credit view, banks are important not only because their liabilities serve as the medium of exchange, but also because banks specialize in lending to agents who would find open-market borrowing prohibitively expensive. Thus, a monetary policy that lowers reserves works not only because of the upward pressure on interest rates, as argued by money-view proponents, but also because some borrowers do not have alternative sources of funds as bank lending declines; if bank loans fall, some agents cannot obtain funds elsewhere. The corresponding decline in spending then complements the interest-rate effect of the restrictive monetary policy.

HOW IMPORTANT IS EACH THEORY OF THE PROPAGATION MECHANISM?

The analysis of the previous section suggests that the various hypotheses that purport to explain the downward spiral in output are not only plausible, but appear consistent with a casual look at the data. Let me caution, however, that we need not necessarily look at these hypotheses as competing with one another. One theory may explain events over one time period (for example, consumption shocks may explain events just after the stock market crash) and another over the next time period (for example, credit shocks may explain events subsequent to bank panics). And some may complement each other during a given period (such as debt-deflation and disruptions to the credit intermediation process). The results of a more sophisticated analysis are now examined in the hope that they will allow at least tentative answers to the question posed in the title of this section.¹⁵

I have analyzed a model of the U.S. macroeconomy for the inter-war period that incorporates each of the hypotheses outlined in the previous section. As indicated in the introduction, I ignore explicit consideration of international events. Viewing the U.S. experience in isolation, while perhaps controversial to some, has as an important precedent recent work by Romer (1993). She argues that, at least until the fall of 1931, domestic factors were the cause of the drop in U.S. output, rather than international constraints.¹⁶ In particular, Federal Reserve policy decisions (from the tightening in 1928 to curb what was seen as excessive stock market speculation to the failure to counteract banking panics in 1930 and in both the spring and fall of 1931), rather than international events, were likely of primary importance in explaining the drop in U.S. production.

Monthly data over the period from January 1921 to December 1937 are used so as to study the Depression era in the broader context of the inter-war period. The data employed are the rate on U.S. government bonds, the M1 measure of money, industrial output, the wholesale price index, bank loans made for purposes other than securities purchases, the spread between the Baa bond rate and the government bond rate, the real liabilities of failing banks, and the par value of outstanding bonds.

While most of these data are well known and require no additional discussion, the loan series and the bond series require some comment. The loan data represent total loans by banks in 101 leading cities net of loans made by banks on securities. By netting out loans made on securities, the resulting loan series should correspond closely to loans made for commercial and industrial purposes, the relevant concept for an evaluation of the credit view of policy.¹⁷ Note that it is not possible to derive a consistent net loan series after 1937, which thus determines the ending point for the sample.

The outstanding bond series is intended to represent indebtedness of borrowers with access to open-market sources of finance. This series is derived by Hickman (1953) and represents the stock of outstanding corporate bonds of railroads, public utilities, and industrial firms. The basic data were annual, with monthly data derived by Hickman by adjusting the data for which the month of issue was known so that their sum equaled the annual total. Since the months of issue of about 95 percent of total par amounts are known, the monthly data should be accurate. In addition, Hickman provides a detailed comparison of this debt series with those available from other major sources, including the *Commercial and Financial Chronicle* and the *Journal of Commerce*. He is able to reconcile his data with that contained in these alternative sources, so that Hickman's degree of confidence in these data is high; see Appendix C in Hickman (1953) for detail.

The final data issues of importance relate to the interest rates series. First, the government bond rate represents a "safe" interest rate on U.S. bonds with 12 or more years to maturity or call date. Second, the interest rate spread is intended to proxy for the difference between the loan rate at banks for bank-constrained borrowers and a safe market rate. Note, however, that the Baa rate corresponds to borrowers who have access to open market sources of funds, so that the spread is far from a perfect measure of the concept it is intended to measure. However, due to problems associated with adverse selection, moral hazard, and credit rationing, the spread between the loan rate series on bank lending and the safe government bond rate may not adequately measure the premium required by banks to lend to "good" risks. Bernanke (1983) represents a precedent for using the interest rate spread employed here.

The model estimated and analyzed is a variant of a standard textbook aggregate demand (AD) and aggregate supply (AS) presentation of the macro economy. Underlying the AD schedule are augmented versions of the IS and the LM schedules. The usual specifications are augmented to account for the market for bank loans and for the volume of open-market credit. The IS curve represents, *inter alia*, the behavior of consumption and investment decisions.¹⁸ The IS curve includes as arguments bank loans, real open-market debt obligations, and the interest rate spread; these variables are intended to capture the debt-deflation/credit-view impacts on the demand for goods and services. The money demand equation underlying the LM schedule includes deposits in failing banks as a variable that represents portfolio shifts undertaken by agents in response to bank failures or panics. That is, the money demand equation includes a proxy for shifts between deposits and currency that alters the money multiplier, as in the money view. The money supply equation underlying the LM schedule includes real open-market obligations, bank loans, and the interest rate spread. These variables are intended to capture the effects of changes in the credit intermediation process on the supply of money, as in the credit view. The money supply curve also includes deposits in failing banks in an effort to account for the effect of bank failures, as a proxy for the excess reserve ratio on the money supply, as in the money view. The financial sector is completed with demand and supply equations for bank loans, as well as equations explaining bank failures as depending on financial distress, as in the credit view, and the volume of open-market credit. Finally, a relatively simple aggregate supply curve is specified; its distinguishing feature is the inclusion of deposits in failing banks as an explanatory variable to take into account the effect of a decline in working capital on production.

The model described above is analyzed in the following way. Each variable in the model contains two parts: a systematic or predictable component and a random component or error term. The systematic component can be thought of as the “predicted” or “forecast” part of the variable; this component represents the “best information” the agent has about the future path of the variable, given the model structure. The random component represents the deviation between the actual data and the systematic or forecast component.¹⁹ Finally, the model is dynamic, so that random shocks to a variable one period can

alter the path of other variables over time. By way of terminology, breaking down output into its systematic and random components is referred to as a “historical decomposition.”

As an example of the general procedure outlined in the previous paragraph, consider industrial production (“output”). At a point in time, output can be forecast into the future; this is the systematic component. The error in the forecast—the difference between the forecast and the actual path of output—is due to unforeseen shocks in the economy; this is the random component. This forecast error in output can be the result of a variety of shocks to other variables in the economy. For example, if banks unexpectedly alter their lending preferences and stop lending to some firms, as in the credit view, then output may fall relative to the forecast level if firms cannot obtain enough working capital to finance production. Or, if consumers unexpectedly slow their purchases, firms may reduce production to avoid unwanted inventory build-up. In general, shocks to all variables can have some effect on output.

To see the relative importance of various factors for the path of output, begin by considering Figure 10, which shows the forecast or “base projection” of industrial production, a 95 percent confidence band around the base projection, and the actual path of this measure of output. Given the model parameters, the base projection represents the path for industrial production that would have been predicted in a forecast made at the beginning of October 1929. Visually, the base projection completely fails to capture any of the general pattern of actual movements in industrial production. Statistically, for the entire period, the root mean squared error (RMSE) between the base projection and actual industrial production is 40.8 (Table 1).

The remaining figures present two types of visual evidence on the difference between the base projection and the actual behavior of output. First, the figures provide a way to see whether the error component in some particular variable explains the difference between the base projection of output and its actual level. Second, the figures allow us to form impressions on whether these errors help reproduce the “characteristic phases” (i.e., the turning points and rates of growth) of actual output during various subperiods, even in the absence of closing the gap between the forecast and the actual path of industrial production. The major phases of interest begin with the period between Octo-

Figure 10 Industrial Production Index, October 1929 to December 1933
(base period 1935–1939 = 100)

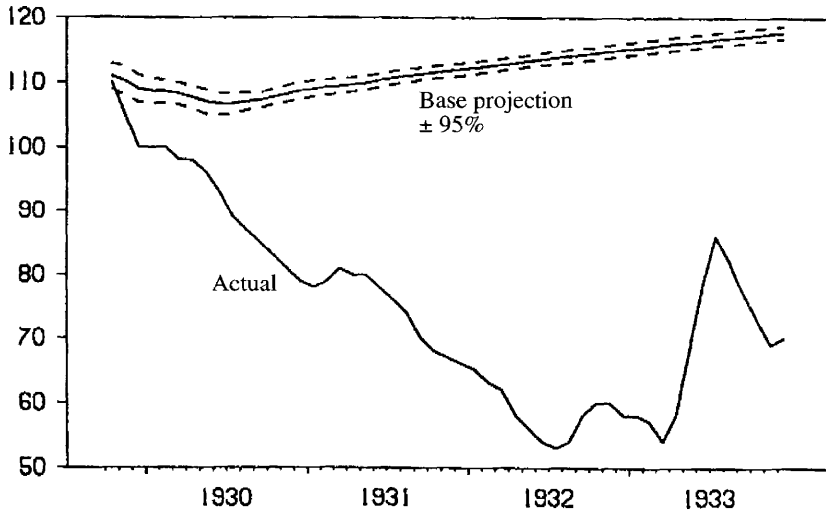


Table 1 Root Mean Squared Errors for Historical Contributions of Selected Variables Relative to Actual Output

Variable(s)	Oct. 1929 to Sept. 1931	Oct. 1929 to Dec. 1933
Base projection (BP)	24.1	40.8
BP + money supply shocks	19.4	35.7
BP + IS shocks	17.0	21.8
BP + deflation shocks	18.2	30.9
BP + bank loan shocks + interest rate differential shocks	24.2	33.3
BP + IS shocks + money supply shocks	13.5	17.7
BP + IS shocks + deflation	11.9	14.2
BP + IS shocks + bank loan shocks + interest rate differential shocks	17.1	16.8
BP + IS shocks + money supply shocks + deflation shocks	9.3	10.8

ber 1929 and January 1931 when the U.S. economy went into a deep, but not historically unprecedented, recession. From February 1931 through May 1931, the economy flattened out. Then output went into a tailspin from June 1931 through July 1932. There was an incipient recovery from August 1932 until October 1932, which was followed by a collapse that hit the bottom in March 1933. The remainder of 1933 displayed a sharp “spike,” in that a rapid recovery began in April, peaked in July, and declined to the end of the year.

Figure 11 shows the contribution to the base projection of the errors to the money stock, and so approximately corresponds to the money view advanced by Friedman and Schwartz. This figure suggests that the money supply shocks contributed to declines in output throughout 1930 and again in late 1931. With the exception of a slight uptick in output in early 1930 rather than a relatively flat path for actual output, these patterns are not obviously at odds with the tightening of policy in the late 1920s and the panics in the early 1930s. However, accounting for the money stock errors does little to close the gap between actual output and its forecast path. A quantitative assessment of the role of money supply shocks in determining the path of output is presented in Table 1, where the RMSE of the base projection plus the contribution of money is 35.7 for the entire period, a reduction of 12.5 percent from the base projection of industrial production alone. Note, however, that for the initial stages of the Depression, i.e., the period from the stock market crash through September 1931, the percentage improvement in the RMSE is about 20 percent (an RMSE of 19.4 vs. 24.1).

Figure 12 shows the contribution to the base projection of shocks to the IS curve. Note that while this figure is in the spirit of Temin, the factors underlying this chart are much broader than those in his original hypothesis. In particular, the shocks underlying the IS curve include, in addition to consumption shocks, shocks to investment and shocks from elsewhere in the world.²⁰ With this caveat, it should nonetheless be noted that the IS shocks underlying the early months in Figure 12 are unlikely to be due to exports; exports rose by about 3 percent between 1928 and 1929, and real exports were a relatively small fraction of GNP. As is evident from Figure 12, over the first several months after the stock market crash, IS shocks roughly mimic the monetary shocks displayed in Figure 11, showing an initial decline fol-

Figure 11 Industrial Production Index, Base Projection + Money Supply, October 1929 to December 1933 (base period 1935–1939 = 100)

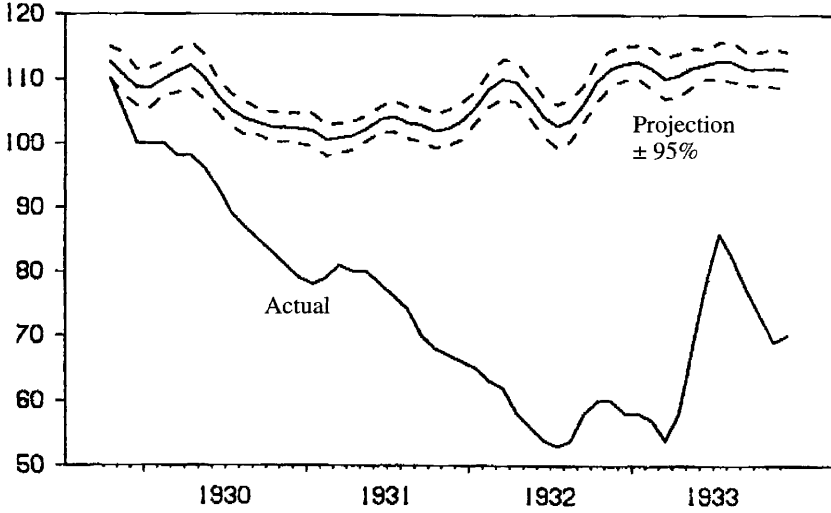
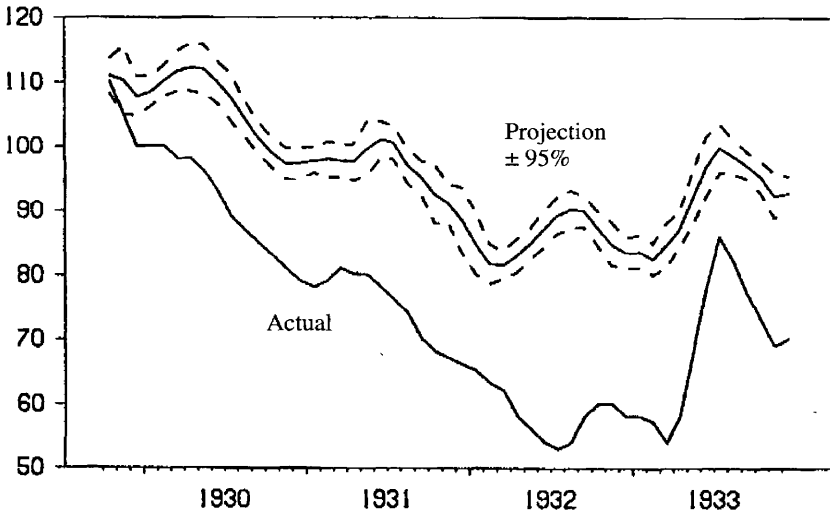


Figure 12 Industrial Production Index, Base Projection + IS Curve, October 1929 to December 1933 (base period 1935–1939 = 100)



lowed by a modest rise in early 1930. From mid 1930 on, however, IS shocks appear to provide a more complete explanation of both the actual path of output and the characteristic phases of output during the Depression era. More precisely, the results reported in Table 1 show that the IS shocks nearly halve the RMSE of the base projection for the period ending in December 1933. These IS shocks also dominate the monetary shock explanation for the initial phase of the Depression, but not nearly so completely as for the entire period. For the initial phase, the RMSE of the base projection falls from 24.1 to 17.0, a 30 percent improvement. Note, however, that most of the improvement relative to the monetary explanation appears to occur after late 1930, so the initial months of the Depression don't seem to be dominated by either theory.

Figure 13 shows the ability of the debt-deflation hypothesis to account for the path of output. Note that this plot represents the effects of deflation without the complementary effects associated with the credit view; independent shocks associated with the credit view are discussed below. However, compared with the monetary explanation, deflation surprises provide some explanatory power for the path of output, especially over the entire period. The notable aspect of this figure is that, unlike the results displayed in Figures 10, 11, and 12, the deflation shocks do not produce a path in which output rises in late 1929 and early 1930. The RMSE associated with the initial two years of the Depression is 18.2, midway between those for money and IS shocks. For the period ending in December 1933, the RMSE for the base projection plus the effects of deflation surprises is 30.9.

Figure 14 provides a representation of the credit view, where shocks to the market for bank loans and the interest rate differential are combined with the base projection of output. Visual inspection suggests that, like shocks to the IS curve but unlike the monetary and deflation explanations, the credit view reasonably captures the characteristic phases of the period. Notice in particular that industrial production tends to fall in periods following banking panics in this plot, consistent with firms being forced to lower production due to drops in the availability of working capital. However, as reported in Table 1, the credit view explains less of the scale effects of the Depression than does the debt-deflation hypothesis, with a full period RMSE of 33.3 and an initial period RMSE of 24.2. Of particular interest to credit-view proponents should be the declines in output accounted for by

Figure 13 Industrial Production Index, Base Projection + Deflation, October 1929 to December 1933
 (base period 1935-1939 = 100)

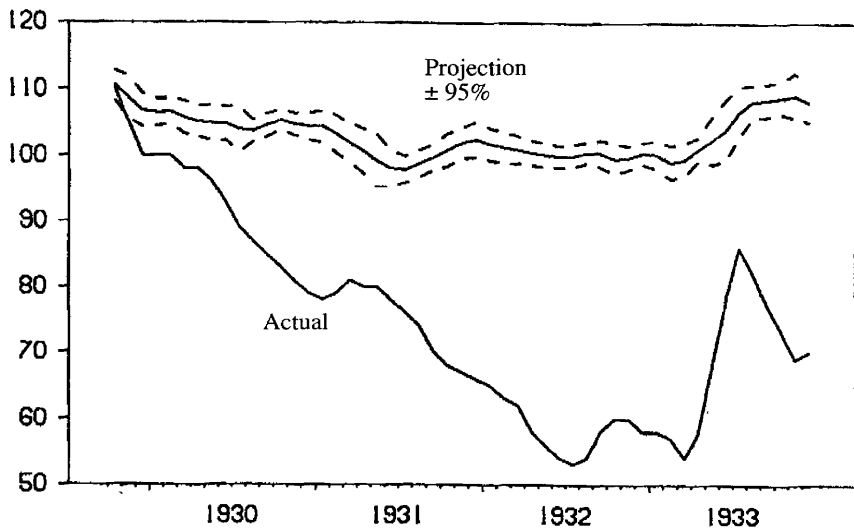
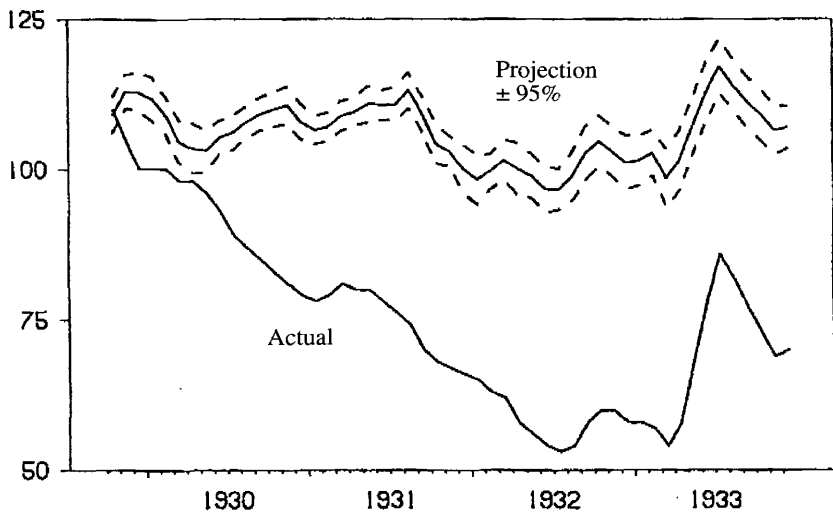


Figure 14 Industrial Production Index, Base Projection + Loans and Interest Rate Differential, October 1929 to December 1933
 (base period 1935-1939 = 100)



shocks in the bank loan market around the first and second banking panics in late 1930 and mid 1931, and the accounting for rising output following the bank holiday in 1933.

