

Economics 210c/236a
Fall 2011

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LECTURE 13

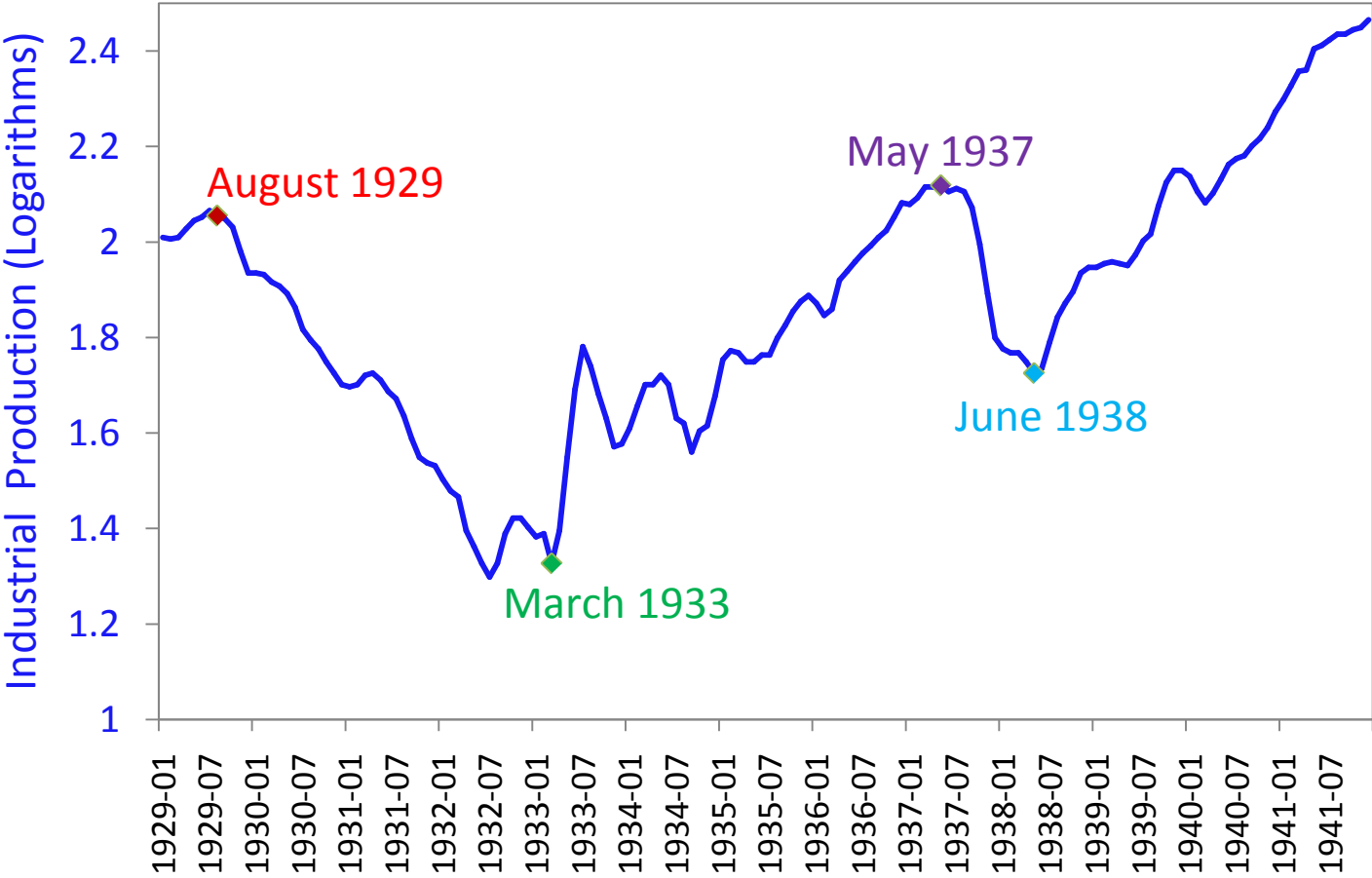
The Determinants of Macroeconomic Policy: The Great Depression