Given that shocks to the IS curve generate the lowest RMSEs and most accurately capture the characteristic phases of the Depression over the full horizon, the remaining charts investigate the joint abilities of shocks to the IS curve and other explanations of the Depression to account for the path of output.

Consider Figure 15, which shows the joint contributions of shocks to the IS curve and the money supply; roughly, this plot represents the combined effects of the time-honored explanations of Temin and Friedman and Schwartz. Compared with Figure 12, the addition of money tends to bring the projected path of industrial production somewhat closer to the actual path. Specifically, as reported in Table 1, the RMSE of the base projection plus both IS shocks and money supply shocks is 17.7 for the full period, in contrast to an RMSE of 21.8 for the contribution of IS shocks alone; thus, the addition of money supply shocks lowers the RMSE by about 19 percent relative to the RMSE associated with IS shocks alone. Roughly the same percentage improvement occurs during the first two years of the Depression.

Figure 16 shows the joint contributions of IS and deflation shocks. As compared with Figure 12, the inclusion of deflationary shocks allows a closer description of the path of output than do just the IS shocks. This appearance is confirmed in Table 1, where the RMSE for the projected path relative to the actual path is 14.2 for the full period and where it is 11.9 for the initial phase of the Depression.

Figure 17 combines the base projection with shocks to the IS curve and the variables associated with the credit view. Unlike previously described alternatives, the output decline is noticeably faster after the second banking panic in 1931 and most closely parallels the upward spike in output after the 1933 bank holiday. However, this combination of IS shocks with the credit view shocks does not provide much initial explanatory power for the early part of the Depression. Thus, the RMSE for this combination is 17.1 over the first two years of the era (about the same as for IS shocks alone) but is 16.8 for the entire period.

Finally, Figure 18 combines the deflationary shocks associated with the debt-deflation hypothesis with those from the money view and

Figure 15 Industrial Production Index, Base Projection + IS Curve + Money Supply, October 1929 to December 1933 (base period 1935-1939 = 100)

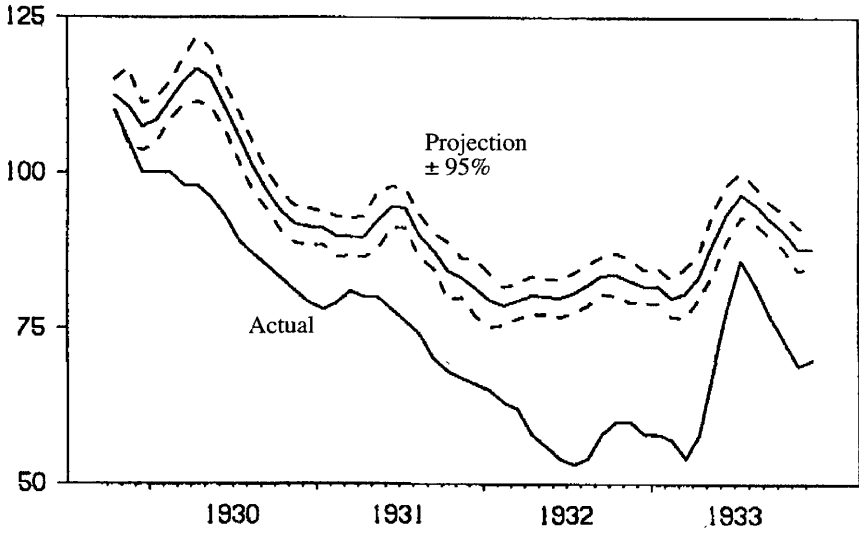


Figure 16 Industrial Production Index, Base Projection + IS Curve + Deflation, October 1929 to December 1933 (base period 1935-1939 = 100)

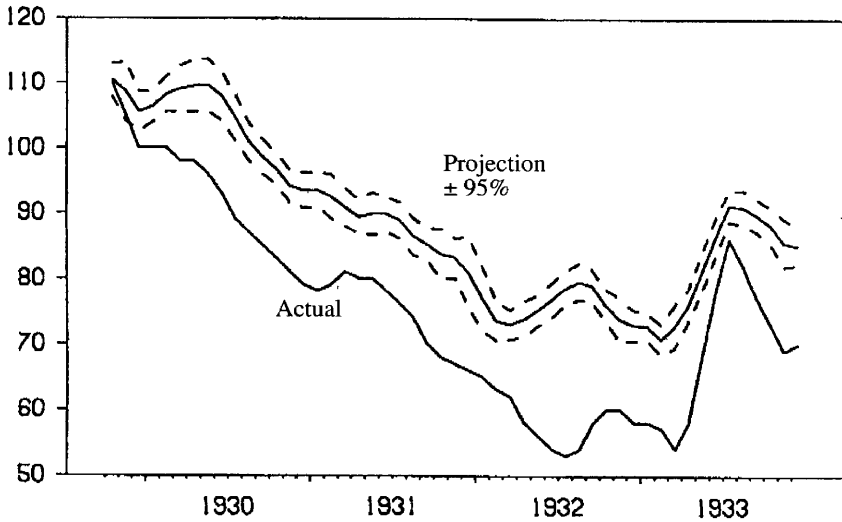


Figure 17 Industrial Production Index, Base Projection + IS Curve + Loans and Rate Differential, October 1929 to December 1933 (base period 1935-1939 = 100)

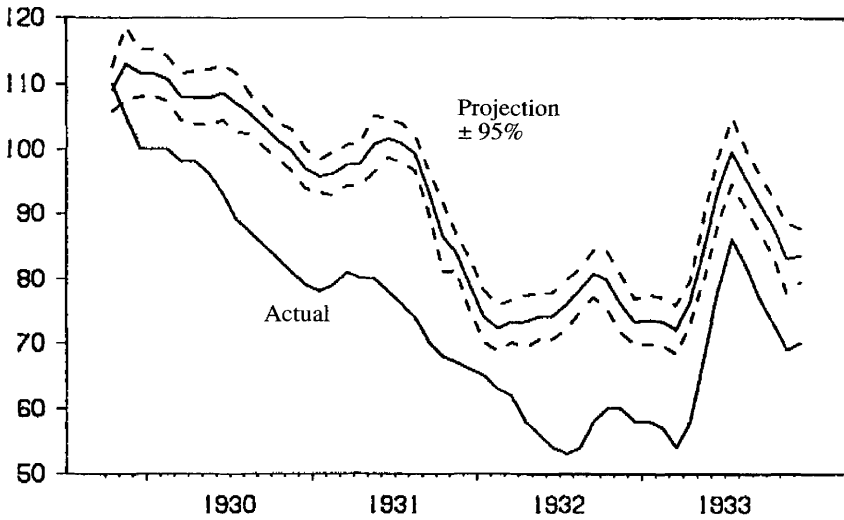
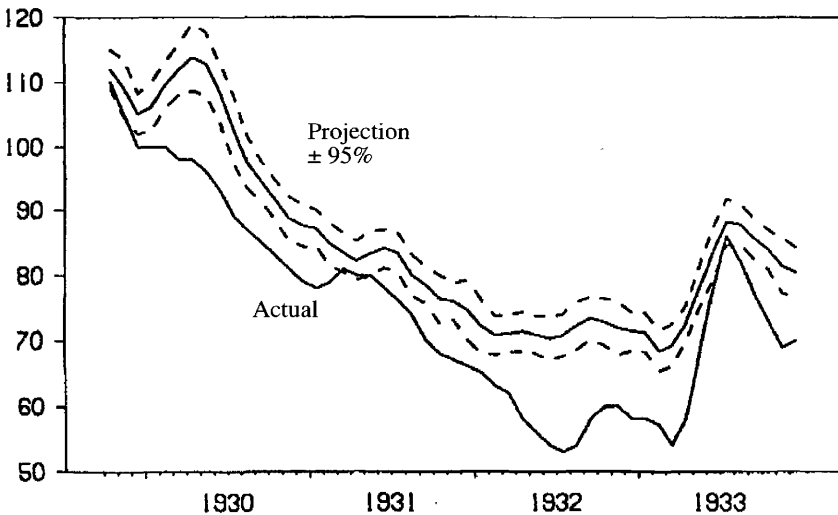


Figure 18 Industrial Production Index, Base Projection + IS Curve + Money Supply + Deflation, October 1929 to December 1933 (base period 1935-1939 = 100)



the autonomous shocks influencing the IS curve. While not capturing all of the Depression, the implied multicausal view of propagation of the Depression does capture most of the drop in output and closely describes the characteristic phases of the period, with the exception of the early months of 1930.

CONCLUSIONS

A number of conclusions emerge from this analysis. First, for the period as a whole, there does not appear to be a single, dominant explanation of the Depression; no factor alone can explain both the magnitude of the decline in output along with the characteristic phases of the Depression. Overall, the factor that does the “best” at explaining the various facts is the shock term to the IS curve. This term probably represents consumption early in the horizon, but later also probably reflects shocks to investment, fiscal policy, and external events.

Second, as indicated in Table 1, among shocks to the individual equations, those to the IS curve produce the lowest RMSE over the two years following the stock market crash. However, as was visually evident from Figures 11 to 14, only the debt-deflation hypothesis, as embedded in deflation surprises, suggested a downward path for output at the onset of the Depression. In fact, the RMSE for the base projection alone for the first year following the crash was 12.8. Among the various theories, only the RMSE associated with the debt-deflation hypothesis (10.6) shows a noticeable drop in the RMSE through September 1930; the RMSE associated with money was 12.6, with IS shocks was 13.2, and with shocks to the bank loan market was 13.0. This result seems to suggest that further investigation of the role of deflationary surprises may be warranted.

Third, the credit view that disruptions to the market for bank loans help explain the depth and length of the Depression is consistent with the data presented here. Specifically, the credit view seems to work well in explaining the rate of decline in output around the banking panics in the early 1930s.

Fourth, note that the credit view appears to contain explanatory power over the period from the stock market crash through the end of

1933, even in the presence of money shocks. This result stands in some contrast to that of Bordo, Rappoport, and Schwartz, who argue that for an earlier period, the evidence for the credit view is weakened by the presence of the money stock.

Notes

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1. This theory was first proposed by Irving Fisher (1933). Recently, Calomiris and Hubbard (1989) and Bordo, Rappoport, and Schwartz (1992) have addressed some of the issues that arise in debt-deflation. Calomiris and Hubbard estimated a “credit view” model of the 1884–1909 period; Bordo, Rappoport, and Schwartz investigated “hybrid credit view” and “hybrid money view” models that attempt to sort out the relative roles of money and credit for economic activity over 1880–1914, a period that encompasses the Calomiris-Hubbard period. In contrast to these papers, the focus of this paper is (most of) the inter-war period, 1921–1937.
2. Eichengreen (1992) has argued that the breakdown of the gold standard that had governed international monetary arrangements prior to World War I and again over the first part of the inter-war period was the driving force behind the sharp and protracted decline in output. I do not address this explanation for the propagation mechanism explicitly. However, as argued by Bernanke (1994), the “comparative approach” to understanding the Depression stimulated by the rise and fall of the gold standard in the inter-war period enhances the confidence in model identification when assessing the Depression experience of an individual country.
3. The data plotted in Figure 2 are for the M1 stock of money. A plot of M2 shows the same pattern of steep declines over the early 1920s.
4. Recent support for this hypothesis is presented by Schwartz (1981) and McCallum (1990). Schwartz presents Granger-causality tests consistent with the hypothesis of unidirectional causality from money to income during the Depression. McCallum demonstrates with counterfactual simulations that a monetary base rule aimed at keeping nominal GNP growing smoothly at a noninflationary rate would have avoided most of the decline in output during the 1930s. However, other evidence suggests that there remains room for additional explanations. For example, Gordon and Wilcox (1981) argue that money does not play an important role in the decline in output in the initial stages of the Depression. Burbidge and Harrison (1985) report similar results.
5. Recall that deposit insurance was not introduced until later in the decade.
6. Mishkin (1978) discusses the effect on wealth of the stock market crash. It seems clear that consumption in 1929 was adversely affected by the crash.

7. Recent research supportive of Temin's view is provided by Romer (1988) and Flacco and Parker (1992), who argue that consumption fell due to increased uncertainty. Support for the premise of increased uncertainty is included in Nelson (1991), who documents accounts from the contemporary business press. Arguments attempting to refute the basic Temin hypothesis are included in Mayer (1978), Meltzer (1976), and Hamilton (1987).
8. Hamilton (1987) convincingly demonstrated that monetary policy was contractionary as early as January 1928. It follows that Temin must implicitly believe that monetary policy does not operate with a lag in its effect on real economic activity in order for the thrust of his nonmonetary arguments to go through. Moreover, if this is not believed, "much of the substance of Temin's objection disappears" (Hamilton 1987, p. 155). Given a constant real money stock and falling nominal interest rates, Hamilton also concludes that Temin's position—that shifts in the IS curve are more important than shifts in the LM curve—"seems to be little more than an *a priori* specification that the parameters are such that monetary policy was unlikely to exert much of an effect on the economy anyway" (p. 158).
9. Romer's discussion of uncertainty is in terms of its impact on consumption and at face value may be viewed as supportive of the Temin explanation of the Depression. However, Romer's analysis is also consistent with other explanations of the Depression, since what matters is the impact of uncertainty on consumption rather than the source of the uncertainty.
10. There are, of course, many reasons other than stock market volatility that can explain why uncertainty would have persisted beyond 1929 and increased subsequent to mid 1930. Events such as massive unanticipated deflation, the Hawley-Smoot tariffs, Federal Reserve inaction, excessive government optimism, political dissension over the proper economic course, the doubling of tax rates in 1932, the failure of the Bank of the United States, the collapse of the Kreditanstalt in Austria, Britain's departure from the gold standard, and the near complete collapse of the U.S. financial system are some sources of uncertainty that could well have kept consumption depressed for the entire October 1929–March 1933 period. Indeed, increasing uncertainty may have been pervasive up until March 1933, when the government finally stepped in.
11. Note, of course, that the plot shows a nominal rate of interest. If the rate of deflation is high, then real rates may be high even though nominal rates are low. If the ultimate impact of monetary policy on the economy is through real rates of interest, then low nominal interest rates can be consistent with restrictive monetary policy.
12. In Fisher's analysis, other factors such as the quantity of money, its velocity, business confidence, and interest rates play secondary roles in the propagation of economic fluctuations.
13. Suppose for a moment that the deflation is anticipated. Rational borrowers and lenders would take the anticipated deflation into account when drafting the loan contract. This might take the form of specifying the repayment schedule in real terms (e.g., adjusting the loan payments for movements in a broadly based price

index such as the consumer price index) or altering the term to maturity of the loan (e.g., arranging for repayment to be complete prior to the onset of the deflation if it is expected to occur some reasonable amount of time in the future), or some other type of arrangement. That is, presumably most of the debt burden leading to insolvency and bankruptcy can be avoided if the deflation is foreseen.

14. As a contemporary example, consider the evidence presented in Bernanke and Campbell (1988) for the decade of the 1980s in which, at least from the perspective of the popular press, there was a period of “excessive” debt build-up. This view can be supported from the perspective of the ratio of interest payments to firm cash flow. However, corporate debt-equity ratios did not change much in the 1980s and were below their peaks attained in the 1973–74 recession. Thus, determination of whether there existed excessive debt in the period leading up to the Depression, for which data are not nearly as complete as are available today, may not be easy to discern.
15. Technical details on the model are included in an appendix, available from the author on request.
16. In September 1931, Britain left the gold standard. A fear of devaluation may have led foreign depositors to withdraw funds from the U.S. financial system. Domestic agents responded by raising their currency/deposit ratios, afraid that flows of funds from an already-weakened banking sector could result in additional losses for depositors. However, just prior to Britain leaving gold, the United States held about 40 percent of the world’s monetary gold stock, so these fears may not have been justified. That is, primary focus on domestic events beyond the fall of 1931 may still be approximately correct.
17. In practice, of course, some of these loans are likely made to borrowers who are not constrained to borrow from banks; the data likely mix bank-constrained borrowers with nonconstrained borrowers. However, we will generally interpret the loan series as representing bank-constrained borrowers.
18. As indicated earlier, shocks to the IS curve also may originate elsewhere in the world. These shocks are not considered explicitly in the model.
19. Notice that the sum of the systematic and random components equals the data itself.
20. Shocks from the international economy are not explicitly modeled here, but rather are subsumed in the errors terms.

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5 Monetary Policy in the Great Depression and Beyond

The Sources of the Fed's Inflation Bias

David C. Wheelock
Federal Reserve Bank of St. Louis

On August 15, 1971, President Nixon announced his “New Economic Policy.” Nixon’s plan included two features that reflected on the state of American monetary policy. First, to combat inflation, Nixon imposed wage and price controls; and, second, in response to America’s long-running and worsening international payments deficit, Nixon suspended convertibility of the dollar into gold. Both policies were intended to be temporary. Wage and price controls were temporary, but the gold window appears to be permanently shut, and the dollar has floated against other currencies since 1973.

The imposition of wage and price controls and suspension of dollar convertibility reflected the failure of U.S. monetary policy to control inflation under the prevailing international monetary regime—the Bretton Woods System. Although Bretton Woods was at its heart a gold standard, it did not impose the same level of discipline on monetary policy that the pre-war gold standard had. Under the classical gold standard, market-driven gold outflows would limit inflationary money supply growth and provide long-run price stability. Bretton Woods was a gold standard managed by central banks, however, and with central bank cooperation a country could run a long-term payments deficit if other countries were willing to hold its currency. The Bretton Woods System ultimately collapsed because other countries became unwilling to hold dollars and because the United States was unwilling to impose a monetary policy on itself that would ensure convertibility of dollars into gold.

The United States had confronted a similar choice before. In 1931, uncertainty about the ability or willingness of the United States to remain on the gold standard precipitated gold outflows that forced

American monetary authorities to make a decision. They could choose to defend their gold reserve by tightening monetary policy or they could suspend convertibility of the dollar into gold. In the midst of the Great Depression, Federal Reserve officials understood that a tighter monetary policy might worsen the downturn, but to preserve the gold standard they chose to raise interest rates and allow a contraction of bank reserves.

In this paper, I argue that American officials chose to abandon gold in 1971 because of institutional and ideological changes brought about by the Great Depression. Key changes included a new avenue for monetizing federal government debt, a weakening of the Federal Reserve System's insulation from political interference, and a new economic policy ideology that doubted the stability of private markets and prescribed government management of aggregate demand.

The most important change for monetary policy stemming from the Great Depression concerned the gold standard. In 1931, Federal Reserve officials viewed the gold standard as fundamental to long-run economic prosperity and were willing to defend the system even if it meant taking actions that would worsen the ongoing Depression. In 1971, U.S. economic policymakers no longer viewed the gold standard in this way and were unwilling to tighten monetary policy to preserve the gold standard, even though the United States had a rising rate of inflation and a growing economy. The choice to abandon Bretton Woods was made, I argue, because the Great Depression had weakened the ideological underpinnings of the gold standard.¹

During the Depression, the gold standard had failed to preserve prosperity for those countries with even the largest reserve holdings, and suspension proved to be a prerequisite for recovery in most countries (Eichengreen and Sachs 1985). Although many people continued to view the gold standard and fixed exchange rates positively, most believed that the gold standard required the management of government officials. Thus, after World War II, the managed gold standard of Bretton Woods supplanted the pre-war gold standard. Under Bretton Woods, the United States was able to run an inflationary monetary policy without the swift discipline of gold outflows. The initial impetus for inflation resulted from other changes—increased political pressure on the Fed and attempts to stimulate output by increasing aggregate demand, for example, as well as from flaws in the Fed's basic operat-

ing strategy. But under Bretton Woods, inflation could gather substantial momentum before policymakers were forced to confront the consequences of their policies. In the face of a hemorrhaging balance of payments deficit and no strong ideological attachment to gold, Bretton Woods collapsed and external constraints on domestic monetary policy were abandoned.