November 30, 2011

I. REVIEW OF GREAT DEPRESSION FACTS AND EXPLANATIONS

Industrial Production, 1929 to 1941

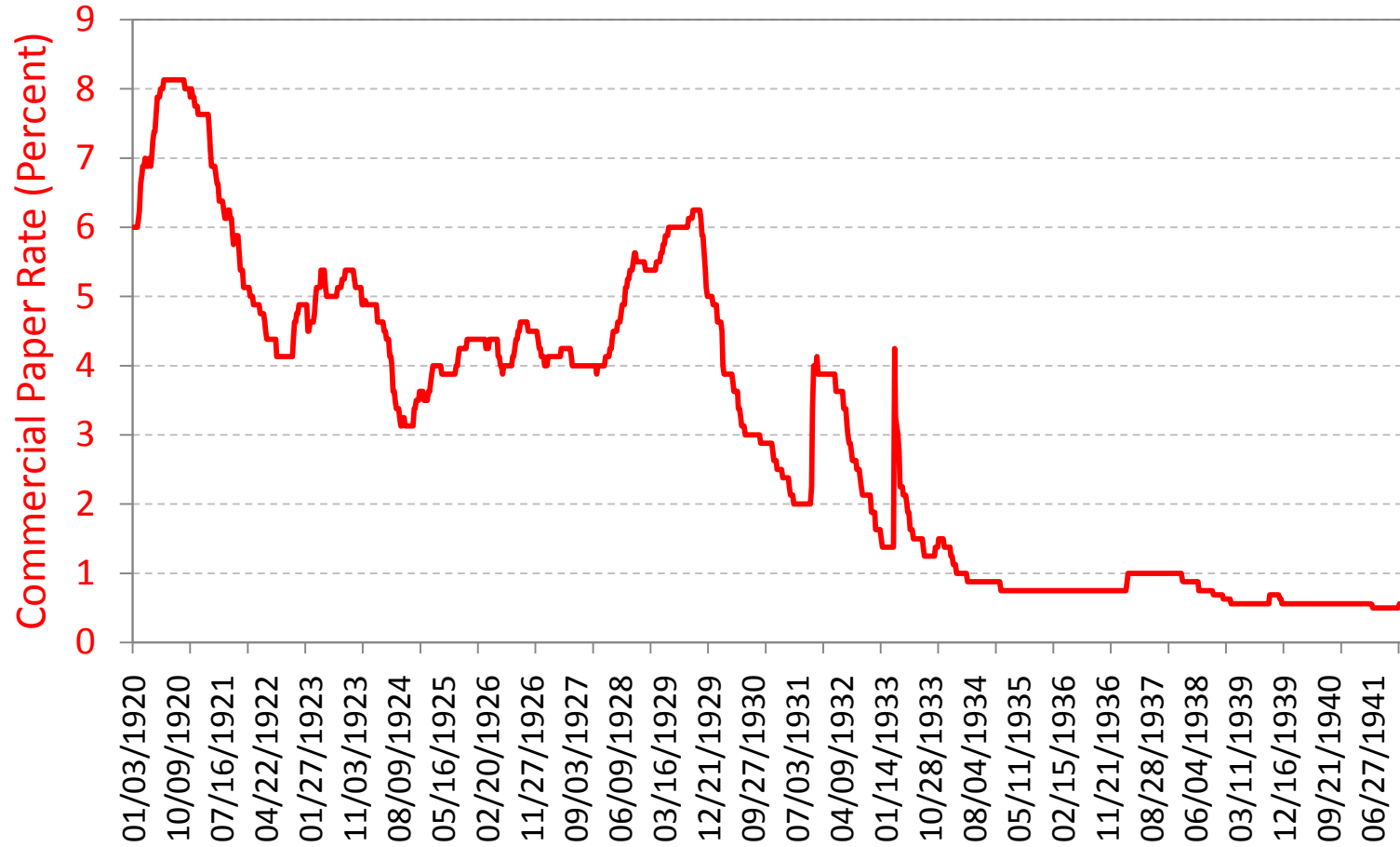


Explanations

- Aggregate demand contraction
 - Stock market crash
 - Money supply contraction
 - Credit contraction
- Increased nominal rigidity
- Supply-side stories