This paper begins with an overview of monetary policy during the Great Depression. By many (though not all) possible measures, monetary policy was exceptionally contractionary during 1929–1933, and I examine why the Fed pursued such a policy during this period. Next, I identify and discuss key institutional changes to the monetary policy environment that resulted directly from the Great Depression. I argue that these changes help explain the inflation bias of the Fed’s post-World War II monetary policy. Finally, I describe the Federal Reserve’s response, or lack thereof, to the growing balance of payments deficits leading up to the collapse of Bretton Woods in 1971, and how the decision to abandon gold in 1971 was a legacy of the Great Depression.

MONETARY POLICY IN THE FIRST PHASE OF THE GREAT DEPRESSION

By almost any measure, monetary policy during the period 1929–1933 was a disaster: the money supply and price level both fell by one-third, *ex post* real interest rates reached double digits, and banks failed by the thousands (Table 1). How could the Fed have let this happen?

The explanations for the Fed’s disastrous monetary policy during the Great Depression largely fall into two categories. One attributes policy failures to innocent mistakes or neglect, while the other contends that the Fed willfully engineered contractionary monetary policy to foster bureaucratic objectives, or in response to interest group pressure. Although some political scientists and public choice economists favor the latter explanation (e.g., Epstein and Ferguson 1984; Anderson, Shughart, and Tollison 1988), most economists and economic historians blame the Fed’s policy on misguided policy rules, as well as on

Table 1 Selected Measures of Monetary Policy and Economic Activity

Year	Nominal GNP ^a	% change	Real GNP ^b	% change	CPI ^c	% change	M1 ^d	% change	M2 ^e	% change	Bank failures ^f	Fail deposits ^g	Interest rate ^h	Real rate ⁱ
1919	78.9		74.2		74.0		21390		30320		62			
1920	88.9	11.93	73.3	-1.22	85.7	14.68	23592	9.80	34708	13.52	167		5.42	-9.26
1921	74.0	-18.34	71.6	-2.35	76.4	-11.49	20955	-11.85	32212	-7.46	505	172188	4.83	16.32
1922	74.0	0.00	75.8	5.70	71.6	-6.49	21618	3.11	33646	4.36	366	91182	3.47	9.96
1923	86.1	15.14	85.8	12.39	72.9	1.80	22653	4.68	36411	7.90	646	149601	3.93	2.13
1924	87.6	1.73	88.4	2.99	73.1	0.27	23226	2.50	37992	4.25	775	210151	2.77	2.50
1925	91.3	4.14	90.5	2.35	75.0	2.57	25362	8.80	41691	9.29	618	167555	3.03	0.46
1926	97.7	6.78	96.4	6.32	75.6	0.80	26082	2.80	43539	4.34	976	260378	3.23	2.43
1927	96.3	-1.44	97.3	0.93	74.2	-1.87	25796	-1.10	44384	1.92	669	199329	3.10	4.97
1928	98.2	1.95	98.5	1.23	73.3	-1.22	25761	-0.14	45861	3.27	498	142386	3.97	5.19
1929	104.4	6.12	104.4	5.82	73.3	0.00	26189	1.65	45918	0.12	659	230643	4.42	4.42
1930	91.1	-13.63	95.1	-9.33	71.4	-2.63	25293	-3.48	45303	-1.35	1350	837096	2.23	4.86
1931	76.3	-17.73	89.5	-6.07	65.0	-9.39	23883	-5.74	42598	-6.16	2293	1690232	1.15	10.54
1932	58.5	-26.56	76.4	-15.83	58.4	-10.71	20449	-15.52	34480	-21.14	1453	706188	0.78	11.49
1933	56.0	-4.37	74.2	-2.92	55.3	-5.45	19232	-6.14	30087	-13.63	4000	3596698	0.26	5.71
1934	65.0	14.90	80.8	8.52	57.2	3.38	21068	9.12	33073	9.46	57	36937	0.26	-3.12
1935	72.5	10.92	91.4	12.33	58.7	2.59	25199	17.90	38049	14.02	34	10015	0.14	-2.45
1936	82.7	13.16	100.9	9.89	59.3	1.02	29630	16.20	43341	13.02	44	11306	0.14	-0.88

1937	90.8	9.34	109.1	7.81	61.4	3.48	30587	3.18	45195	4.19	59	19723	0.45	-3.03
1938	85.2	-6.37	103.2	-5.56	60.3	-1.81	29173	-4.73	44100	-2.45	54	10532	0.05	1.86
1939	91.1	6.70	111.0	7.29	59.4	-1.50	32586	11.06	47681	7.81	42	34998	0.05	1.52
1940	100.6	9.92	121.0	8.63	59.9	0.84	38763	17.36	54328	13.05	22	5943	0.01	-0.83
1941	125.8	22.35	138.7	13.65	62.9	4.89	45349	15.69	61296	12.07	8	3726	0.10	-4.79

NOTE: The value in each “% change” column refers to year-to-year differences in the logs of the series to the left.

^a \$ billions (Historical Statistics 1960, F1).

^b \$ billions, 1929 prices (Historical Statistics 1960, F3).

^c 1947–1949 = 100 (Historical Statistics 1960, E113).

^d \$ millions, June figure (Friedman and Schwartz 1963, Appendix A1).

^e \$ millions, June figure (Friedman and Schwartz 1963, Appendix A1).

^f Suspended banks (Board of Governors 1943, p. 283).

^g Deposits in suspended banks, \$ thousands (Board of Governors 1943, p. 283).

^h Yearly average yield on 3–6 month Treasury notes and certificates (1919–1933) and bills (1934–1941) (Board of Governors 1943, p. 460).

ⁱ Short-term government yield less CPI inflation rate in same year.

petty jealousies that limited the Fed's ability to respond decisively to rapidly changing conditions.

The most prominent explanation of Federal Reserve behavior during the Great Depression is that of Friedman and Schwartz (1963), who argue that a distinct shift in policy occurred with the death in 1928 of Benjamin Strong, Governor of the Federal Reserve Bank of New York. Like Fisher (1935) before them, Friedman and Schwartz contend that Strong understood how to employ the tools of monetary policy to minimize cyclical fluctuations in output and prices and to prevent or limit financial panics. His death created a void of both leadership and understanding that left the Fed unresponsive to financial crises, bank runs, and their contractionary effects.

Under Strong's leadership, the Fed had used the tools at its disposal to pursue both domestic and international objectives (Wheelock 1991). Large open-market purchases and discount rate reductions in 1924 and 1927 were apparent attempts both to encourage domestic economic growth and to enable Great Britain to attract gold reserves (by lowering U.S. interest rates relative to those in Britain). Open-market sales and discount rate hikes in 1928–1929, on the other hand, were intended to discourage stock market speculation, which at least some Fed officials viewed as a manifestation of inflation.

On the surface, the Fed seems to have been less responsive to the Depression than it had been to earlier, smaller, cyclical downturns. Table 2 presents a rough comparison of Federal Reserve actions during the initial phase of the Great Depression (1929–1931) with Fed actions during the recessions of 1924 and 1927. The Fed's Index of Industrial Production serves as a measure of economic activity. The index declined approximately 20 points from the cyclical peak in April 1923 to the trough in July 1924. The recession of 1927 was considerably more modest—the index declined 11 points from October 1926 to October 1927. By contrast, the Index of Industrial Production declined by 42 points between July 1929 and July 1931 and by another 9 points from July 1931 to October 1931. In terms of the Fed's basic policy tools—the discount rate and open-market purchases of government securities—the Fed was much less vigorous in 1929–1931 than it had been in response to the smaller recessions of 1924 and 1927. This fact, along with the occurrence of banking panics and sharp declines in the money stock and price level during 1929–1931, lead Friedman and

Table 2 Monetary Policy During Three Recessions

Month	<i>IP</i>	<i>GS</i>	<i>DR</i>	<i>i</i>	<i>DL</i>	<i>DL(NYC)</i>
Jul 1929	124	147	5.0	6.00	1096	319
Oct 1929	118	154	6.0	6.25	885	74
Jan 1930	106	485	4.5	4.88	501	39
Apr 1930	104	530	3.5	3.88	231	17
Jul 1930	93	583	2.5	3.25	226	0
Oct 1930	88	602	2.5	3.00	196	6
Jan 1931	83	647	2.0	2.88	253	5
Apr 1931	88	600	2.0	2.38	155	0
Jul 1931	82	674	1.5	2.00	169	0
Oct 1931	73	733	3.5	3.13	614	74
Apr 1923	106	229	4.5	5.38	658	123
Jul 1923	104	97	4.5	5.13	834	143
Oct 1923	99	91	4.5	5.38	873	121
Jan 1924	100	118	4.5	4.88	574	85
Apr 1924	95	274	4.5	4.63	489	45
Jul 1924	84	467	3.5	3.50	315	13
Oct 1924	95	585	3.0	3.13	240	28
Jan 1925	105	464	3.0	3.63	275	32
Oct 1926	111	306	4.0	4.63	663	84
Jan 1927	107	310	4.0	4.25	481	76
Apr 1927	108	341	4.0	4.13	447	78
Jul 1927	106	381	4.0	4.25	454	59
Oct 1927	102	506	3.5	4.00	424	75
Jan 1928	107	512	3.5	4.00	465	94

SOURCE: Board of Governors (1937), pp. 175–177 for *IP*, and Board of Governors (1943), pp. 370–371 for *GS* and *DL*, pp. 440–441 for *DR*, pp. 450–451 for *i*, and p. 400 for *DL(NYC)*.

Definitions:

IP: Index of Industrial Production (seasonally adjusted)

GS: Federal Reserve System's holdings of government securities (in \$ millions)

DR: discount rate of the Federal Reserve Bank of New York (in %)

i: commercial paper interest rate (in %)

DL: borrowed reserves of Fed member banks (in \$ millions)

DL (NYC): borrowed reserves of New York City Fed member banks (in \$ millions)

Schwartz (1963) to conclude that the intent and implementation of monetary policy during the Great Depression were dramatically different from what they had been in 1924 and 1927.²

Despite the Fed's weak response to the Depression, some researchers argue that policy changed little, if at all, with Benjamin Strong's death (e.g., Wicker 1966; Brunner and Meltzer 1968; Wheelock 1991). During the Depression, the Fed used borrowed reserves (discount-window loans) and market interest rates as policy guides.³ When member banks borrowed relatively little from the Federal Reserve discount window or market interest rates were unusually low, Fed officials interpreted monetary conditions as "easy." Conversely, high levels of borrowed reserves or high interest rates signaled that money was "tight." Once the Depression began, both borrowed reserves and interest rates fell sharply and generally remained low, giving Fed officials the impression that money was plentiful and "cheap."

The Fed's use of discount-window borrowing and interest rates as policy guides during the Depression appears consistent with the policy framework that Benjamin Strong had outlined when he was running the Fed. Speaking to Federal Reserve officials in 1926, for example, Strong described his rule of thumb for determining how to use open-market policy during a recession:

Should we go into a business recession while the member banks were continuing to borrow directly 500 or 600 million dollars . . . we should consider taking steps to relieve some of the pressure which this borrowing induces by purchasing government securities and thus enabling member banks to reduce their indebtedness . . .

As a guide to the timing and extent of any [open-market] purchases which might appear desirable, one of our best guides would be the amount of borrowing by member banks in principal centers . . . Our experience has shown that when New York City banks are borrowing in the neighborhood of 100 million dollars or more, there is then some real pressure for reducing loans, and money rates tend to be markedly higher than the discount rate . . . When member banks are owing us about 50 million dollars or less the situation appears to be comfortable, with no marked pressure for liquidation. (quoted by Chandler 1958, pp. 239–240)

By Strong's guidelines, additional open-market purchases were not called for in 1929–1931. The borrowed reserves (discount loans) of all Fed member banks as well as those of New York City banks declined far below their levels of 1924 and 1927 (Table 2). Similarly, money market interest rates were unusually low in 1930–1931. Thus, by Strong's measures, the stance of monetary policy in 1930–1931 appears to have been quite easy. Policymakers inferred that there was little more the Fed could, or should, do, and that it was now up to the economy to respond. As Strong (1926, p. 468) had said on another occasion, "The Reserve Banks do not *push* credit into use" (emphasis in original).

Many economists have noted that rigid use of borrowed reserves or interest rates as policy instruments will cause the money supply to rise and fall procyclically because borrowed reserves and interest rates tend to vary positively with economic activity. Moreover, the banking crises of 1929–1933 made borrowed reserves an especially poor indicator of monetary conditions during the Depression because a fear of runs made banks especially reluctant to suggest any weakness to depositors, which discount-window borrowing might do (Wheelock 1991). Although a few System officials questioned the reliability of borrowed reserves as a policy guide during the Depression, the prevailing view was that monetary conditions were exceptionally easy and that the economy's failure to expand was not the fault of monetary policy. We cannot say for certain whether monetary policy would have been different during 1929–1931 had Benjamin Strong lived, but it does seem to have been consistent with Strong's response to business cycle downturns in 1924 and 1927 and the guidelines for assessing the stance of monetary policy he had outlined.

THE GOLD CRISIS OF 1931

Federal Reserve policy during the initial phase of the Great Depression—from the stock market crash in October 1929 through September 1931—was largely predictable from the policy guidelines followed by Benjamin Strong during the 1920s. But interest rates and discount-window borrowing shot up dramatically in the fourth week of

September 1931 and remained high until early 1932. During this period, the Fed raised its discount rate but failed to make significant open-market purchases, even though the Depression was getting worse and monetary conditions were exceptionally restrictive.

The year 1931 was marked by a series of financial crises that led to suspension of the gold standard by a number of European countries, culminating with Great Britain on September 21. Following Britain's departure from gold, speculation that the United States would soon follow triggered a massive gold outflow from the United States and attendant decline in commercial bank reserves. The Federal Reserve acted to stem the outflow by raising its discount rate—the classic defense—but did not use open-market operations to replace the outflow of commercial bank reserves.

In the six weeks ending October 28, 1931, the monetary gold stock of the United States declined by \$727 million, or some 15 percent. At this point, the gold stock stabilized, but uncertainty about the condition of American banks caused bank customers to redeem their deposits for currency. Between mid September and the end of December, currency held by the public rose \$544 million (11 percent). Banks borrowed heavily from the Federal Reserve to replace reserves lost from deposit redemptions for gold and currency, even though the Fed had increased its discount rate from 1.5 percent to 3.5 percent.⁴

The Fed made virtually no open-market purchases of government securities during the crisis. On February 24, 1932, the Fed's security portfolio was the same size that it had been on September 16, 1931, and thus open-market operations had contributed nothing toward offsetting the gold and currency outflows. While increased discount-window borrowing offset these outflows somewhat, member bank total reserves still fell by \$540 million, or 22 percent, between mid September and the end of February.

On the surface, the Fed's behavior in the fourth quarter of 1931 appears inconsistent both with Benjamin Strong's policy guidelines and with appropriate lender of last resort policy. As Friedman and Schwartz (1963, pp. 315–322) describe, the Fed had acted to halt an "external drain" of reserves from the banking system (gold outflows), but not the "internal drain" (conversion of deposits into currency).

The Fed argued that it had not made open-market purchases during the crisis of 1931 because its own reserve position was in jeopardy.

The Federal Reserve Banks were required to maintain gold reserves equal to 40 percent of their notes outstanding and 35 percent of their deposit liabilities (which consisted mainly of member bank reserve accounts). In addition, the Reserve Banks were required to hold collateral in the form of gold or eligible securities against their note issues (gold held as reserves also counted as collateral). Finally, the Reserve Banks were required to deposit gold with the U.S. Treasury equal to at least 5 percent of their note issues that were collateralized by securities.

Securities eligible for use as collateral for Federal Reserve note issues included bankers acceptances and commercial notes the Reserve Banks had purchased or discounted for member banks, but not government securities acquired in the open market. Thus, purchases of government securities increased Fed liabilities but did not add to the collateral backing them, and so the Fed had to hold excess reserves before it could engage in open-market purchases.⁵

From July to October 1931, Federal Reserve Bank gold reserves declined from over 84 percent of Fed liabilities to 63 percent. Although the Fed still had sufficient gold to cover its gold reserve requirement, some of its excess gold reserve was used as collateral for Reserve Bank note issues. Consequently, the Fed's "free gold," i.e., the amount of gold not currently pledged as reserves or collateral, dwindled.

In its 1932 Annual Report, the Federal Reserve Board implied that a lack of free gold reserves had kept it from purchasing government securities during the 1931 crisis, and it noted that large purchases had followed enactment of the Glass-Steagall Act of February 27, 1932, which had expanded the types of securities that were eligible for use as collateral for Fed liabilities to include U.S. government securities (see also the *Federal Reserve Bulletin*, March 1932). Friedman and Schwartz (1963, pp. 399–406) contend that the Fed's claim that a lack of free gold had prevented open-market purchases was a ruse, though others, such as Epstein and Ferguson (1984, pp. 964–965) argue that Fed officials truly felt constrained by a lack of reserves.

Regardless of whether or not the Fed was constrained by its collateral requirement, the System had another option—the Federal Reserve Board had the right to suspend the Fed's reserve requirements. I am aware of no evidence that the Fed considered suspension, however.

Wicker (1966, pp. 169–170) argues that Fed officials feared that open-market purchases would exacerbate gold outflows by increasing doubt about the Fed's resolve to maintain the value of the dollar in terms of gold over the long run. Presumably these officials believed that suspension of the Fed's reserve requirements would also cause gold outflows, and hence that a combination of suspension and open-market purchases was untenable.

DID THE FED FOLLOW GOLD STANDARD ORTHODOXY?

Fed officials believed strongly in preserving the gold standard, and at first glance their policy actions appear to have reflected gold standard doctrine. But, two aspects of policy—the Fed's delay in raising its discount rate following Britain's suspension of the gold standard, and the Fed's long-time policy of limiting the impact of gold flows on the domestic money supply—suggest otherwise.

Wicker (1996, pp. 86–94) argues that the gold standard played only a “minor” role in the discount rate increases of October 1931, citing the fact that the discount rate was not increased until two and one-half weeks after Britain suspended gold payments and the United States had experienced heavy gold outflows. As further evidence, he cites meeting records of the board of directors of the Federal Reserve Bank of New York in which George Harrison, Governor of the New York Fed, argued against raising rates in the wake of Britain's action and then buried defense of gold among other reasons when later advocating a discount rate increase. Wicker argues that the Fed's policy was thus not a “knee-jerk” response to gold standard conventions.

Chandler (1971, p. 177) interprets the Fed's delay in raising its discount rate somewhat differently. He argues that some Fed officials believed that a discount rate increase might suggest weakness and thereby exacerbate gold outflows, though fear that a rate increase might hurt the economy also played some part in the delay. Moreover, other Federal Reserve policymakers did press for an immediate discount rate increase to defend the gold standard. Fed Governor Eugene Meyer, for example, argued that “an advance in the rate was called for by every known rule, and . . . foreigners would regard it as a lack of

courage if the rate were not advanced” (quoted by Wicker 1996, p. 93). Friedman and Schwartz (1963, p. 383) cite a memorandum prepared for a meeting of the Fed’s Open Market Committee in November 1931, which concluded that the “foreign and domestic drains upon bank reserves were met in the classic way by increases in the discount rate combined with a policy of free lending.” Although disputing the memo’s conclusion regarding the policy’s efficacy, Friedman and Schwartz (1963) agree that the Fed had sought to maintain the gold standard.

Besides the delay in raising the discount rate in 1931, the Fed’s long-standing policy of limiting the impact of gold flows on the domestic money stock also suggests that the Fed was not fully committed to the gold standard. Gold standard doctrine (the “rules of the game”) held that gold inflows (outflows) should be permitted to increase (decrease) a country’s money stock and price level so as to induce shifts in capital flows and the balance of trade that would limit future gold movements.⁶ Since the early 1920s, however, the Fed had largely offset reserve fluctuations caused by flows of gold, currency, and other sources by varying the quantity of reserves supplied by open-market operations and discount-window lending. In essence, the Fed “sterilized” gold flows, as Benjamin Strong explained in 1926:

In the old days there was a direct relation between the country’s stock of gold, bank deposits and the price level because bank deposits were . . . based on the stock of gold and bore a constant relationship to the gold stock . . . But in recent years the relationship between gold and bank deposits is no longer as close or direct . . . because the Federal Reserve System has given elasticity to the country’s bank reserves . . . Federal Reserve bank credit is an elastic buffer between the country’s gold supply and bank credit. (Strong 1926, p. 470)

Moreover, Strong credited the Fed with preventing inflation by offsetting gold inflows in 1921 and 1922:

As the flow of gold imports was pouring into the United States in 1921 and 1922, many economists abroad, and in this country as well, expected this inward flow of gold would result in a huge credit expansion and a serious price inflation. That no such expansion or inflation has taken place is due to the fact that the amount of Federal Reserve credit in use was dimin-

ished as gold imports continued. Thus . . . the presence of the Reserve System may be said to have prevented rather than fostered inflation. (Strong 1926, p. 471)

Although the Fed generally sterilized gold flows, it proved willing to deviate from that policy when it seemed necessary to protect the gold standard. The easing of monetary policy in 1924 and 1927 seems at least partly motivated by a desire to repel gold inflows and thereby assist Britain's ability to maintain gold reserves (Wicker 1966; Wheelock 1991). Moreover, when gold outflows reduced the Fed's reserve ratio in 1920–1921, the Fed increased its discount rate to 7 percent (a level not reached again until 1973) and endured a sharp deflation in order to preserve its gold reserve. This episode demonstrated the Fed's resolve to maintain its gold reserve and set the precedent for its policy in late 1931. Benjamin Strong may have “discovered” and actively used open-market policy, but he was unwilling to conduct policy outside the framework of the gold standard. He testified in 1928 that

When you are speaking of efforts simply to stabilize commerce, industry, agriculture, employment and so on, without regard to the penalties of violation of the gold standard, you are talking about human judgment and the management of prices which I do not believe in at all. (quoted by Burgess 1930, p. 331)

Like Strong, Federal Reserve officials in 1931 viewed preservation of the gold standard as fundamental to long-run economic stability, and to preserve the gold standard for the long-term they were willing to undertake policies that might be destabilizing in the short run. Their response to the gold crisis of 1931 may have sealed the fate of Herbert Hoover and the Republicans in Congress, however, and ensured the election of politicians who would prove willing to change dramatically the institutions of monetary policymaking in the United States, including the gold standard.

INSTITUTIONAL CHANGES TO THE MONETARY POLICY REGIME

The year 1932 marked the beginning of a series of institutional reforms with potentially large consequences for monetary policy (Table 3).⁷ Among the most significant were the Glass-Steagall Act of 1932, which permitted the Federal Reserve to use government securities to back its note issues; suspension of the international gold standard by executive order on March 6, 1933 (ratified by Congress on March 9); the Thomas Amendment to the Agricultural Adjustment Act of 1933, which, among other things, permitted the Federal Reserve to adjust commercial bank reserve requirements; the Gold Reserve Act of 1934, which authorized the President to fix the dollar price of gold and established the Treasury's Exchange Stabilization Fund; and the Banking Act of 1935, which markedly altered the structure of the Federal Reserve System and expanded the Fed's authority to adjust reserve requirements.

By permitting U.S. government securities to serve as backing for Federal Reserve notes, the Glass-Steagall Act of 1932 removed an important constraint on discretionary monetary policy and enhanced the Fed's ability to initiate transactions that monetized government debt.⁸ Although he lent his name to the enabling legislation, Carter Glass, who had sponsored the original Federal Reserve Act, apparently voiced considerable worry about the inflationary potential of permitting government obligations to serve as collateral for Federal Reserve notes (Chandler 1971, p. 189). I argue below that Glass was prescient in his concerns.⁹

The next institutional change came when President Franklin Roosevelt suspended the gold standard upon taking office in March 1933. Roosevelt was willing—perhaps forced—to take the step that Federal Reserve officials had so feared. As in other countries, economic recovery followed suspension and thereby gave credibility to a regime of “managed money” (see Eichengreen 1992 or Temin 1989).

Using authority granted by the Gold Reserve Act of January 1934, Roosevelt fixed the value of gold at \$35 per ounce (the previous level had been \$20.67). Although the ownership of gold and its use for domestic payments remained prohibited, the United States returned to

Table 3 Key Institutional Changes in Monetary Policy in the Early 1930s

1932	<p><i>Glass-Steagall Act</i> (February 27): temporarily made U.S. government securities eligible collateral for Federal Reserve note issues, thereby expanding the Fed's ability to make open-market purchases (made permanent in 1933); also temporarily relaxed rules on discount-window lending (extended in 1933, made permanent in 1935).</p>
1933	<p><i>Emergency Banking Act</i> (March 9): ratified suspension of the gold standard.</p> <p><i>Thomas Amendment to the Agricultural Adjustment Act</i> (May 12): authorized the Fed to set reserve requirements; gave the President authority to require open-market purchases by the Federal Reserve and to fix the weights of the gold and silver dollars.</p> <p><i>Banking Act of 1933</i> (June 16): enhanced Federal Reserve Board control of discount-window lending; technical adjustments to Federal Reserve System organization.</p>
1934	<p><i>Gold Reserve Act</i> (January 30): authorized transfer of monetary gold stock to the U.S. Treasury; amended the President's authority to fix the dollar prices of gold and silver; and established the Exchange Stabilization Fund.</p> <p><i>Silver Purchase Act</i> (June 19): authorized the President to purchase and nationalize monetary silver; authorized limited Federal Reserve lending to industrial and commercial firms.</p>
1935	<p><i>Banking Act of 1935</i> (August 23): reorganized Federal Reserve's Open Market Committee and otherwise enhanced the authority of the Board of Governors of the Federal Reserve System relative to the Federal Reserve Banks; extended Federal Reserve authority to adjust member bank reserve requirements.</p>

the gold standard for the settlement of payments with other countries that also were on the gold standard. The restored gold standard, however, differed fundamentally from the previous standard in the degree to which its operation was removed from private markets and placed under control of government authorities. Americans were forbidden from holding gold, gold clauses in private contracts were made illegal, and the Treasury would sell gold only for making foreign payments.

Gold also was no longer regarded as an absolute exogenous check on government manipulation of the supply of money. Under the weight of the Great Depression, the ideology of the gold standard, which viewed gold as fundamental to a country's economic prosperity, had cracked. Although the dollar remained linked to gold, the link was weakened and, perhaps more important, government authorities had demonstrated a willingness to manipulate the gold standard to limit the extent to which it would interfere with discretionary monetary policy. Thereafter, when the Fed's gold reserve requirement threatened to limit money supply growth, the reserve requirements were reduced and ultimately eliminated with apparently little debate or fanfare. The gold standard as it existed after 1933 was thus fundamentally different from its precursor and foreshadowed the Bretton Woods gold standard that was to replace it after World War II.

In addition to marking a fundamental shift in the degree to which gold served as a constraint on domestic monetary policy, the revaluation of gold in 1934 left the U.S. Treasury with a capital gain of some \$2.8 billion on its gold holdings. Under authority conveyed by the Gold Reserve Act of 1934, the Treasury used \$2 billion of its windfall to establish the Exchange Stabilization Fund: "For the purpose of stabilizing the exchange value of the dollar, the Secretary of the Treasury . . . is authorized . . . to deal in gold and foreign exchange and such other instruments of credit and securities as he may deem necessary."

Although the operations of the Exchange Stabilization Fund during the 1930s had little effect on the quantity or growth of bank reserves, the size and open-ended authority of the Fund were widely viewed as a threat to the Federal Reserve System and its ability to effect monetary policy. For example, Roy Young, then Governor of the Federal Reserve Bank of Boston, argued that the Gold Reserve Act "gives the Secretary of the Treasury such powers, of a permanent nature, that he could nullify anything we [the Federal Reserve] could do" (quoted by

Johnson 1939, p. 36). *The Commercial and Financial Chronicle* (January 20, 1934, p. 367) had a similar reaction: “The Reserve authorities have been reduced to shadowy nonentities, the Federal Reserve System having become simply an adjunct of the United States Treasury and the Federal Government, to do what they are told to do.”

In addition to the Exchange Stabilization Fund, additional authorities granted the President and Treasury Secretary included the right to “request” the Federal Reserve to use open-market purchases to increase bank reserves by up to \$3 billion, and, if the Fed refused, to issue a commensurate amount of fiat currency. This power was granted by the Thomas Amendment to the Agricultural Adjustment Act of 1933, which, along with the Silver Purchase Act of 1934, also authorized the purchase of silver and permitted the President to devalue the silver dollar. Between 1933 and 1938, the Treasury purchased 1.8 billion ounces of silver, thereby increasing bank reserves by \$1 billion (some 20 percent of the total increase in reserves during the period). Had the President chosen to devalue the dollar in terms of silver, the Treasury would have reaped a \$2.2 billion windfall on its silver holdings (Johnson 1939, pp. 195–198). In summarizing the various new authorities given the administration, Johnson (1939, p. 202) concludes,

The President could double or triple bank reserves, had complete discretion over the gold value—and consequently the foreign exchange value—of the dollar, and could establish bimetallism by proclamation, in other words, he could completely refashion the monetary system of the country, and the sole criteria required were his own subjective evaluations of the situation.

Organizational changes to the Federal Reserve System may have also contributed to the Fed’s willingness to accept the administration’s desired monetary policy. The authors of the Federal Reserve Act agreed that the Federal Reserve System should not be a “central bank” on the European model, but a federal system of semi-autonomous Reserve Banks with an overseeing board. Dissatisfaction with the subsequent performance of the Federal Reserve, both during the 1920s and during the 1929–1933 period, led to reforms that enhanced the authority of the Federal Reserve Board at the expense of the Reserve Banks. Marriner Eccles accepted the chairmanship of the Federal Reserve

Board in 1933 with the understanding that he would have freedom to redesign the Federal Reserve System. His reforms included limits on the power of the Federal Reserve Bank of New York, which he viewed as an instrument of the private interests of New York bankers, and measures to ensure oversight and coordination of the activities of the regional Reserve Banks in pursuit of the national interest (Eccles 1966, pp. 170–172).

Under Eccles' plan, which was largely adopted by the Banking Act of 1935, the Board of Governors was given substantial control over open-market operations and Federal Reserve Bank discount rates. The Federal Open Market Committee (FOMC) was reconstituted to include all 7 members of the Board of Governors and just 5 of the 12 Reserve Bank presidents.¹⁰ The legislation thereby increased the authority and stature of the Federal Reserve officials located in Washington and appointed by the President. On the other hand, it also sought to limit the influence of the President by removing the Secretary of the Treasury and Comptroller of the Currency as *ex officio* FOMC members. With his reforms, Eccles intended that monetary policymaking would be by professionals whose allegiance was solely to the national interest. These changes, however, increased political pressures on the Fed at the same time that establishment of the Exchange Stabilization Fund and other measures increased the administration's power to conduct monetary policy. Consequently, these reforms shifted power away from the Fed toward the Treasury and promoted an inflation bias in monetary policy.

THE POSTWAR MONETARY REGIME

From 1933 to 1951, the Federal Reserve System was largely subordinate to the Treasury in the conduct of monetary policy. The Fed increased reserve requirements in 1936 and 1937 to absorb some of the large volume of excess reserves that member banks had built up. A subsequent increase in government security yields angered Treasury officials, however, and the Fed was forced to make open-market purchases and eventually reverse some of the change in reserve requirements.

During World War II, the Fed agreed to prevent government security yields from rising above predetermined levels. The Fed remained an instrument of debt management until 1951, when rising inflation caused Fed officials to argue for an independent monetary policy. Negotiations between the Fed and Treasury produced the Accord of March 1951, in which the Treasury agreed that the prices of government securities should be permitted to find their market levels and the Fed agreed to be mindful of Treasury debt financing in carrying out its monetary policies. Tacitly, the Fed accepted stability of government securities prices as an objective of monetary policy. In particular, the Fed followed a policy known as “even keel,” in which it limited fluctuations in Treasury bill yields around Treasury issuing dates.

The Bretton Woods agreements of 1944 established the international monetary regime under which the Fed operated in the postwar era.¹¹ From the end of World War II through 1958, international trade and capital movements took place to the extent permitted by exchange and capital controls, with international payments settled by means of bilateral agreements among countries. Early on, European countries ran large current account deficits, and the world suffered from a “dollar shortage.” American economic strength and stability, along with the Marshall Plan and other cooperative efforts, caused the dollar to emerge as the key currency of the international payments system. As the 1950s progressed, Europe strengthened economically and several countries ran substantial current account surpluses. The main Western European currencies became convertible into dollars for current account transactions in 1959 (various capital controls remained). The United States, in turn, maintained convertibility of the dollar into gold at the fixed price of \$35 per ounce. Bretton Woods was thus a gold-exchange standard, as its inter-war predecessor had been. However, the mechanism of dollar convertibility under Bretton Woods was fundamentally different from the mechanism of the pre-Great Depression gold standard, and the new mechanism explains how the United States could conduct an inflationary monetary policy while maintaining a fixed exchange rate between the dollar and gold.

Unlike the gold standard as it existed before 1933, under the Bretton Woods System, the balance of payments could exert monetary discipline only to the extent permitted by central banks themselves. This mechanism reflected a fundamental shift in ideology, from one that

saw maintaining gold convertibility as paramount for long-run prosperity, to an ideology that viewed fixed exchange rates and gold convertibility as desirable, but not so important as to sacrifice short-run economic stability in defense of the international system. Discretionary monetary policy—"managed money"—was permitted under Bretton Woods to a degree never before achieved under a gold standard.¹²

Under Bretton Woods, American balance of payments deficits (surpluses) would be reflected in rising (falling) foreign central bank holdings of U.S. dollars unless foreign central banks and the United States exchanged dollars for gold. Although foreign central banks could enforce monetary discipline on the United States, in practice they refrained from doing so until 1965, when the French began large-scale conversions of dollars into gold in the face of large and persisting American payments deficits. Throughout the 1960s, dollars held outside of the United States increased rapidly, while American gold reserves dwindled (Figure 1).¹³ The United States' commitment to gold convertibility thus became less and less credible. Numerous remedies other than a substantial tightening of monetary policy were attempted to improve the U.S. payments deficit. But, without addressing the fundamental problem, the Bretton Woods System was destined to collapse, which it did when President Nixon closed the gold window on August 15, 1971.¹⁴

AMERICAN INFLATION

The Bretton Woods System collapsed because the dollar shortage of the 1950s was replaced by a dollar glut in the 1960s. The Federal Reserve pursued a monetary policy that contained inflation throughout much of the decade following the Fed-Treasury Accord of March 1951. As illustrated in Figure 2, during the 1950s, the growth rate of M1 (which consists mainly of commercial bank demand deposits and currency held by the public) generally moved opposite to the rate of inflation (as measured here by the Consumer Price Index).¹⁵ Inflation control was not the sole objective of monetary policy during the 1950s, but it did generally coincide with the Fed's other objectives of limiting

Figure 1 Monetary Gold and Dollar Holdings, United States and the Rest of the World, 1945–1971

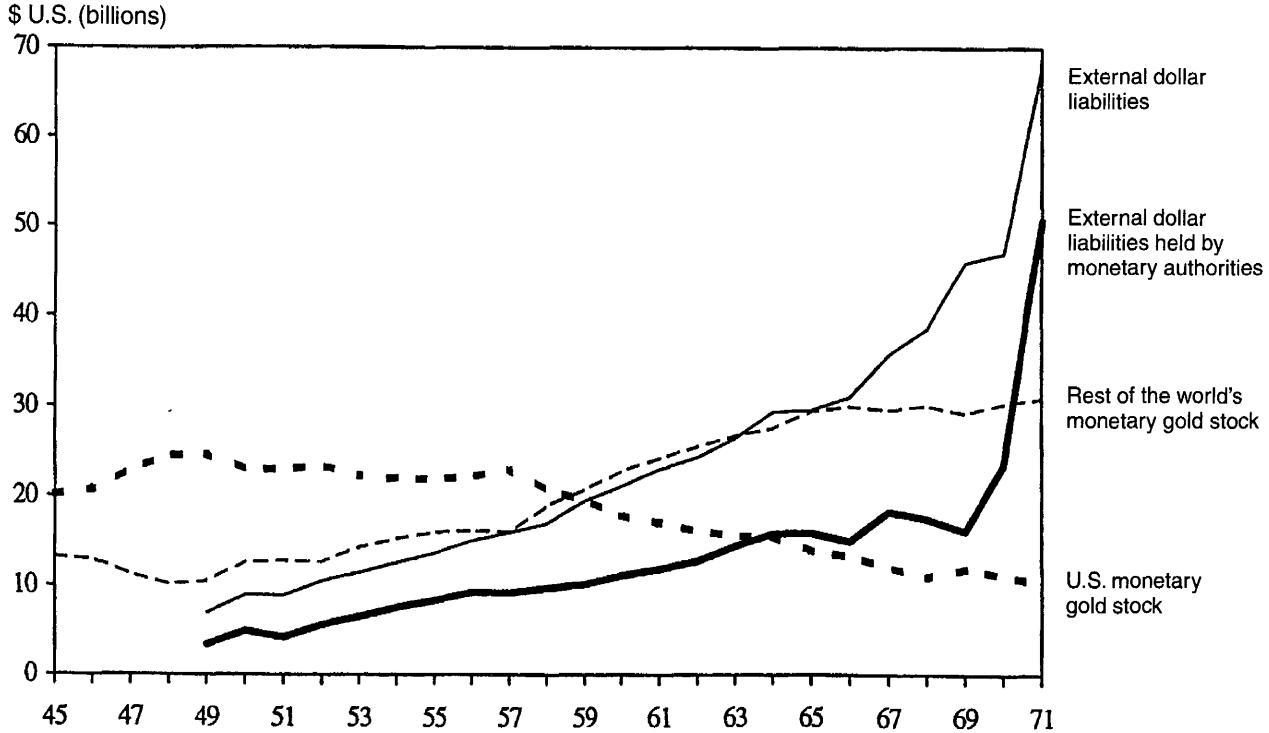
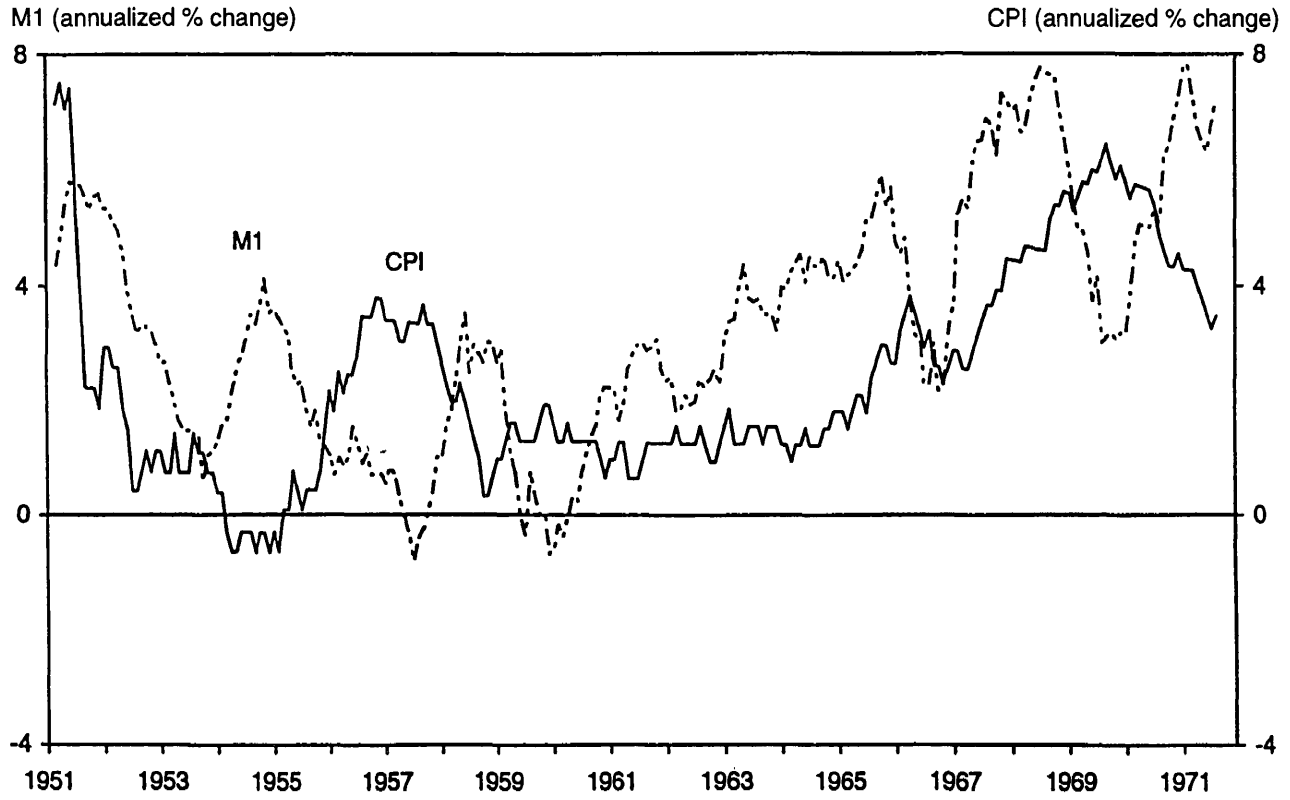