II. JONATHAN ROSE, “HOOVER’S TRUCE: WAGE RIGIDITY IN THE ONSET OF THE GREAT DEPRESSION”

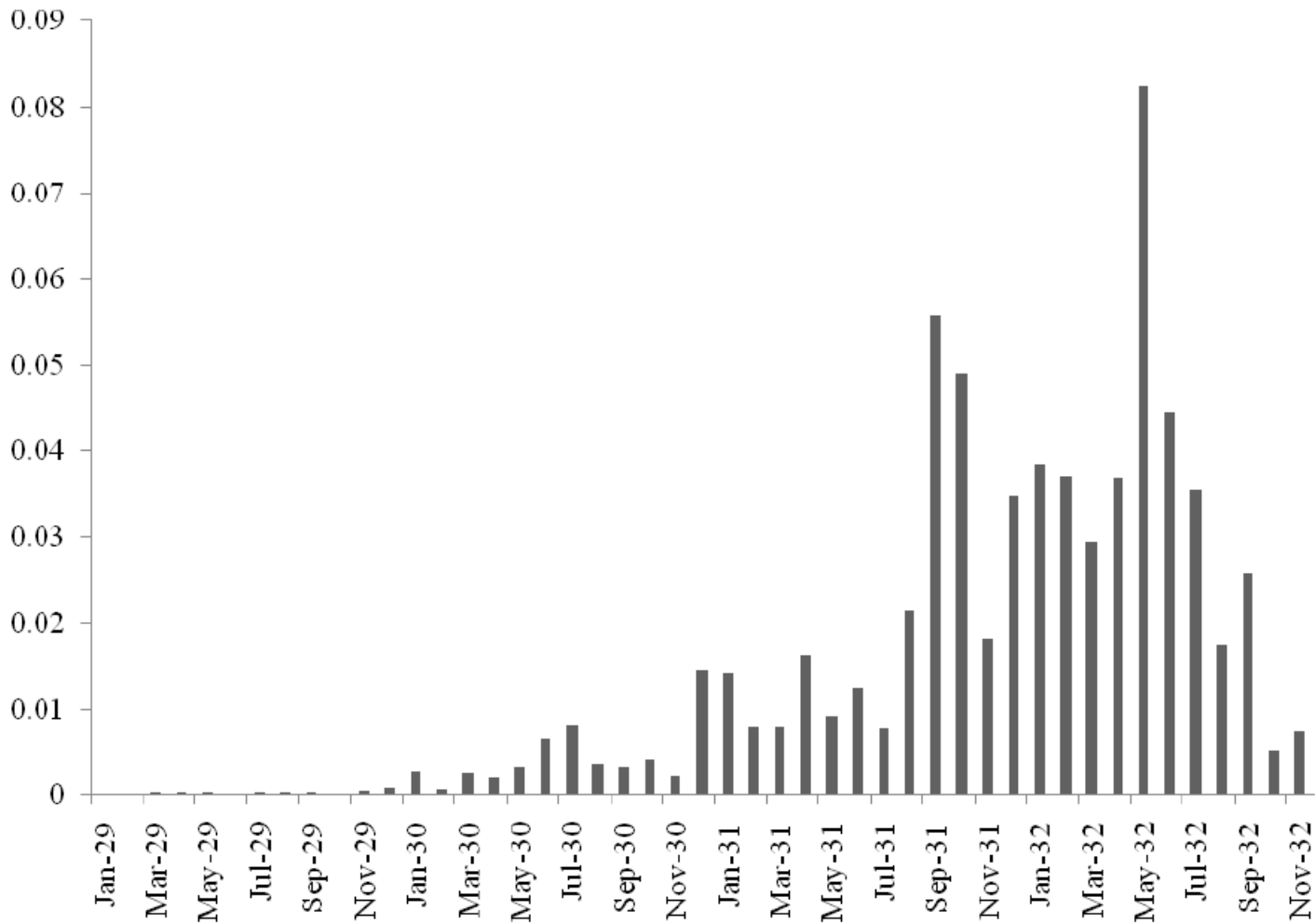
Commercial Paper Rate 1920-1941



White House Press Statement Following the November 21, 1929 Conference

“The President was authorized by the employers who were present at this morning’s conference to state on their individual behalf that they will not initiate any movement for wage reduction, and it was their strong recommendation that this attitude should be pursued by the country as a whole. They considered that aside from the human considerations involved, the consuming power of the country will thereby be maintained.”

FIGURE 1
 SHARE OF MANUFACTURING EMPLOYEES AFFECTED BY WAGE CUTS, BY MONTH



Source: Rose, 2010.

TABLE I
 DATES OF WAGE CUTS BY FIRMS WHOSE LEADERS MET WITH HOOVER IN THE
 NOVEMBER 21 CONFERENCE

Name	Firm	Date of First Cut After	
		1929	1921
Alfred Sloane	General Motors	Oct 1931	
Henry Ford	Ford Motor	Nov 1931	
Myron Taylor	U.S. Steel	Oct 1931	May 1921
E. G. Grace	Bethlehem Steel	Oct 1931	Jan 1921
E. J. Kulas	Otis Steel		Feb 1921
George Laughlin	Jones and Laughlin Steel	Oct 1931	Feb 1921
Clarence Woolley	American Radiator Company	May 1931	Jan 1921
Julius Rosenwald	Sears Roebuck	Feb 1932	Mar 1921
A.V. Robertson	Westinghouse Electric	Jan 1932	Feb 1921
Owen Young	General Electric	Mar 1932	Feb 1921
Pierre Du Pont	Du Pont	Nov 1931	Sep 1921
Walter Teagle	Standard Oil of NJ	Oct 1931	Feb 1921
Homer L. Ferguson	Newport News Shipbuilding		Mar 1921
Alexander Legge	International Harvester	Oct 1931	Mar 1921
Arch W. Shaw	Shaw and Company		
Matthew Sloan	NY Edison		
Philip H. Gadsen	United Gas Light Improvement Company		
Walter Gifford	AT&T		
Ernest Trigg	John Lucas Paint		
Rodfield Proctor	Vermont Marble Company		
Samuel Reyburn	Lord & Taylor		
Henry Robinson	Security First National Bank		
Jesse Straus	R. H. Macy		