Figure 2 Money Supply Growth and Inflation



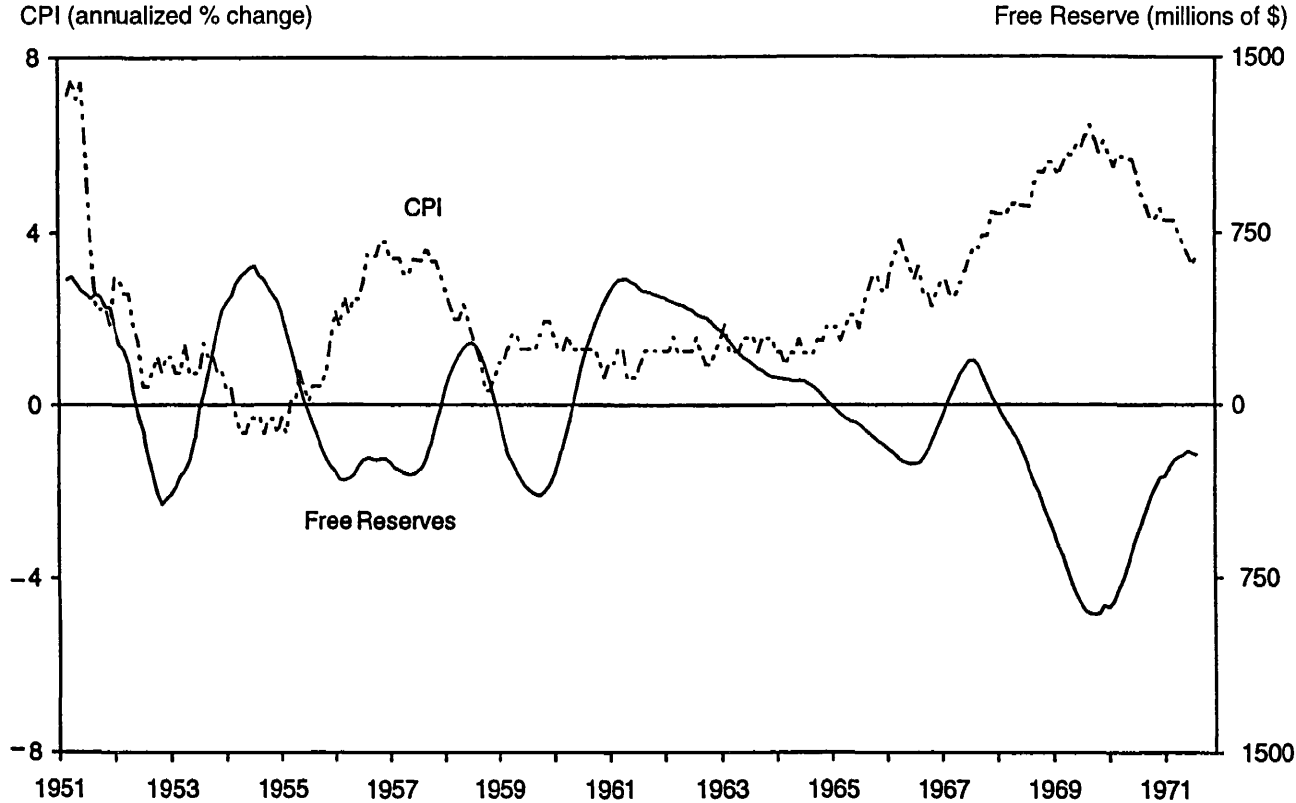
fluctuations in national output and employment and preserving the stability of the government securities market.

The money supply growth rate began to accelerate in the early 1960s and, by the mid 1960s, inflation had also begun to rise (Figure 2). The desires of Fed officials to promote full employment and to stabilize the yields on government securities explain the initial acceleration of money growth. Fed officials remained committed to controlling inflation, however, and the accelerating inflation rate of the 1960s did not reflect a substantial change in the taste for inflation among Fed officials. Rather, the Fed stumbled into an inflationary policy as much because of flaws in its operating strategy as because of a desire to pursue objectives other than inflation control.

The operating framework of Federal Reserve policy in the 1950s and 1960s was much like that which Benjamin Strong had described in the 1920s. That strategy was flawed because it permitted destabilizing fluctuations in the supply of money. I believe this helps explain why Fed officials were able to convince themselves that their policies were promoting recovery from the Depression when in fact they were permitting a contractionary decline in the money stock (Wheelock 1991). Similarly, the Fed's use of this operating strategy in the 1960s explains how Fed officials could argue that policy was "leaning against the wind" of inflation despite accelerating money supply growth.

The Fed's policy strategy of the inter-war era, and its post-Accord reincarnation, focused on the levels of market interest rates and the net borrowed, or "free," reserves of commercial banks. Fed officials engaged in open-market operations to alter the level of free reserves, which equals the difference between reserves that banks hold in excess of legal requirements and reserves borrowed from the Fed's discount window. Through free reserves, the Fed sought to manipulate money market interest rates (Treasury bill yields in the early 1960s, the federal funds rate later on). Open-market purchases (sales) tend to add to (subtract from) the stock of free reserves, and an increase (decrease) in free reserves was viewed as an easing (tightening) of policy. In Figure 3, the level of free reserves is plotted alongside the rate of inflation for the period from the Accord (March 1951) through December 1971. The Fed tended to reduce free reserves to combat increases in inflation and increase free reserves when inflation was declining. Thus, Fed officials sought to contract the level of free reserves in response to the

Figure 3 Inflation and Free Reserves



generally rising rate of inflation of the 1960s. Because market interest rates tended to rise, Fed officials were further convinced that policy was tight.

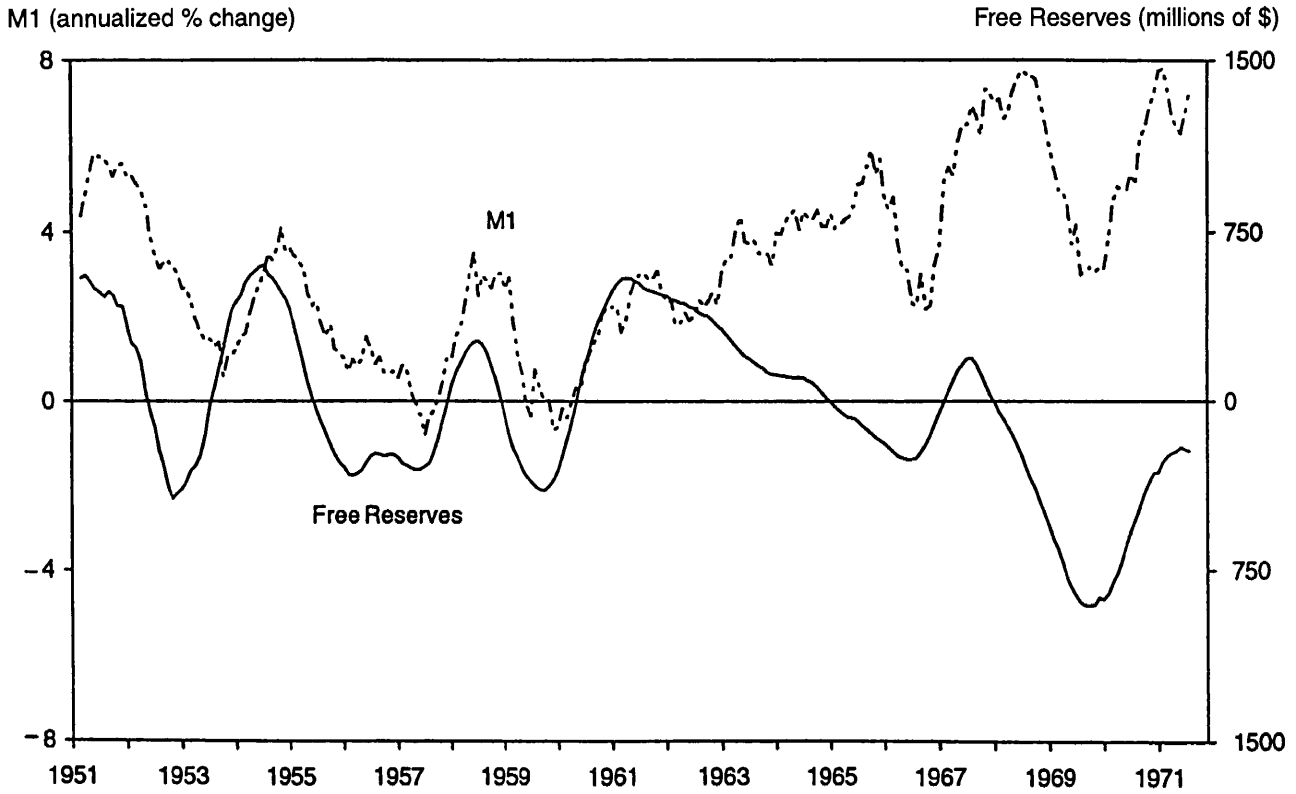
Many economists, especially monetarists, criticized the Fed's policy strategy because of its tendency to exacerbate swings in money supply growth.¹⁶ As illustrated in Figure 4, money supply growth accelerated throughout much of the 1960s, even as Fed officials ratcheted down the level of free reserves. The evidence therefore does *not* indicate that Fed officials lacked concern for inflation or failed to attempt to check the rising price level. Nevertheless, the Fed's policy permitted the money supply to rise at an inflationary rate.

The Federal Reserve was not powerless to halt the rising inflation, and Fed officials understood that inflation was contributing to the American balance of payments deficit and threatening the gold standard. Still, under the Bretton Woods System, U.S. policymakers did not have to make price stability the sole, or even primary, objective of monetary policy as long as other countries were willing to hold the growing supply of dollars available on world markets. Foreign central banks did forbear for a time, particularly since the dollar was the key currency of the international payments system. This gave the United States breathing room—not, as it turned out, to correct its balance of payments deficit, but to pursue other policy goals while inflation worsened and the collapse of Bretton Woods became inevitable.

THE MONETARY POLICY LEGACY OF THE GREAT DEPRESSION

The Federal Reserve stumbled into an inflationary monetary policy in the early 1960s because, absent discipline exerted by balance of payments deficits, policymakers were able to pursue other objectives, namely employment growth and low interest rates on government debt. With its focus on free reserves and interest rates, the Fed's operating framework tended to cause money supply growth to accelerate at an inflationary pace as economic activity expanded. Because the Fed had used much the same operating framework before the Depression, this

Figure 4 Money Supply Growth and Free Reserves



cause of inflationary policy during the 1960s was not a result of the Depression having occurred.

Keynesian Macroeconomics and Monetary Policymaking

Much of the “inflationary bias” in monetary policy during the 1960s can, however, be attributed to changed institutions and economic policy ideology caused by the Great Depression. Keynesian macroeconomics and its influence on economic policymaking was an important ideological product of the Great Depression. The influence of Keynesian economic ideas on policymaking during the 1960s has received considerable attention (e.g., DeLong 1995), with Lucas (1980, p. 704) writing that one of the “main features of the Keynesian Revolution and the neoclassical synthesis into which it evolved in the United States . . . [was] the onset of the Great Depression and the consequent shift of attention from explaining a recurrent pattern of ups and downs to explaining an economy apparently stuck in an interminable down.”

Keynesian-oriented policymakers believed that monetary and fiscal policy could reliably increase aggregate demand and employment along a stable Phillips curve. Central to discussions of monetary policy among Federal Reserve officials was the perceived trade-off of unemployment and inflation. As Federal Reserve Governor Sherman Maisel explained it, “There is a trade-off between idle men and a more stable value for the dollar. A conscious decision must be made as to how much unemployment and loss of output must be made in order to get smaller price rises” (Maisel 1973, p. 14). Maisel added that “at least some of the Committee’s differences on policy reflected differences in basic value judgments regarding the relative importance of various conflicting goals—for example, regarding the appropriate trade-off between employment and price stability” (FOMC *Minutes*, October 20, 1970, p. 41).¹⁷

Maisel’s views were widely shared among his colleagues, including Arthur Burns, who became Chairman of the Federal Reserve Board of Governors in 1970. Burns consistently was among those favoring an easy monetary policy in 1970 and 1971 and often cited the consequences of monetary policy for employment. At an FOMC meeting on March 9, 1971, for example, Maisel read a *New York Times* editorial to the effect that “anyone who was a party to the use of unemployment to

combat inflation had a moral duty to lead the way, either by relinquishing his job or by contributing his income to the support of the involuntarily unemployed.” Burns replied that “he wanted to endorse Mr. Maisel’s . . . comments,” that the ongoing economic recovery was “fragile” and that “rising [interest] rates could prove fatal to the prospects for recovery” (FOMC *Minutes*, March 9, 1971, pp. 44–49).¹⁸

To avoid confronting the inflation-unemployment trade-off, Burns, like many of his Fed colleagues, advocated wage and price controls so that monetary policy could focus on fighting unemployment. Moreover, Burns frequently argued that inflation associated with increases in wages and other production costs, as opposed to excessive monetary growth, should not be fought with tight monetary policy. At an FOMC meeting on June 8, 1971, for example, he argued that “Monetary policy could do very little to arrest an inflation that rested so heavily on wage-cost pressures . . . A much higher rate of unemployment produced by monetary policy would not moderate such pressures appreciably . . . He intended to continue to press [the administration] hard for an effective incomes policy” (FOMC *Minutes*, June 8, 1971, p. 51). Burns and other Fed officials frequently argued that monetary policy could not effectively control inflation, but that fiscal policy and wage and price controls could better accomplish the task. Monetary policy, on the other hand, should prevent interest rates from rising and choking off economic growth. In arguing against a policy tightening in April 1971, Burns contended that any increase in long-term interest rates would slow the economy “and the nation might then enter on a long period of economic stagnation. The Federal Reserve could not permit that development” (FOMC *Minutes*, April 6, 1971, p. 56).

During the 1960s and 1970s, Fed officials believed that policy actions to push down interest rates could promote output and employment growth. Such action would not necessarily cause inflation, they argued, and if it did, inflation was an acceptable cost of high employment. Moreover, wage and price controls could limit inflation. It is my view that Federal Reserve policymakers were no less concerned about the unemployed and the prospects for economic growth during the Great Depression. Their views about how monetary policy could be used to foster growth, however, were almost diametrically opposed to those of Fed officials in the 1960s and early 1970s.

During the Depression, a common view among Fed officials was that pumping liquidity into the economy would only prolong the Depression by delaying the adjustments to wages and prices that they saw as necessary for a recovery to begin. One example of this point of view is evident in the comments of William McChesney Martin, Governor of the Federal Reserve Bank of St. Louis during the Depression and father of William McChesney Martin, Jr., the Federal Reserve Board's Chairman from 1951 to 1970. In early 1930, Martin argued,

I cannot see how the situation can be benefited by putting fifty millions of dollars, or, in fact, any other amount, into the general market at this time . . . The reason that more money is not being used is because it is not needed, and when there is already sufficient money to meet the expressed needs, it seems to me unwise artificially to add to the amount already sufficient . . . because based on a redundancy of money rather than on actual needs may be hazardous. (quoted by Chandler 1971, p. 142)

A similar view was expressed by George Norris, Governor of the Federal Reserve Bank of Philadelphia:

We believe that the correction must come about through reduced production, reduced inventories, the gradual reduction of consumer credit, the liquidation of security loans, and the accumulation of savings through the exercise of thrift . . . We have been putting out credit in a period of depression, when it was not wanted and could not be used. (quoted by Chandler 1971, p. 137)

The Governor of the Federal Reserve Bank of San Francisco, John Calkins, also argued against trying to stimulate the economy by lowering interest rates: "With credit cheap and redundant we do not believe that business recovery will be accelerated by making credit cheaper and more redundant" (quoted by Friedman and Schwartz 1963, p. 372).

The views of Martin, Norris, and Calkins were not atypical among Federal Reserve officials during the 1930s. Nor was it unusual for government officials outside of the Federal Reserve to hold similar views. Secretary of the Treasury Andrew Mellon, for example, believed that the best medicine for the Depression was to "liquidate labor, liquidate stocks, liquidate the farmers, liquidate real estate . . . purge the rotten-

ness out of the system” (quoted by Eichengreen 1992, p. 251). Such a prescription could hardly be called “Keynesian.”

Political Pressures on the Fed

The macroeconomic model used by Federal Reserve officials during the 1960s and 1970s was quite different from that used in the early 1930s. So too was the extent to which the Federal Reserve was pressured by other government officials.

Although the Federal Reserve has never been a truly “independent” central bank, certain institutional changes occurring as a result of the Great Depression subjected the Fed to greater political pressure, while at the same time increasing the opportunity for the Fed to monetize fiscal deficits. Together these changes added an inflation bias to monetary policy.

The Glass-Steagall Act of 1932, as noted previously, permitted U.S. Government securities to serve as partial backing for Federal Reserve monetary liabilities. Thus monetization of fiscal deficits could occur even if the Fed held no excess gold or commercial paper reserves. In the 1930s, special authorities given by Congress to the President to fix the value of the dollar in terms of gold, to monetize silver, to buy and sell foreign exchange, and even to order the Federal Reserve to make open-market purchases, all weakened the Fed’s ability to conduct an independent monetary policy. In addition, changes to the structure of the Federal Reserve System itself increased the concentration of power within the Fed in the hands of government appointees located in Washington.

Although the Fed-Treasury Accord of 1951 returned a measure of independence to the Fed, the level and stability of government security yields remained a key focus of monetary policy. Part of the explanation for this focus may rest with the Korean and Vietnam Wars. The Fed had ensured plentiful and inexpensive funding for the Treasury during the two world wars, and the Fed may have sought to limit increases in government security yields during the Korean and Vietnam episodes out of a sense of patriotic duty.¹⁹ A by-product of such a policy, of course, was a faster rate of increase in the supply of money.

New Deal changes to the Fed’s internal structure may have also contributed toward its policy of limiting increases in interest rates. By

reducing the role of Federal Reserve Bank presidents in favor of the Board of Governors, the Banking Act of 1935 subjected the Fed to greater political influence by concentrating power in the hands of Washington-based officials who are presidential appointees. Political influence on monetary policy has been the subject of extensive study (e.g., Woolley 1984; Havrilesky 1993), and a general conclusion seems to be that the short, finite horizon of political election cycles gives politicians an incentive to favor more expansionary monetary policies than does the public as a whole. To the extent that politicians are able to get the monetary policy they desire, the result is a higher long-run rate of inflation than would otherwise occur. Thus, countries with less independent central banks tend to have higher inflation rates than countries with relatively independent central banks.

An infamous example of Federal Reserve acquiescence to political pressure came in 1972, when at the request of the administration Arthur Burns was alleged to have increased the money supply growth rate to promote President Nixon's reelection (see Wells 1994 for discussion). Whether or not such overt pressure was exerted, it is clear that under both Burns and Martin political considerations influenced the setting of monetary policy. With the possible exception of Nixon's reelection, such pressure was not overtly connected to elections, but rather to consideration of the administration's or Congress' policy preferences. To the extent such considerations influenced policy outcomes, they would almost always have done so on the side of promoting inflation.²⁰

Monetary Policy and the Balance of Payments

The Fed's operating strategy, desire to promote high employment, and pressures on the Fed to keep interest rates low all gave monetary policy a bias toward inflation. By themselves, however, they could not have resulted in a sustained inflation without an accommodating international monetary regime. Under the classical gold standard, for example, an inflationary monetary policy could not have been sustained. But, under Bretton Woods, sustained inflation was possible as long as foreign central banks were willing to hold the dollars they accumulated as a result of the American payments deficit, rather than demand payment in gold for those dollars.

Although the Bretton Woods System provided some insulation for discretionary monetary policy, Federal Reserve officials understood that the United States could not run a balance of payments deficit indefinitely. But, Fed officials were also wary of combating a balance of payments deficit with policies that might interfere with other goals. On one occasion, President Alfred Hayes of the Federal Reserve Bank of New York, argued that “I would think it unwise to let the gold outflow itself affect our monetary policy directly, i.e., in the way of using a tightening move directed specifically toward stemming the flow and unrelated to domestic economic developments” (FOMC *Minutes*, November 10, 1958, pp. 14–15). Another time, a Reserve Bank president expressed concern about the balance of payments deficit but was reluctant to advocate a tighter policy for fear of disrupting the market for government securities: “Generally, he felt that the course of monetary policy should be moving toward a more restrictive posture. At the same time, he was quite concerned about the rate picture in the government securities market and the problems facing the Treasury in the future” (FOMC *Minutes*, May 5, 1959, p. 34). This reluctance to face squarely gold outflows and a balance of payments deficit stands in marked contrast to the Fed’s reaction to gold outflows in 1931. At that time, Fed officials agreed that maintaining convertibility of the dollar into gold at a constant price was fundamental to long-run economic stability, and they were willing to tighten monetary policy in the middle of a depression to preserve the international monetary regime. By contrast, in the 1950s and 1960s, Fed officials viewed the balance of payments with concern but were hesitant to make it the sole, or even the primary, focus of policy. This change in philosophy, attaching less importance to the gold standard rule and more to discretionary policy, was an important legacy of the Great Depression.

Although Fed officials were unwilling to tighten sufficiently to arrest the balance of payments deficit, they did see the deficit as influencing their ability to promote domestic economic activity. Chairman Martin, for example, argued that “If the Federal Reserve got the reputation of following a cheap money policy just for the sake of doing so, people abroad would be encouraged to think the System was not concerned with the balance of payments or the soundness of the dollar” (FOMC *Minutes*, December 13, 1960, p. 40). Martin also argued that “The balance of payments problem . . . was a vital factor in the unem-

ployment situation. Foreign capital was finding the United States less and less attractive, there were pressures for movement of capital abroad, and this was having a deleterious effect on employment in this country” (FOMC *Minutes*, March 6, 1962, p. 56).

Fed officials also understood that the balance of payments deficit stemmed from differences in the macroeconomic policies of different countries. At an FOMC meeting in 1959, a Fed staff member reported that “the net result of attempts in this country to validate our wage and price policies through monetary expansion could succeed only if we could inflate the whole world.” The staff member went on to argue that expansionary monetary and fiscal policy could “price United States’ goods out of world markets” because officials of other countries, notably Germany and the Netherlands, surely would not permit inflation in their domestic prices (FOMC *Minutes*, May 5, 1959, p. 14). The same official, however, was unwilling to blame monetary policy alone for the balance of payments deficit. In arguing that gold outflows “call for a generally restrictive credit policy . . . more effective corrections . . . would be moves to reduce the budgetary deficit and the checking of price rises due to wage and other cost increases” (FOMC *Minutes*, October 21, 1958).

The Fed’s unwillingness to tighten sufficiently to stem the balance of payments deficit led it to consider other actions it might take. One of the earliest of the policies intended to restore external balance was “Operation Twist”—an attempt to raise short-term interest rates high enough to attract foreign capital while keeping long-term interest rates low enough to favor domestic expansion.

Other policies intended to correct international payments imbalances without slowing domestic activity included agreements with foreign central banks to forbear from demanding gold, intervention in foreign exchange markets, the issuance of foreign-currency-denominated U.S. bonds (“Roosa bonds”), requests of early repayment by foreign governments of debts to the U.S. government, the removal of interest rate ceilings on U.S. bank time deposits, capital outflow constraints imposed in the United States, and changes in U.S. tax treatment of foreign earnings. Balance of payments deficits continued, however, and the long-term feasibility of the existing dollar gold-exchange standard grew increasingly doubtful.

THE COLLAPSE OF BRETTON WOODS

When Arthur Burns took over as chairman of the Fed's Board of Governors in early 1970, the U.S. economy was sliding toward a recession, the inflation rate stood at 6.5 percent (first-quarter average annualized rate of CPI inflation), and the U.S. balance of payments had been in deficit nearly every year since the late 1950s. At his first meeting, Burns announced that "in his judgment, economic developments had reached a point at which a rethinking of monetary policy was in order" (FOMC *Minutes*, February 10, 1970, p. 3). It quickly became apparent that Burns would make avoidance of a recession his first priority. Against three dissents, the Federal Open Market Committee voted to ease monetary policy at that meeting. One of the dissenting votes came from Andrew Brimmer, who expressed the hope that "the Committee would not lose sight of the highly unfavorable outlook for the balance of payments and would give the payments balance somewhat greater than customary weight in formulating policy over the near term" (FOMC *Minutes*, February 10, 1970, p. 59).

Federal Open Market Committee meetings usually begin with analysis of economic conditions by Fed staff members, and during 1970 and 1971, the staff frequently expressed pessimism about the balance of payments deficit. Following the staff reports, there usually was a report from a Fed governor, often Dewey Daane, who attended a regular meeting of central bank officials in Europe. The U.S. payments deficit was a principal topic at those meetings, with the Europeans frequently questioning American resolve to control inflation (see, e.g., FOMC *Minutes*, June 23, 1970). The balance of payments seems to have had limited impact on FOMC deliberations, however, because after hearing the summary of the European meeting, the Committee would review domestic economic conditions and discuss the policy directive, usually with little or no reference to the balance of payments.

At the FOMC meeting of October 20, 1970, the Fed staff gave a particularly lengthy and pessimistic report on the balance of payment. Following the report, Burns "said he could add one word of reassurance. Work on the balance of payments problem was going forward actively, and he was confident that adequate measures for grappling with the problem could be devised" (FOMC *Minutes*, October 20,

1970, p. 21). From this comment, it is clear that Burns viewed the balance of payments deficit as a problem that could be controlled effectively without monetary policy action. Moreover, the comment reflects the fact that the Treasury, especially Undersecretary Paul Volcker, was taking the lead in devising America's international economic policy.

Despite the seeming lack of influence of the balance of payments deficit on Federal Reserve policy, some of the Fed's staff, as well as the occasional governor, warned about the worsening payments deficit. At an FOMC meeting on June 23, 1970, the first vice president of the New York Fed argued that "a convincing and sustained attack on domestic inflation remains essential for improving our balance of payments and strengthening confidence in the dollar" (FOMC *Minutes*, June 23, 1970, p. 57). On another occasion, Alfred Hayes, president of the New York Fed noted that "a stiff price is being paid for the easing of money market conditions in the United States . . . International conditions underline the need for giving high priority to the inflation problem" (FOMC *Minutes*, September 15, 1970, pp. 43–44). But, Governor Maisel replied that

It would be improper to assume that balance of payments considerations should be a constraint on [policy]. If the balance of payments remained unsatisfactory with demand still far below normal, that would appear to be an indication of basic structural problems in the balance of payments sphere. The Committee should be working to correct those structural imbalances rather than assuming a posture which traded off losses of income, output, and jobs in an attempt to offset basic structural defects in the balance of payments sphere. (FOMC *Minutes*, September 15, 1970, p. 46)

Arthur Burns added that "he believed that balance of payments considerations should not prevent the Committee from taking the policy actions it felt required by the domestic economy" (FOMC *Minutes*, September 15, 1970, p. 65). Later in the same meeting Burns advocated "special measures," presumably capital controls or similar measures, to deal with the balance of payments deficit (FOMC *Minutes*, September 15, 1970, p. 81). Burns reiterated this view on February 9, 1971: "Chairman Burns commented that while the System was faced with international as well as domestic problems, the latter were the

more pressing. Moreover, special tools were available for dealing with the former” (FOMC *Minutes*, February 9, 1971, p. 92).

The balance of payments deficit grew increasingly worse in early 1971, and the Fed staff warnings became stronger. At the March FOMC meeting, a Fed staff member warned that “Sooner or later—and he suspected that it would be sooner—the central bank complaints now being voiced privately [about their build-up of dollar balances] would become known to the market, which might then decide to protect itself against the risk of a sudden break in the structure of exchange parities” (FOMC *Minutes*, March 9, 1971, p. 22). Another staff member reported that

1) the balance of payments deficit in the first two months of this year was enormous; [and] 2) the monetary aggregates have been growing very rapidly. What connects these two sets of facts is the very steep decline in short-term interest rates. It is not surprising, therefore, that the short-term capital outflow has been extremely large . . . Considerable reluctance has been built up abroad, especially among financial officials in Europe, over what they regard as an undermining of their own monetary policies resulting from the massive short-term capital outflows from the United States and from the steep decline in short-term rates. The impression exists that . . . the United States has completely ignored the effects its policies are having on the rest of the world. (FOMC *Minutes*, March 9, 1970, pp. 28–29)

As the year 1971 progressed, the international payments crisis worsened. At the FOMC meeting of May 11, New York Fed president Hayes remarked that “We are . . . in the midst of an international monetary crisis . . . A vote of no confidence in the dollar has been taken by several central banks” (FOMC *Minutes*, May 11, 1971, p. 53). Hayes also reported that the directors of the Federal Reserve Bank of New York had voted to increase the Bank’s discount rate by one-half point, the same step taken in response to a flight from the dollar in October 1931:

The directors felt in this major international crisis there was nothing the System could do that would be more useful and more timely than to give an overt signal of our concern and our willingness to move quickly toward narrowing the interest rate

spread which was a major cause of the difficulty . . . While recognizing the risks involved in a general increase in domestic interest rates, they felt that those risks were outweighed by international conditions. (FOMC *Minutes*, May 11, 1971, pp. 55–56)

The Board of Governors turned down the New York Bank's request for a discount rate increase, citing weakness in the domestic economy, the adverse effects of higher interest rates on the mortgage market and the market for state and local government debt, and the likely instability that a discount rate hike would cause in all financial markets. At the prior FOMC meeting, Burns seems to have predicted the New York Bank's request for a discount rate increase when he relayed that "he had a vivid recollection of developments in 1931, when the Federal Reserve had raised its discount rate and acted to stiffen short-term rates because of a balance of payments problem, and an incipient [domestic economic] recovery had been cut off" (FOMC *Minutes*, April 6, 1971, p. 56). For Burns, the lesson of 1931 was to put the domestic economy first, ahead of the balance of payments and preservation of the gold standard.

CONCLUSION

The failures of economic policy, especially monetary policy, during the Great Depression produced several significant institutional and ideological changes in the monetary policy regime. Not surprisingly, because monetary policy was associated with deflation and contraction during the period 1929–1933, the new regime included features that gave policy an inflation bias. Those features included both a new avenue for monetizing government debt and increased political control of Federal Reserve policy. The Great Depression also put the new economics of Keynes, with its emphasis on government management of aggregate demand, into the professional and policy mainstream.

The most fundamental legacy of the Great Depression for monetary policy, however, concerned the international gold standard. Although governments interfered with the operation of the gold standard before 1933, and an unsettled question among economic histori-

ans is the extent to which a laissez-faire gold standard would have proved more stable, a key lesson taken from the Great Depression was that the international monetary system required active management of government officials. Faith that the gold standard would ensure prosperity was destroyed, as was any notion that a disaster worse than the Depression would result if the gold standard was abandoned. Beginning in 1933, and continuing at least to the 1970s, the dominant ideology was that a gold standard and fixed exchange rates are desirable but not worth sacrificing high employment to maintain. This change in attitude, and the institutional changes accompanying it, largely explains the inflationary monetary policy of the 1960s and early 1970s, as well as the decision to abandon gold and fixed exchange rates in 1971–1973.

Since the 1970s, the pendulum has swung away from inflationary monetary policy somewhat. The costs of high inflation and the seeming inability of aggregate demand policy to maintain full employment helped promote New Classical macroeconomics and caused a rethinking of the appropriate goals of monetary policy among government officials. Several countries now specify inflation targets for their central banks and have formally adopted price stability as the paramount objective for monetary policy. The institutional environment of monetary policy in the United States, however, has not changed since 1973, when fixed exchange rates were abandoned. The legacy of the Great Depression for monetary policy was in causing an institutional and ideological shift to a managed, discretionary monetary regime. The fundamentals of this regime remain in place today.

Notes

The views expressed in this article do not necessarily reflect official positions of the Federal Reserve Bank of St. Louis or the Federal Reserve System.

1. Calomiris and Wheelock (1997) examine institutional changes to U.S. monetary policymaking resulting from the Great Depression and argue that those affecting the gold standard were the most important. That paper focuses on Federal Reserve policy during 1933–1941 in particular and during the 1950s and 1960s generally. By contrast, this paper examines in much greater detail the policy record leading up to suspension of gold payments in 1971 and how it compares with Federal Reserve policy during the Great Depression.

2. Wheelock (1991) presents econometric estimates of the Federal Reserve “reaction function” for 1924–1929. Simulations of this function also illustrate that the Fed made fewer open-market purchases and cut its discount rate less during 1929–1931 than it would have done under the pre-1929 reaction function. But, as discussed below, this does not necessarily imply that the policy regime, i.e., the Fed’s objectives or strategy, had changed.
3. The use of open-market operations for objectives other than to secure earning assets evolved in the early 1920s, but their use to manipulate instruments or operating targets, such as borrowed reserves, evolved only gradually as the Fed gained experience. Well into the Depression, the directions to the Fed’s trading desk from the Open Market Committee specified the dollar amounts of securities the desk was authorized to buy or sell. By 1932, however, discussion at Open Market Committee meetings turned more toward the desired level of excess reserves and focused less on the specific dollar volume of securities to buy or sell. Later in the 1930s, the Committee targeted yields on Treasury securities, as well as excess reserves.
4. This refers to the discount rate of the Federal Reserve Bank of New York. By December, the discount rates of all 12 Reserve Banks were at 3.5 percent or higher. The Fed also augmented bank reserves by purchasing bankers acceptances from member banks. The Fed purchased all eligible acceptances offered by banks but, as with its discount rate, the Fed increased the interest rate at which it made these purchases.
5. Whereas Fed holdings of government securities could not serve as collateral, discount-window loans always produced collateral, including those secured by commercial bank holdings of government securities.
6. See Eichengreen (1992) or Temin (1989) for detail about the operation of the international gold standard and its role in the Great Depression.
7. This section draws heavily on Calomiris and Wheelock (1997), where additional detail can be found.
8. During World War I, the Fed lent reserves to banks against their holdings of U.S. government securities at a discount rate that guaranteed banks a profit on their security holdings. This also had the effect of monetizing government debt.
9. The Glass-Steagall Act of 1932 was originally set to expire after one year, but it was made permanent in 1933. It should not be confused with the Banking Act of 1933 which, among other things, established Federal deposit insurance, separated commercial and investment banking, and outlawed the payment of interest on demand deposits. The Banking Act of 1933 is also sometimes referred to as the Glass-Steagall Act.
10. The Banking Act of 1935 also changed the titles of the chief executive officers of the Federal Reserve Banks from the more prestigious “Governor” to “President,” while discontinuing the Federal Reserve Board in favor of the Board of Governors, whose members all held the title “Governor.” The Board of Governors was also authorized to approve the appointments of Federal Reserve Bank presidents and first vice presidents and to generally supervise Reserve Bank operations.

11. See Bordo (1993) or Solomon (1977) for a history of the Bretton Woods System, and Meltzer (1991) for more specific analysis of U.S. economic policy under Bretton Woods.
12. Redish (1993) argues that Bretton Woods represented just one of a series of steps away from a gold standard operated solely by private markets, with little or no government interference, to a fiat monetary regime. As noted above, under the inter-war gold-exchange standard, the Federal Reserve (and other central banks) sterilized gold flows and used open-market operations and discount rate policy to manipulate gold flows.
13. The data sources for Figure 1 are *The Role of Gold in the Domestic and International Monetary Systems: Report to the Congress of the Commission on the Role of Gold in the Domestic and International Monetary Systems*, Volume 1, Table SC-10, column 3 (U.S. monetary gold stock) and Table SC-8, columns 1 and 2 (world monetary gold stock), and *International Monetary Fund, International Financial Statistics Supplement*, 1972, pp. 2–3, rows 4 and 4a (U.S. external liabilities).
14. A system of fixed exchange rates was imposed by the Smithsonian Agreement in 1972, but this system collapsed in 1973, and the dollar has since floated. Since my interest here concerns the end of dollar convertibility into gold, I treat August 15, 1971, as the date at which the Bretton Woods regime ended.
15. All series in Figures 2 to 4 are smoothed using a centered 13-month moving average filter.
16. Meigs (1962) and Brunner and Meltzer (1964) were among the earliest critics of the Fed's free reserves strategy.
17. The *Minutes of the Federal Open Market Committee* are not verbatim transcriptions of FOMC meetings. They do appear to give a reasonably full account of the discussion, however, and attribute comments to individuals by name.
18. See Wells (1994) for analysis of Burns' views.
19. Evidence of this is given in Calomiris and Wheelock (1997).
20. Burns had a close relationship with Nixon and clearly understood the monetary policy desired by the administration. Two examples of the interjection of political considerations into monetary policy discussions occurred at a meeting of the FOMC in October 1970 and January 1971. On the first occasion, Burns suggested that committee members consider the "judgments of members of Congress, senior officials of the Administration, and others" when attempting to determine how high they were willing to let the unemployment rate rise in fighting inflation (FOMC *Minutes*, October 20, 1970, p. 41). Three meetings later, Burns told the committee that "the Administration's confidence in the System was weakening as a result of the shortfalls that had occurred in the rates of money growth . . . The credibility of the Federal Reserve would be greatly strengthened if it became apparent that the Committee was seeking to make up the . . . shortfall" (FOMC *Minutes*, January 12, 1971, p. 37). See Calomiris and Wheelock (1997) for examples of political pressure on the Fed when William Martin was Fed chairman.

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6 Understanding the Great Depression

Lessons for Current Policy

Stephen G. Cecchetti
Federal Reserve Bank of New York,
Ohio State University, and
National Bureau of Economic Research

Macroeconomists continue to search for an understanding of the Great Depression of the 1930s. The defining characteristic of this period is the wholesale collapse of virtually every aspect of the economy. Over the four years beginning in the summer of 1929, financial markets and institutions, labor markets, and international currency and goods markets all virtually ceased to function. Throughout this, the government policymaking apparatus seemed helpless. The complexity and magnitude of the economic catastrophe during this period make it extremely difficult to fashion a comprehensive explanation.