Decline in Industrial Production in 1920 and 1929

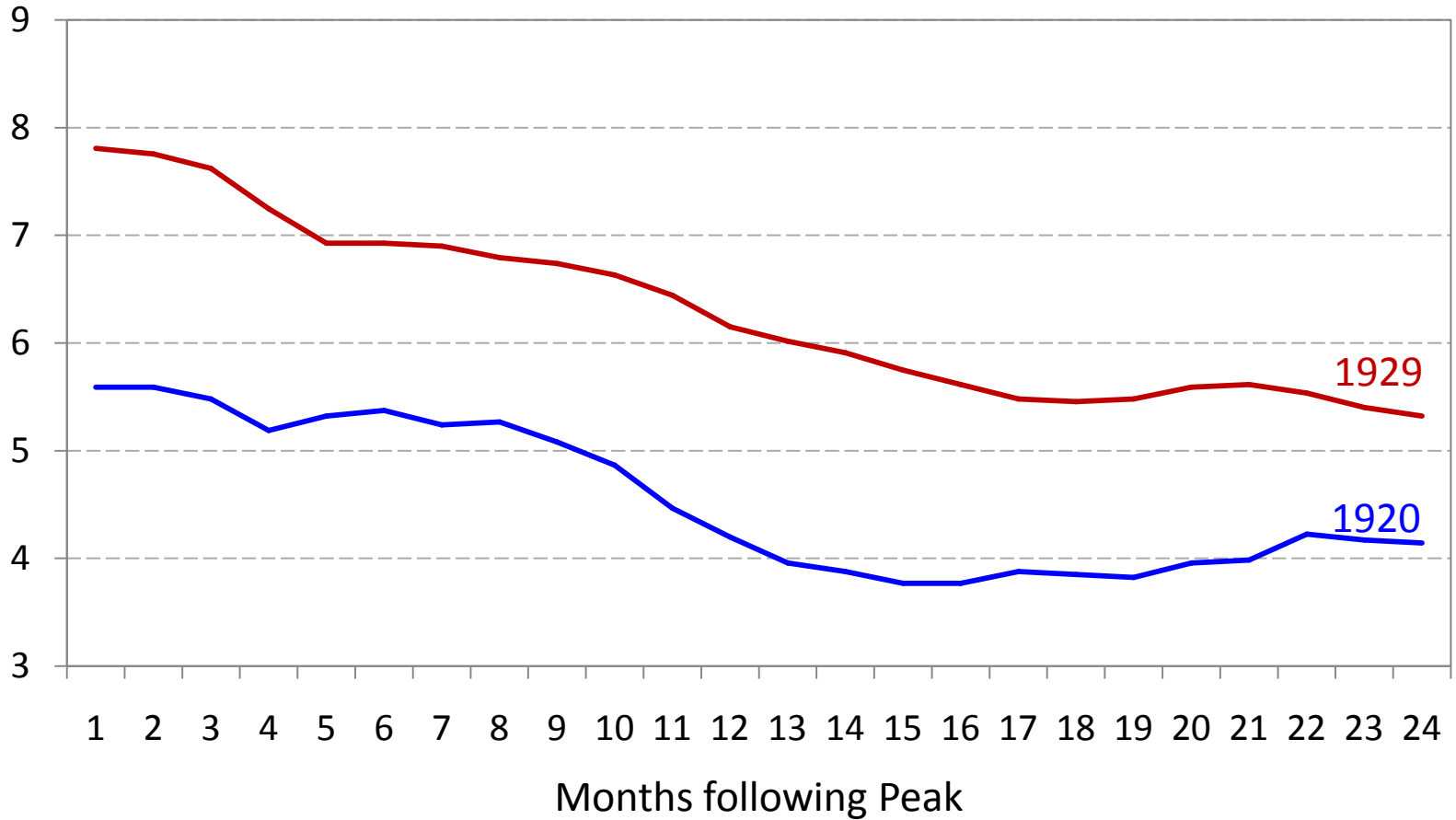
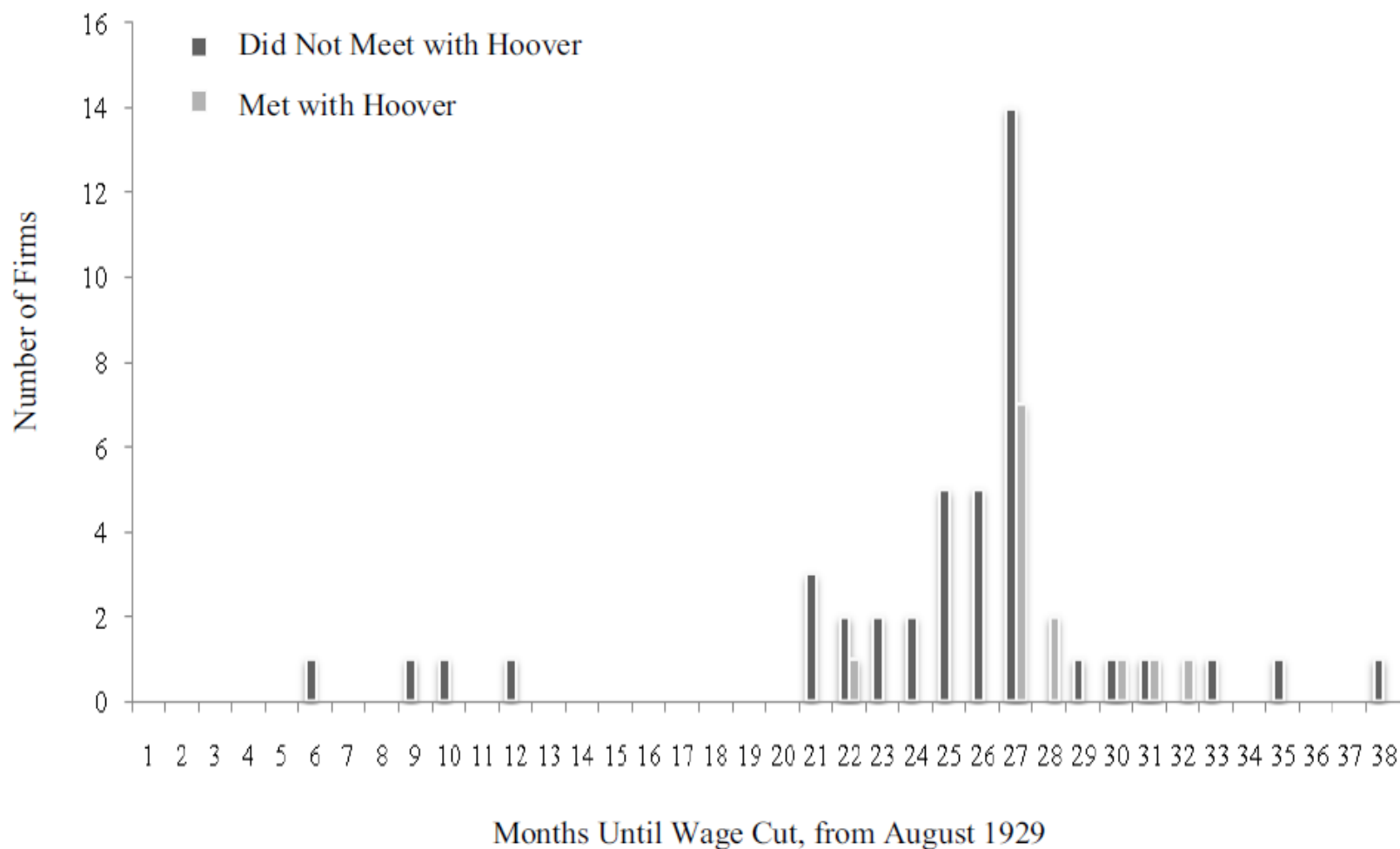