Over the nearly 65 years since the cyclical trough in March 1933, researchers have churned out volumes of work analyzing the 43-month contraction. EconLit, the CD-ROM index compiled by the *Journal of Economic Literature*, lists over 400 articles on the Great Depression that have appeared since 1969 alone. Where has all of this work gotten us? What have we learned over the past quarter century that can help us as we go forward?

One of the things we know is that our economic institutions are very different today than they were in 1929. Many of the changes are surely the result of the Depression itself. A few of the more important things that clearly came out of this period are that the Federal Reserve System is more centralized, we have deposit insurance and stronger bank regulation, commercial and investment banking are separated (at least for now), we have a pure paper money standard, and we have unemployment insurance and social security.

Have these changes worked in helping us to avert the onset of another Great Depression? Clearly, the past 50 years have been characterized by a substantially more stable economic environment. Since 1945, the longest recession, from November 1973 to March 1975, lasted a mere 16 months—just over one-third the length of the Great Depression. The largest sustained drop in output has been a 2.1 percent change in the early 1980s, compared with the decline of nearly 30 percent in the early 1930s. While consumer prices fell 28 percent from August 1929 to April 1933, in no year since 1949 has the Consumer Price Index shown a decline. In December of 1982, the civilian unemployment rate hit its post-World War II peak of 10.8 percent, while the estimate of the 1933 peak exceeds 25 percent!

Financial markets and institutions have fared equally well in the stable environment of the post-World War II economy. From its peak in mid September of 1929 to its trough in late June 1932, a broad index of large company stocks (equivalent to the Standard & Poor's 500) fell by 86 percent. By comparison, the largest sustained drop in the past 50 years is the decline of 52 percent from mid January 1973 to early October 1974.

The total collapse of the financial intermediation system was evidenced by the fact that from the beginning of 1930 to the bank holiday of 1933, there were an astounding 9,096 commercial bank suspensions! The number of suspensions in 1930 alone—1,350—was more than double the 659 in 1929. By contrast, in the 60 years since 1934 there has been a *total* of just over 2,000 bank closings.

International goods markets broke down as well. From 1929 to 1932, exports fell from 6.8 percent to 4.5 percent of gross output. In the 50 years since the end of World War II, exports of goods and services have grown from 3.5 percent of gross national product to nearly 12 percent.

International financial markets suffered as well during the Great Depression, with the gradual breakdown of the fixed exchange rate system administered through the gold-exchange standard. Slowly, over the decade of the 1930s, all of the countries that followed the reconstructed, post-World War I gold standard left it. The desire to have a fixed exchange rate system has obviously been very strong, as this was followed by the Bretton Woods System and then the European Monetary System.

Analyzing all of these events in any detail is clearly too big a task to undertake in one short essay. Instead, my goal is to point out what I think are the highlights. My presentation is split into four basic sections. Each begins with what I believe to be one of the major fallacies contained in the literature on the Great Depression. My purpose is to examine each of these fallacies to see what lessons we can learn. I come away with three important lessons that have become my own personal guide to policy analysis.

The four fallacies are as follows:

1. The Great Depression was caused by the stock market crash of 1929.
2. The banking system of the 1920s was fundamentally unsound.
3. The fact that nominal interest rates were approaching zero meant that Federal Reserve policy was loose and ineffective.
4. Tariff wars were primarily responsible for the spread and depth of the Depression.

I will argue that from analysis of these fallacies come the following lessons for current policy:

1. The central bank's function as the lender of last resort is of primary importance in the short-term stabilization of the financial system.
2. Deflation is extremely costly.
3. A gold standard is very dangerous.

Finally, I will comment on remaining mysteries. There are two important aspects of the Depression that we still do not fully understand. First, why was it so long? Second, what is the comprehensive explanation for the entire inter-war period?

THE STOCK MARKET CRASH OF 1929

The crash of October 1929 has played a large role in the lore of the Great Depression. Over time, however, a number of issues have

become clear, and we now understand the likely causes of the crash, as well as its likely consequences.

Let me begin with myths about the causes. In Cecchetti (1992b), I argue that there is little evidence for the three most commonly accepted reasons that asset prices fell so precipitously: 1) the bursting of a speculative bubble; 2) massive fraud and illegal activity; and 3) margin buying. Regarding the first, I note that, as Dominguez, Fair, and Shapiro (1988) demonstrate, contemporary data did not reveal any trends that suggested the drastic downturn that followed. Furthermore, it is easy to find statements from contemporary analysts supporting the position that the market would rise and statements supporting the opposite position that the market would fall. In other words, economic fundamentals were also sound in late 1929.

There are numerous anecdotes that leave one feeling that fraud and illegal activity are an important explanation.¹ But Bierman (1991) has carefully examined the evidence and shows that there was probably very little actual insider trading or illegal manipulation. Instead, a number of lucky and unlucky investors were pilloried for perfectly legal actions.

The best evidence we have is that the crash was caused by Federal Reserve behavior, together with the public statements of numerous government officials. It has been amply documented, initially by Friedman and Schwartz (1963) and more recently by Hamilton (1987) and others, that Federal Reserve policy became substantially tighter in the fall of 1928, almost immediately following the death of Benjamin Strong, the President of the Federal Reserve Bank of New York. While he was alive, Strong controlled Federal Reserve policy, as the Federal Reserve Board was not as powerful as it is today. But when Strong died, Adolph Miller of the Federal Reserve Board was able to take control of policy. Miller believed that speculation was causing share prices to be too high and that this was damaging the economy. Together with Herbert Hoover, who had just been elected President, he set out to bring down stock market prices.

In its attempt to bring equity prices down, the Federal Reserve sought to keep banks from extending loans that would be used to buy stock. To this end, the February 1929 *Federal Reserve Bulletin* contained the following policy statement, taken from a February 2, 1929, letter sent to Federal Reserve banks.

During the last year or more, . . . the functioning of the Federal reserve system has encountered interference by reason of the excessive amount of the country's credit absorbed in speculative security loans. The credit situation since the opening of the new year indicates that some of the factors which occasioned untoward developments during the year 1928 are still at work. The volume of speculative credits is still growing . . .

The extraordinary absorption of funds in speculative security loans, which has characterized the credit movement during the past year or more, in the judgment of the Federal Reserve Board, deserves particular attention lest it become a decisive factor working toward a still further firming of money rates to the prejudice of the country's commercial interests . . .

The Federal Reserve Act does not, in the opinion of the Federal Reserve Board, contemplate the use of the resources of the Federal reserve banks for the creation or extension of speculative credit. A member bank is not within its reasonable claims for rediscount facilities at its Federal reserve bank when it borrows either for the purpose of making speculative loans or for the purpose of maintaining speculative loans.

The board has no disposition to assume authority to interfere with the loan practices of member banks so long as they do not involve the Federal reserve banks. It has, however, a grave responsibility whenever there is evidence that member banks are maintaining speculative security loans with the aid of Federal reserve credit. When such is the case the Federal reserve bank becomes either a contributing or a sustaining factor in the current volume of speculative security credit. This is not in harmony with the intent of the Federal Reserve Act, nor is it conducive to the wholesome operation of the banking and credit system of the country. (Board of Governors of the Federal Reserve System 1929, pp. 93–94)

(It is worth noting that the term “speculation” appears to have been common usage for share purchases that were made with borrowed money.)

I will simply note that this passage suggests the central bankers did not understand the difference between transactions that represent portfolio reallocations and those that use real resources. An example will help to make the point. Consider a case in which a person holding an

equity share wishes to sell it and purchase a bond. Another person wishes to purchase the share and incur debt (issue a bond). For simplicity, say that the seller is willing to accept the bond issued by the buyer in payment. Such a transaction is essentially a risk trade and results in a net increase in the gross quantity of debt outstanding with no change in the level of equity or anyone's net worth. The portfolios of the two people do change as one individual goes from holding equity to holding debt, and the other goes from having no assets and liabilities to having an equity asset and a bond liability.

The passage from the *Federal Reserve Bulletin* clearly shows that the Federal Reserve Board thought the increase in debt somehow used real resources and reduced the level of real investment. While confusion between real and financial investment is common in the popular press, we can rightly expect more from those people who are in charge of policymaking.

It is no surprise that following the Federal Reserve Board's pronouncement, the interest rate charged on broker loans rose dramatically. In fact, this action very nearly generated a crash on March 26, 1929. On that day, call money rates opened at 12 percent and rose to 20 percent by noon. Meanwhile, stock prices fell by nearly 10 percent. But action by both the Federal Reserve Bank of New York and the First National Bank to provide liquidity to the market in the form of broker loans stemmed the decline, and prices recovered almost entirely by the close of the day. Both Charles E. Mitchell, President of First National Bank, and George Harrison, President of the Federal Reserve Bank of New York, were later criticized for taking these actions. In many ways, these attempts at expansion of liquidity and the associated criticisms were a precursor of things to come.

Even after the near crash in March, Federal Reserve policy continued to stifle the market by restricting the ability of member banks to make broker loans. This policy of "direct action," whereby the Federal Reserve openly discouraged lending collateralized by stock, did have the effect of stemming the increase in broker loans that originated from banks. In fact, broker loans from New York banks fell between March and May of 1929.

A second important contributor to the crash was likely to have been the repeated statements by public officials that stock prices were too high. The main culprit here is President Herbert Hoover, whose

public comments supported Adolph Miller's attack on speculation. (See, for example, Hoover 1952, p. 172.)

We do not know why the market crashed exactly when it did. But it is clear that the actions of the Federal Reserve were very different in October than they were in March. After many months of warning, banks were not willing to extend broker loans to stem the decline, and the Federal Reserve had no desire to provide the liquidity that would have been necessary for the banks to do so. As a result, once the market became disorderly and prices began to plummet, matters simply became worse.

This story suggests that the Federal Reserve could have stopped the stock market from crashing. The reason it did not is that Adolph Miller and his colleagues believed that credit extended to brokers for loans to purchase securities was, in some sense, credit that was unavailable to the commercial sector, and so raised interest rates and harmed business activity generally. This position is very difficult to justify, particularly since Federal Reserve accommodation could have simply increased total credit outstanding in order to keep interest rates on commercial loans at a level that was considered desirable. Furthermore, there is evidence that Benjamin Strong understood in 1928 that the solution to high interest rates was looser policy, not artificial attempts to reduce broker loans.

The consequences of the crash are more difficult to ascertain. The explanations just cited follow Friedman and Schwartz in viewing the crash as a by-product of the tight Federal Reserve policy and in ignoring any direct effect of the crash on economic activity. But there are at least four ways in which the stock market decline could have influenced consumer spending and therefore output. First, the crash could have depressed consumer spending by leading people to believe that the Depression was coming. The work of Dominguez, Fair, and Shapiro (1988) suggests that this is unlikely. Second, the market crash reduced wealth, and this could have reduced consumer spending. But this is unlikely to have had a large effect, given that the stock market throughout 1929 remained above its level at the beginning of 1928. Third, Mishkin (1978) argues that the crash, together with recently accumulated consumer debt, served to make households illiquid. He then estimates that roughly two-thirds of the fall in spending can be accounted for by the deterioration of household balance sheets.

Finally, Romer (1990) argues that the stock market crash created immediate income uncertainty, resulting in a decline in the purchase of consumer durables, for which she provides substantial empirical support. Specifically, Romer shows that there was a dramatic decline in new automobile registrations and department store sales immediately in November 1929. Mail-order sales began to fall in January 1930. This evidence suggests that some of the blame for the contraction can be traced directly to the stock market crash of 1929 and substantiates certain aspects of Temin's (1976) original hypothesis that the initial contraction in output in 1929 resulted from a collapse of consumption expenditure. Romer's position is bolstered by evidence in Cecchetti and Karras (1994), who find that there was a very large aggregate demand shock of nonmonetary origin in November 1929 that is largely responsible for the downturn of 1930.

There are two important lessons to be taken away from this experience. Both concern the behavior of central bankers. First, I believe that if central bankers allow the fluctuations in asset market prices to affect their decisions it may distract them from concentrating on some combination of output growth and inflation. The focus of the Federal Reserve on the level of equity prices in 1929 clearly led to a disastrously contractionary path for policy.

Second, the central bank can operate effectively as a lender of last resort only if it stands ready to provide immediate liquidity to any bank that presents assets meeting certain predetermined criteria. That is to say, if the financial system comes under stress—as it surely will during a sudden downturn in equity prices—the Federal Reserve must stand ready to supply reserves to the banking system. Again, the evidence suggests that, in October 1929, the Federal Reserve's actions served to exacerbate the problems caused by the crash.

THE IMPORTANCE OF SOUND FINANCIAL INTERMEDIARIES

The Financial Crises of the 1930s

The failure of the system of financial intermediation, which culminated in the bank holiday of 1933, strongly suggests that there was something inherently wrong with the organization of the banking system prior to the Depression. Why did the banking system collapse? Was the net worth of banks too low? There is a simple *prima facie* case that we can make against such a suggestion. First, there is the fact that banks entered the Depression with what, by modern standards, were very high amounts of equity. Book-value bank balance sheets indicate bank capital was 14 percent of assets at the end of 1929. By 1940, it had fallen to 9 percent. While it has risen to over 7 percent recently, capital was less than 6 percent of assets for most of the 1980s.

But these are accounting numbers, and they may not be representative of the true economic condition of banks. If we had been able to compute the market value of bank assets, would they have been less than the value of bank liabilities? As has been emphasized in the banking literature, banks are maturity transformers. They take short-term liabilities and turn them into long-term assets. Since these assets are often not marketable, there is substantial risk involved in such a transition. The main risk comes from nominal interest rate movements. As nominal interest rates rise, the revenue stream from banks' long-term assets may be insufficient to service the obligations created by their short-term liabilities.

Were nominal interest rates rising during this period? The answer, which we can obtain from Cecchetti (1988b), is clearly no. The data in Figure 1 and Table 1 clearly show that nominal interest rates fell throughout the Depression. Three-month U.S. government rates fell from just over 5 percent in the spring of 1929 to less than one-half of 1 percent by July 1931. While they went up significantly for a few months in late 1931, around the time when Britain left the gold standard, they quickly returned to very low levels and remained there until after World War II. Long-term interest rates followed a similar pattern, falling through most of 1929, 1930, and most of 1931.

Figure 1 Monthly Nominal Interest Rates, 3-Month and 5-Year Yields, 1929 to 1940

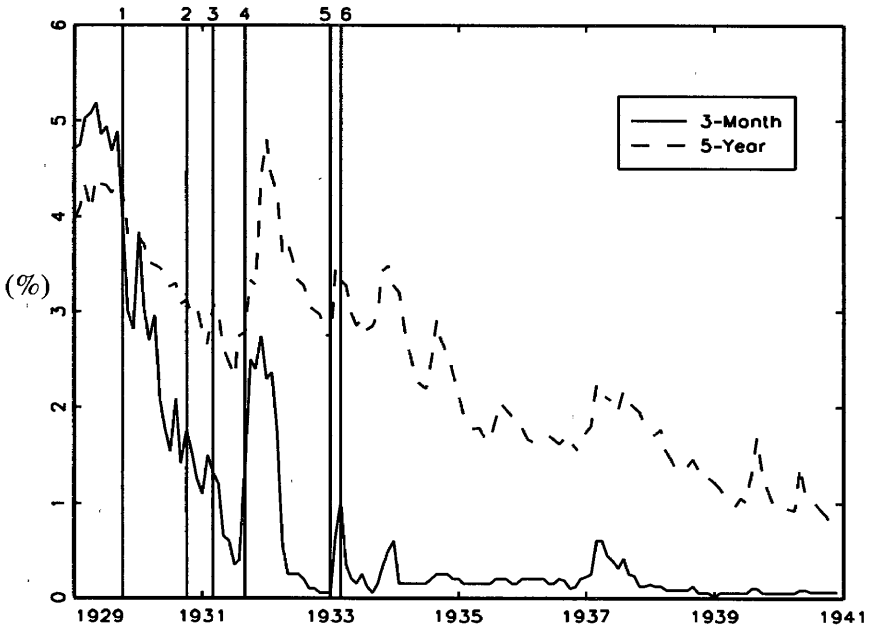


Table 1 Chronology of Monetary Events during the Depression

1 – October 1929	Stock Market Crash
2 – October 1930	First Banking Crisis
3 – March 1931	Second Banking Crisis
4 – September 1931	Britain Leaves the Gold Standard
5 – January 1933	Last Banking Crisis
6 – March 1933	Bank Holiday

Numbers correspond to vertical lines in the figures.

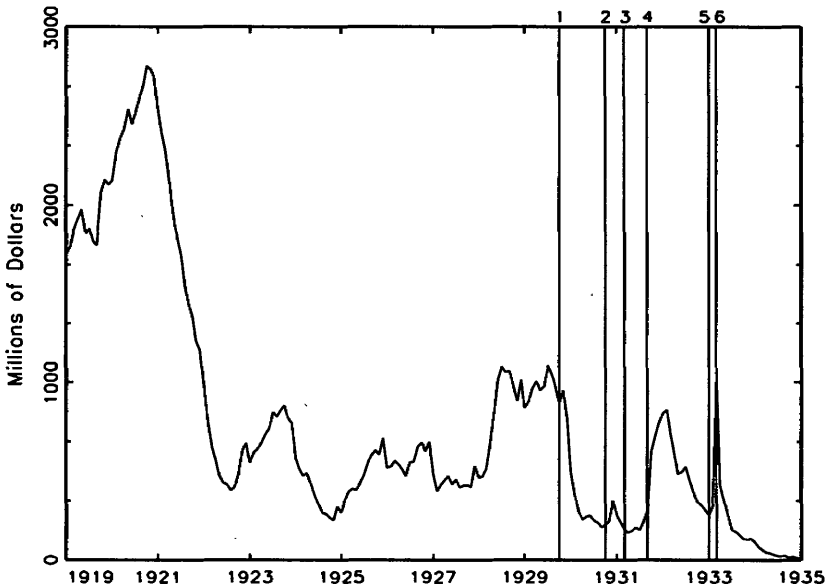
An alternative explanation for the banking system collapse is the debt-deflation hypothesis. First advanced in Irving Fisher's (1933) paper, and more recently formalized by Ben Bernanke and Mark Gertler (1989, 1990), the theory is that the 30 percent cumulative deflation of 1930–1932 was primarily responsible for the depth of the Depression. The argument proceeds as follows. Since unanticipated deflation increases the real burden of nominal debt, it caused debtors to default on loans, which led to bank failures and the collapse of the financial system. Bernanke and Gertler (1989, 1990) examine a formal model in which deflation lowers borrower net worth, thereby increasing leverage and the desire of entrepreneurs to take on risk. This raises the probability of bankruptcy, lowers the level of investment, and causes a reduction in both aggregate supply and aggregate demand.

Once again, the problem can be traced to behavior of the Federal Reserve. Without the deflation, the financial system would not have disintegrated. Since the deflation is clearly a monetary phenomenon, we have found the villain.

Unfortunately, we should not stop here. We must look further, as the banking system crashed in a series of systemic panics. These waves were surely unnecessary. Their defining characteristic was that solvent banks were forced into bankruptcy as depositors demanded convertibility of their deposits into currency, and all the banks had were nonmarketable assets.

Was there a policy failure here as well? The consensus is that there was. The job of the lender of last resort is to step in at exactly these times. Why was the Federal Reserve so reticent to engage in making discount loans during this period? Figure 2 shows the path of discount loans during the inter-war period. The most striking feature of this figure is that during the 1920–1922 deflation, Federal Reserve lending increased substantially, hitting its peak just prior to the trough of the business cycle.² This is in stark contrast to the pattern during the initial phases of the Depression. Beginning with the crash and ending in late 1931, well after the second banking crisis, the level of borrowings fell and stayed at a very low level.

Data on bank suspensions show that from 1930 to 1932 an average of 1,699 banks, representing an average of over \$1 billion in deposits, suspended operation each year. Assuming that the volume of loan defaults is roughly proportional to the level of suspended deposits, one

Figure 2 Monthly Federal Reserve System Discount Loans, 1919 to 1934

can infer that as banks were becoming illiquid in 1930, Fed lending was declining.