FIGURE 3
 DISTRIBUTION IN DELAY UNTIL FIRMS CUT HOURLY WAGE RATES



Source: Rose, 2010.

TABLE 2
FIRM-LEVEL ESTIMATES OF EFFECT OF NOVEMBER ATTENDANCE

	(1)	(2)	(3)	(4)	(5)	(6)
Met Hoover in November	2.878 (1.143)	2.895 (1.731)	3.701 (2.097)			
Met Hoover in Nov. or Dec.				2.377 (1.218)	2.162 (1.564)	2.318 (1.705)
Assets			-1.419 (2.216)			-0.464 (1.920)
Constant	22.81 (0.934)	23.03 (0.962)	23.32 (1.03)	22.68 (1.074)	22.67 (1.004)	22.75 (1.06)
Observations	55	55	55	55	55	55
Industry FE	No	Yes	Yes	No	Yes	Yes
R-squared	0.048	0.289	0.295	0.041	0.281	0.282

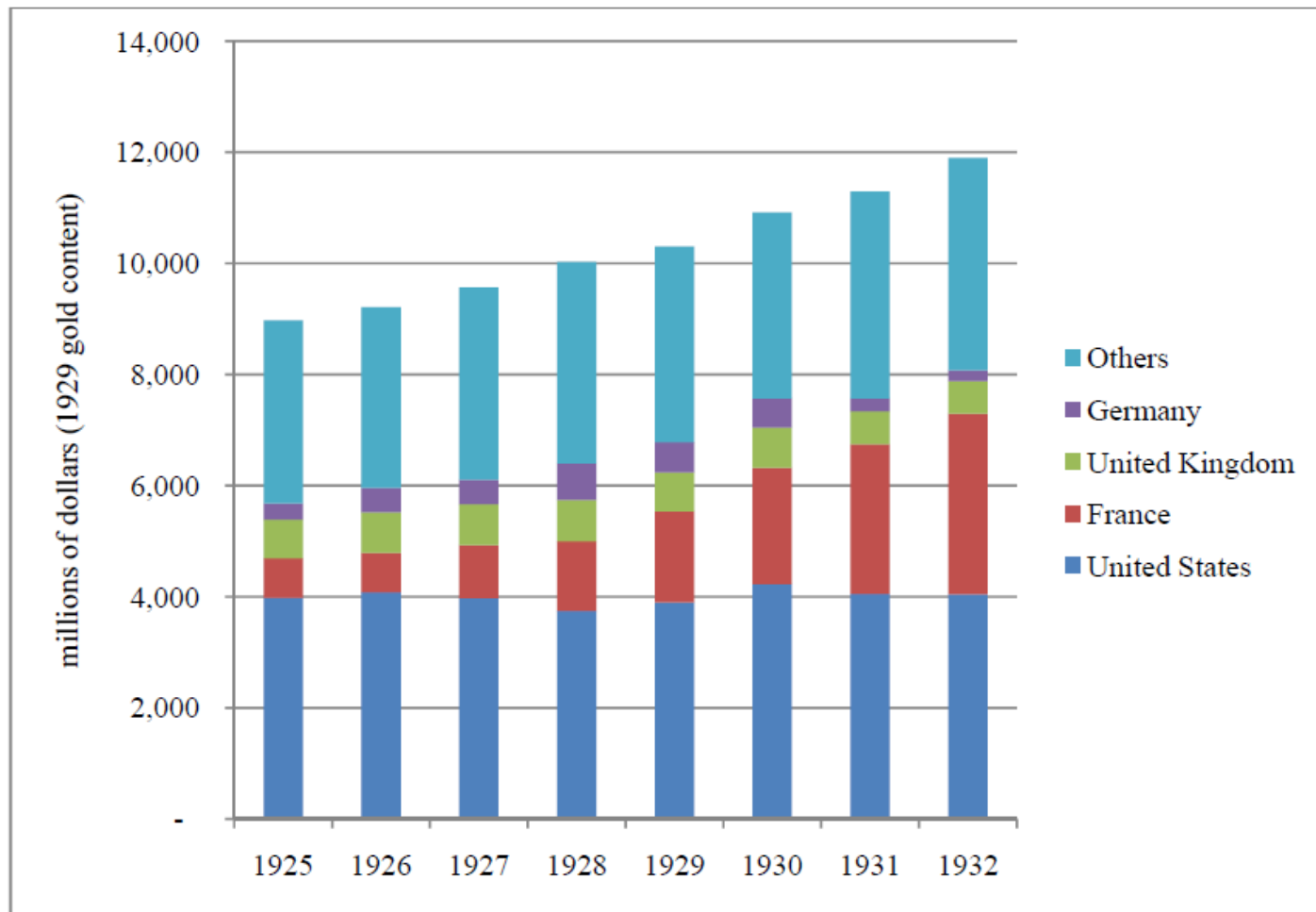
Notes: The dependent variable is the number of months from August 1929 until a wage scale cut. Figures in parentheses are robust standard errors. Industry fixed effects, when included, are at the equivalent of a two-digit SIC level.

Source: See the text.

Source: Rose, 2010.

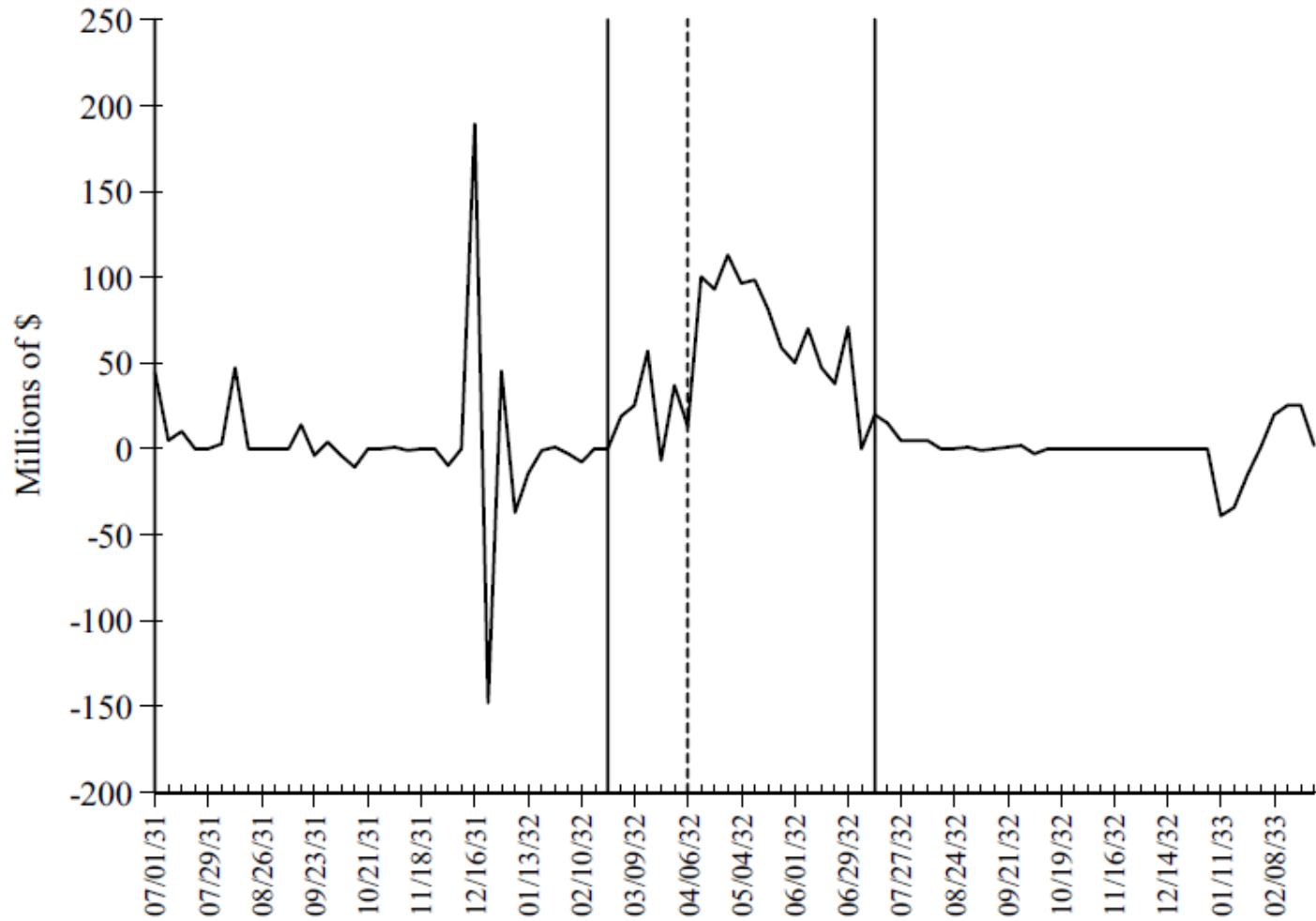
III. HSIEH AND ROMER, “WAS THE FEDERAL RESERVE
CONSTRAINED BY THE GOLD STANDARD DURING THE
GREAT DEPRESSION? EVIDENCE FROM THE 1932
OPEN MARKET PURCHASE PROGRAM”

Figure 1: World Gold Reserves, 1925-1932



Source: Hardy (1936, 92).