In light of the deterioration of bank assets during the early 1930s, it seems extremely unlikely that the decline in borrowing from the Fed resulted solely from demand-side factors.³ Instead, it seems plausible that the Fed played some role. The Fed's failure to actively encourage borrowing to meet the short-run liquidity demands of depositors should not be overlooked. In essence, the Fed failed to perform as the lender of last resort. Without an ultimate source of short-run cash, banks were forced to suspend operation. If, on the other hand, the Fed had actively sought to discount bank assets, the bank panics could have been averted, and the deflation would not have been as prolonged.

Institutional Responses

The solutions offered during the 1930s had three major components. They were the provision of added information to potential

investors, the creation of deposit insurance, and the fragmentation of the financial system. The last of these has now largely been undone. The first has been, and I hope will continue to be, emphasized. But, what should we make of deposit insurance? The purpose of deposit insurance is to eliminate systemic bank runs. Surely, it has worked.

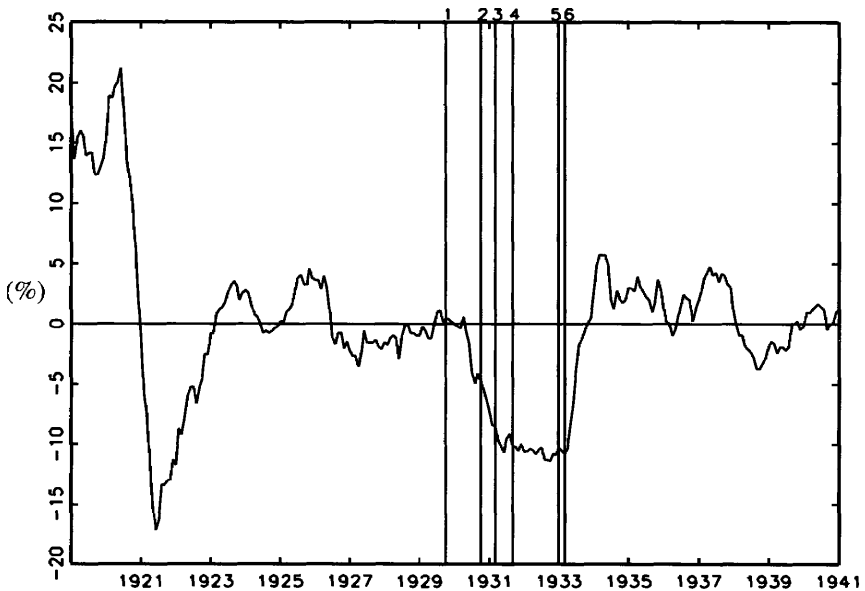
But deposit insurance creates incentive problems for banks, since depositors do not have any interest at all in the quality of bank assets. Bankers are, in essence, able to gamble with government-guaranteed funds. This leads to powerful arguments against deposit insurance. The alternative, implicitly advocated by some critics, is that the lender of last resort will function to keep solvent banks from folding and allow insolvent ones to close. The problem with such a strategy is that it requires that the lender of last resort be quick and nimble in its reactions. My sense is that we are better off relying on imperfect institutions that offer automatic responses than on central bankers, who may not realize what is needed.

UNDERSTANDING THE EFFECTS OF DEFLATION

Past discussions of the Depression have at times been muddled by the fact that nominal interest rates were extremely low during the entire period. Once the three-month U.S. Treasury bill rate fell below 3 percent in 1930, it did not rise back to this level until after World War II. In fact, as Figure 1 shows, by modern standards the nominal interest rate was remarkably low over the entire period from 1929 to 1940.

This fact caused a particularly simple type of confusion. It was thought by some that since nominal interest rates were low, Federal Reserve policy must not be contractionary, and so it could not be responsible for the Depression. How, people thought, could monetary expansion have been efficacious in this circumstance, when the nominal interest rate was already so low? This argument led to theories of a so-called liquidity trap—the notion that there is some point at which further changes in the quantity of money have no impact on the interest rate.

This line of reasoning confuses nominal and real interest rates. During the early 1930s, there was a tremendous deflation. Over a three-year period, consumer prices fell by nearly 30 percent. Figure 3

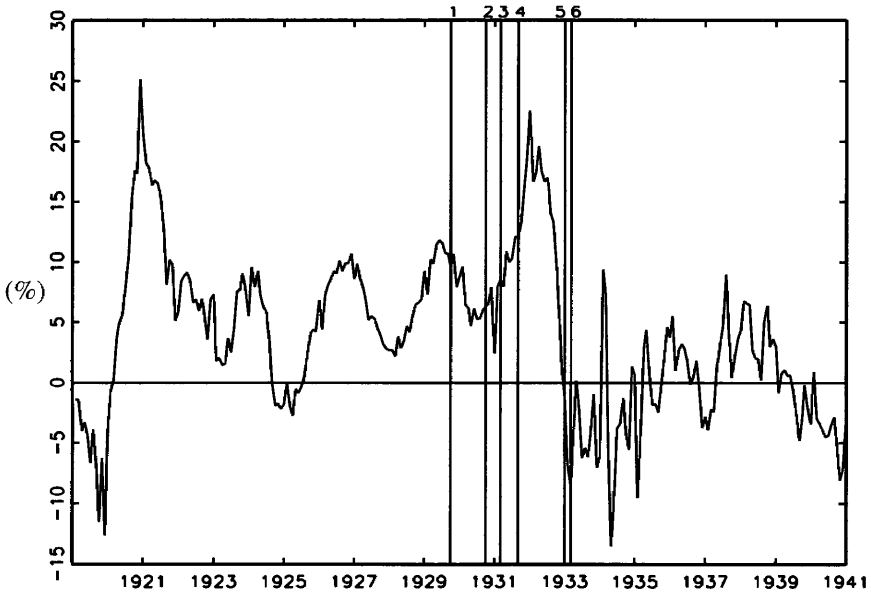
Figure 3 Monthly Changes in Consumer Price Inflation, 1919 to 1940

shows the pattern of inflation for the entire inter-war period. The main point to note is that there were two large deflations. In addition to the 1930s, there was the 1920–1922 deflation in which consumer prices fell by approximately 18 percent.

When people expect prices to keep falling, *ex ante* real interest rates will be very high. To see exactly how high they might have been during the Depression, in Cecchetti (1992b) I estimated real interest rates for three-month loans. The results are reported in Figure 4. The most important thing to realize is that the real interest rate during the entire Depression period was extremely high—the peak in early 1932 exceeded 20 percent! This is high by any standard. At no point since the end of the Depression have real interest rates exceeded even 10 percent. So, while nominal interest rates were low, real interest rates were very, very high.

The clear cause of these high real interest rates was extraordinarily tight policy. As was first emphasized by Friedman and Schwartz

Figure 4 *Ex ante* Real Interest Rate, 1919 to 1940
(monthly at an annual rate, 3-month horizon)



(1963) and has been observed by many others since, the monetary aggregates were shrinking quickly over this period. For example, M1 went from a high of \$26.7 million at the August 1929 cyclical peak to \$19.5 million at the April 1933 cyclical trough, a drop of 27 percent. M2 followed the same pattern, declining by one-third over the same nearly four-year period. The Federal Reserve's confusion, of course, came from the fact that this was all going on at the same time that they were actively expanding the monetary base. Clearly, policymakers did not take account of declines in the money multiplier—the ratio of broad measures of money such as M2 to the monetary base—when they were evaluating their policy stance.

Once again, the debt-deflation hypothesis is the widely accepted explanation for how central bank policy created such a disaster. But the theory requires that deflation be unanticipated. There is some debate over whether the deflation was actually unanticipated (see Cecchetti 1992a; Hamilton 1992; Nelson 1991). If not, then theories

that rely on high *ex ante* real interest rates, and the resulting collapse of consumption and investment, might be more relevant than the debt-deflation hypothesis.⁴

A complementary explanation is that temporary deflation led to high real interest rates, which in turn caused the decapitalization of the economy. Such a theory can be constructed from a model used by Calvo (1985, 1986) to study anticipated *temporary* changes in money growth. While his original purpose was to study the impact of disinflation programs in Central and South America, his results can be used here as well.

If one accepts that the deflation of 1930–1932 was (at least partially) anticipated but expected to be temporary, then it is possible to study the behavior of consumption and capital accumulation using a monetary version of Calvo's (1985, 1986) model. When the money growth rate declines, depending on whether the ensuing deflation is severe enough to cause the nominal interest rate to hit its lower bound, two things can happen.⁵

If the money growth rate is negative but the opportunity cost of money remains positive, then the impact of anticipated temporary deflation is straightforward. Consumption jumps up and then declines throughout the temporary policy period. At the same time, the capital stock falls and then begins to rise slowly. The reason for the transitory rise in consumption is that the effective cost of consumption is expected to rise in the future. The severity of the consumption and investment collapse depends on both the size of the money growth decline and the length of time it is in place. The larger the fall in the money growth rate, the more severe the collapse. On the other hand, increases in the length of time the policy is in place can be either good or bad. If the policy were in effect for either zero or infinite time, there would be no change in consumption or the capital stock—the model is superneutral. This implies that there is some finite value for the time that the money growth rate is at its low level that maximizes the fall in consumption and the capital stock. The impact is less severe if the policy is in place for either a longer or shorter time.

In the second case, in which the opportunity cost of holding money becomes negative, the consumption and investment declines are potentially much larger. When cash or other government-issued liquid assets provide a real rate of return above that available on any physical invest-

ment, agents will attempt to move their assets into cash. The nature of money is completely changed. This simultaneously drives down the value of the in-place capital stock and results in negative net investment. In essence, the economy is decapitalized. The decapitalization is accompanied by a decline in consumption. The consequences are clearly catastrophic. Not only does the value of the in-place capital decline, but the demand for firms' production falls as well. This in turn decreases the firms' ability to repay loans, making bank deposits less safe. The deterioration of the quality of bank assets drives individuals to hold cash.

The main lesson here is clear. We must avoid deflations, even expected ones. The fact that the nominal interest rate has a natural lower bound means that deflation can lead to increases in real interest rates that are extremely damaging. For recent discussions of inflation targeting, the message is to be wary of targets that imply a significant chance of deflation. It may therefore be dangerous to target zero inflation.

INTERNATIONAL ASPECTS OF THE DEPRESSION

The Great Depression was a worldwide phenomenon, affecting virtually all of the industrialized countries. The pervasiveness of the economic collapse has led to a study of the manner in which aggregate fluctuations are transmitted across economies. Both financial and goods market transactions link the international system. What part did each of these play in the global collapse and what are the important lessons we have learned about exchange rate systems and international trade? The remainder of this short section discusses each of these. I begin with a description of the gold standard, followed by a short discussion of the tariff system.

The Gold Standard

In the last decade we have made great strides in understanding the role of the gold standard in the propagation of the Depression. Numerous people contributed to this understanding, beginning with Choudhri and Kochin (1980) and followed by Hamilton (1988), Temin

(1989), and Bernanke (1995). But it is Eichengreen (1992) who is responsible for consolidating the improvement in our knowledge.⁶

The gold standard of the inter-war period was a fixed exchange rate system, whereby the central banks in all of the major countries of the world stood ready to exchange their currency for gold at a fixed rate. The purpose of the system was to stabilize economies through specie flows. If one country's economy began to shrink, its aggregate price level would begin to fall. At the fixed gold-currency exchange, it would then be profitable to import gold into the affected country. This would increase the stock of money and provide a stabilizing force.

It is important not to confuse this international institutional arrangement with contemporary calls for the institution of a domestic gold standard. For one country to adopt a gold standard in isolation would be to fix the currency price of gold. The result would be that all fluctuations in the relative price of gold, for whatever reason, would have to be absorbed by the general price level. For example, if an increase in political instability somewhere in the world were to drive up the demand for gold, instead of the currency price of gold rising, the aggregate price level would have to fall. Needless to say, given the fluctuations in the real price of gold since the collapse of the Bretton Woods System 25 years ago, this would create incredible instability.

The gold standard of the inter-war period is more correctly referred to as a gold-exchange standard, and, as mentioned above, its primary purpose was to establish and maintain a system of fixed exchange rates. While central banks were required to hold reserves to back their monetary base, those reserves could be part monetary gold and part foreign exchange. Furthermore, requirements generally stated that the central bank need hold only 30 to 40 percent of the value of the monetary base as backing. The real problem came with the fact that countries losing gold (e.g., because they were running current account deficits) had no choice but to contract their money stocks. But countries gaining reserves could choose whether to sterilize the inflows, leaving their money stocks unchanged, or allow their monetary base and money stock to grow.

The United States and France were the major surplus countries during this period, and so they were beneficiaries of gold inflows. But both of these countries sterilized the inflows, forcing the world money stock to decline substantially and rapidly. Once again, we come to the

conclusion that the Federal Reserve's contractionary policy, beginning in 1928, is of the utmost importance in understanding the nature of the Depression.⁷

The most persuasive case for the causal role of the gold standard comes from Bernanke and James (1991) and Bernanke (1995). They show that the depth of the Depression depended critically on *when* a country left the gold standard. Those countries that left earliest, such as Great Britain (in 1931), had shallower contractions than the United States (1933) and France (1936).

It seems likely that we have learned the most important lesson that comes from this experience—namely, that the international transmission of shocks depends on the exchange rate regime. Fixed exchange rates allow transmission of certain types of shocks that are buffered by the movements in flexible exchange rates. In particular, in a fixed exchange rate system, central bank policy is unable to buffer disturbances to the real economy—in effect, one loses control of the size of one's money stock. Without coordination of central bank policies among central banks, a fixed exchange rate block is not viable.

The European Monetary Union is an obvious response to this. European countries have decided to institutionalize fixed exchange rates and coordinated policy by actually eliminating both individual currencies and autonomous central banks. Such a setup will surely eliminate the possibility of the calamitous events of the 1930s.

Tariffs

A commonly held view is that the tariff wars of the 1930s bore significant responsibility for the wholesale collapse of economic activity. For example, Meltzer (1976) has argued that the Smoot-Hawley tariff, instituted in June 1930, was of paramount importance in deepening the worldwide depression.

This view has been challenged by Crucini (1994), who notes that most import duties were specific, not *ad valorem*. This means that they were stated in fixed dollar amounts per unit of import. As a result, the main fluctuations in the real value of the tariffs came not with legislated changes in the tariff rates themselves, but with movements in the aggregate price level. Once again, it is the deflation during the 1930s

that is the villain, raising tariffs by much more than even the Smoot-Hawley tariff.

But this point raises the question of the impact of the tariff changes. Crucini and Kahn (1996) examine the macroeconomic effect of these changes. They note that by raising real tariff rates, contractionary central bank policy could have a quantitatively important impact on output. But while the authors calculate an effect on output that is large in comparison with what one might expect, it accounts for at most 10 percent of the peak-to-trough decline in output, or something like a cumulative 3 percent decline.

LESSONS AND REMAINING MYSTERIES

Our collective efforts at understanding the Great Depression have yielded a number of important lessons for current policy. These fall into two broad categories: lessons for policymakers and lessons about the construction of financial institutions. The experience of the Depression teaches central bankers both about the dangers of deflation and about the proper operation of the lender of last resort.

Whether or not it is anticipated, deflation clearly devastates an economy. Extreme aversion to deflation has a number of important implications for current policymakers. First and foremost, it suggests that setting a target of zero inflation for central bank policy may be dangerous. One must assume that, with a competent policymaker in control, there is an equal chance that resulting inflation will be above or below the targeted level. But if deflation is a bad outcome, there should be an extreme aversion to it, and so the initial target level should be set above zero. It seems to me that a modest amount of permanent inflation is a small price to pay for significantly reducing the chances of repeating the catastrophic events of the early 1930s.

The second lesson for central bankers concerns the functioning of the lender of last resort for the short-term stabilization of the financial system. If the lender of last resort operates effectively, there is absolutely no reason that we should ever again face a systemic collapse of the banking system of the type seen in the early 1930s.

Two episodes in the recent financial history of the United States suggest to me that the most important aspects of this lesson have been learned. I have in mind the response to the stock market decline of October 1987 and the collapse of the savings and loan industry beginning around the same time. A stock market crash puts the entire financial system at risk for a very short period of time, because some individuals are inevitably bankrupted and cannot make payments on debts that are due immediately. In October 1987, the Federal Reserve's reaction was to offer banks large amounts of discount loans to enable them to make loans to securities dealers who faced immediate liquidity problems. This is exactly what the lender of last resort should do, and it worked.

The second success was the fact that the savings and loans collapse was neutralized. While the difficulties virtually wiped out the savings and loan industry, the financial system continued to function and remained sound. The method for containment of the problem was the deposit insurance system. Deposits in savings and loans were insured, and while the insurance system itself was bankrupted, the insurance guarantees were honored by the U.S. government through the issuance of Treasury securities. It is clear to me that the ultimate guarantor of these transactions was the Federal Reserve, acting again in its capacity as lender of last resort.

The lessons for the construction of financial institutions clearly overlap those for policymakers. I believe the most important involves deposit insurance. While deposit insurance has clear costs in that it cuts the link between a bank's depositors and its asset allocation decisions, it has one extremely important benefit. Since the central bank is the ultimate guarantor of the insurance system, deposit insurance removes any element of discretion about the behavior of policymakers during a pending financial collapse. Beyond this, it is clear that regulatory structures need to be in place to ensure that market participants receive as much information as possible about the riskiness of different financial instruments.

Finally, I come to the international lessons. There are two. First, there is the failure of the inter-war gold standard. From this we should have learned about the difficulty in establishing well-functioning institutions to maintain fixed exchange rates and the implications of this type of system for the international transmission of business cycles.

While I believe that we have learned the lesson, it has taken quite a long time. Second, we have learned that deflation affects international trade through its impact on the real value of tariffs. This simple lesson is yet another reason to fear deflation.

We have clearly come a long way in our understanding of the Depression, but I do not believe we are quite finished. There are still some remaining mysteries. I will close by listing two, each of which comes from a comparison of the recession of 1920–1922 with the Great Depression. First, it is my opinion that our understanding of the impact of deflation is not quite complete. The logical difficulty is that the earlier period suffered from a more rapid, but nearly as extreme, deflation, but the result was a sharp and quick recession. This suggests that the duration of the deflation is important. But the debt-deflation hypothesis would actually predict that shorter, sharp deflations should be worse, not better. Why was there no depression in 1922?

Related to this same point is the apparent change in the nature of the wage-setting process between 1920 and 1930. Here the point is that real wages seem to have been much less flexible during the Depression than immediately following the end of World War I. Why was this? Without a full understanding of the reason for the slow adjustment of aggregate supply during the Depression, we will not be sure that we have learned all that we can.

Notes

I thank Margaret Mary McConnell and Mark Wheeler for comments.

1. This is surely the conclusion that would be drawn by a reader of Galbraith (1954).
2. The increase in borrowing came about despite the increase in the discount rate from 4 percent to 7 percent.
3. From December 1929 to June 1933, total assets of Federal Reserve System member banks fell steadily from \$48.1 billion to \$33.0 billion.
4. Examples of these competing theories can be found in the simple IS-LM theory of Gordon and Wilcox (1981) and the classical theory in Cecchetti (1988a).
5. This lower bound is difficult to determine. One would expect that it restricts the nominal interest rate to be nonnegative. If this were true, the short-term interest rates plotted in Figure 4 would lead one to conclude that this is an irrelevant case for the 1930–1932 period. But in studying this period, it is important to keep in mind the existence of postal savings accounts. These effectively increased the

nominal interest rate floor for individuals to the legislated 2 percent rate paid by the U.S. government.

6. See Bernanke's (1993) review of Eichengreen's book and his February 1995 article for concise summaries of Eichengreen's argument.
7. I am leaving out numerous details about the mechanics of the gold-exchange standard and its impact. For example, the sequence of bank panics led central banks to reduce their foreign exchange holdings, forcing them to contract their money stocks further.

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