FIGURE 1
CHANGE IN FEDERAL RESERVE HOLDINGS OF U.S. GOVERNMENT SECURITIES

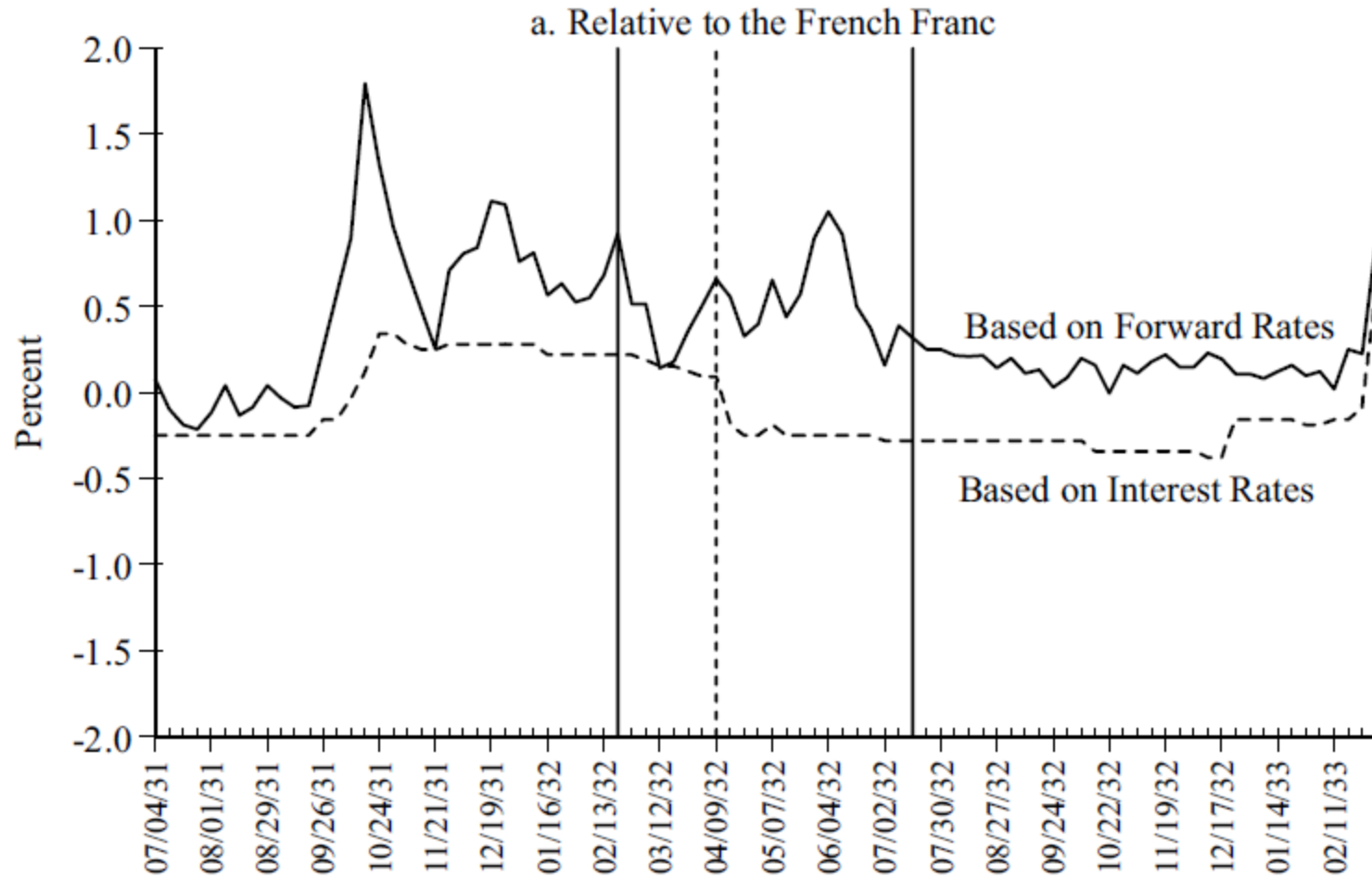


Source: Hsieh and Romer, 2006.

Indicators of Devaluation Expectations

- Forward exchange rate premium
 - Did forward rates rise relative to spot rates?
- Interest rate differential
 - Did U.S. interest rates rise relative to foreign?

FIGURE 3
EXPECTED DEVALUATION OF THE DOLLAR RELATIVE TO THE FRENCH FRANC
AND THE SWISS FRANC



Source: Hsieh and Romer, 2006.

Was the Fed worried about gold flows?

Governor Calkins raised the question whether a policy of this sort would be followed by large foreign withdrawals of funds, and Governor Harrison replied that there might be some withdrawals but he did not believe these would be sufficient to prove embarrassing.⁵⁷

⁵⁷ Harrison Papers, “Meeting of Joint Conference of the Federal Reserve Board and the Open Market Policy Conference,” 12 April 1932, p. 4.

Source: Hsieh and Romer, 2006.

Governor Harrison further pointed out that the country's gold stock had been reduced by about \$100,000,000 in the first two months of the year, with no offsetting gains to the market, and that further gold losses at the rate of about \$50,000,000 a month were to be anticipated. The purchase of government securities would have the effect of offsetting this gold loss and preventing it from causing an increase in rediscounts.⁶⁷

⁶⁷ Harrison Papers, "Minutes of the Meeting of Governors," 24 and 25 February 1932, p. 5.

Role of Conflict Between Federal Reserve Banks

As discussed by Gerald Epstein and Thomas Ferguson and by Meltzer, conflict among the twelve regional Federal Reserve banks also played a role in ending the program.⁹² On 5 July Harrison informed his directors that the Federal Reserve Banks of Chicago, Philadelphia, and Boston were reluctant to continue the open market operations. He concluded that “if the other large Federal reserve banks are unwilling to proceed with the program, we cannot carry the burden for the entire System, while our reserve percentage is the lowest of any bank in the System.”⁹³ Owen D. Young, deputy chairman of the Board of Directors of the Federal Reserve Bank of New York, added that “if we cannot have the continuous participation of the Federal Reserve Banks of Boston and Chicago in the System program, I am for suspending the program.”⁹⁴

⁹³ Harrison Papers, “Memorandum: Meeting of Executive Committee [of Board of Directors],” 5 July 1932, p. 255.

Source: Hsieh and Romer, 2006.

Role of Ideas

Harrison stated that:

When the figures of member bank reserves are sufficiently high to produce adequate pressure upon the banks and to provide adequate credit for business as recovery sets in, we shall probably have done our part. If the commercial banks can't or don't use the credit which we provide, that is another problem.⁸⁷

⁸⁶ Harrison Papers, "Memorandum: Meeting of Board of Directors," 12 May 1932, p. 218.

⁸⁷ Ibid.

Governor McDougal of Chicago cited as his reason for abandoning the program the notion that:

[P]urchases made were much too large and have resulted in creating abnormally low rates for short-term U.S. Government securities. . . . [T]hese rates are abnormally low and have been artificially created by pouring a large excess of funds into the market which it does not need.⁹⁸

⁹⁸ Harrison Papers, “Letter from McDougal to Harrison,” 9 July 1932, p. 1.

Source: Hsieh and Romer, 2006.

IV. HAROLD COLE AND LEE OHANIAN, “NEW DEAL
POLICIES AND THE PERSISTENCE OF THE GREAT
DEPRESSION”

Model NRA Code

- I. Not to employ any person under 16 years of age, except that those between 14 and 16 might be employed outside manufacturing and mechanical industries for not more than 3 hours a day if such employment occurred between 7 A.M. and 7 P.M. and did not interfere with hours of day school.
- II. To meet the following conditions with respect to maximum hours and minimum wages.
 1. Accounting, clerical, banking, office, service, and inside sales employees
 - a) maximum hours: 40 hours a week
 - b) minimum wages: \$12 to \$15 a week, depending on size of city
 2. Factory and mechanical workers and artisans
 - a) maximum hours: 8 hours a day and 35 hours a week, but with a right to work 40 hours a week for any 6 weeks prior to the end of 1933
 - b) minimum wages: 40 cent an hour or the rates in effect on July 25, 1929, whichever was lower, but in no case less than 30 cents an hour
- III. Not to reduce any wage rates already above the minima described above, and to increase others so as to maintain equitable relationships.
- IV. Not to use any subterfuge to frustrate the spirit and intent of the agreement, which was to remove obstructions to commerce and to shorten hours and to raise wages for the shorter week to a living basis.
- V. Not to raise prices above the level prevailing on July 1 by more than necessary to cover increases in costs since that date.
- VI. To support and patronize establishments which had also signed the agreement and were listed as members of NRA.
- VII. To cooperate to the fullest extent in having a code of fair competition submitted by his industry at the earliest possible date.
- VIII. To agree to adjust purchase prices upward on outstanding fixed-price purchase contracts by amounts sufficient to cover the supplier's increased costs resulting from complying with the blanket code or an industry code.

Source: Chandler (1970)

TABLE 2
INDEXED REAL WAGES RELATIVE TO TREND

Sector	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
Manufacturing	101.7	106.3	105.1	102.9	110.8	112.0	111.6	118.9	122.9	123.6
Bituminous coal	101.2	104.8	91.4	90.4	110.1	119.1	125.3	127.8	130.9	132.7
Anthracite coal	...	...	100.0	100.0	92.7	90.3	89.9	89.1	94.1	94.4
Petroleum	...	...	100.0	103.6	108.9	113.6	115.4	124.8	129.1	128.8
Farm	94.6	78.8	63.0	60.9	60.8	64.1	67.7	72.9	68.5	68.6

NOTE.—Wages are deflated by the GNP deflator and a 1.4 percent trend, which is the growth rate of manufacturing compensation in the postwar period. They are indexed to be 100 in 1929, except for the wages in anthracite and petroleum, which are indexed to 1932 = 100 because of data availability.

Source: Cole and Ohanian

TABLE 5
WHOLESALE PRICES RELATIVE TO THE PERSONAL CONSUMPTION SERVICES DEFLATOR (February 1933 = 100)

Industry	December			December					
	April 1933	1933	June 1934	May 1935	1935	June 1936	June 1937	June 1938	June 1939
Leather/hides	102.1	131.2	126.1	127.5	137.8	126.7	128.5	143.0	121.1
Textiles	131.8	149.2	143.8	133.1	140.4	131.9	142.3	116.9	120.1
Furniture	99.4	110.3	108.1	105.3	105.3	103.9	112.2	106.2	103.0
All home furnishings	98.9	112.0	111.6	109.5	109.5	107.9	115.3	110.1	108.2
Anthracite coal	91.8	91.9	85.3	80.8	91.8	84.1	78.2	76.8	77.8
Bituminous coal	98.4	114.1	117.8	117.0	119.3	117.8	115.6	112.2	110.1
Petroleum products	94.8	150.4	145.2	145.2	142.6	162.4	167.0	150.0	139.9
Chemicals	100.6	100.3	97.9	108.8	108.8	107.8	104.6	99.7	97.4
Drugs/pharmaceuticals	99.6	107.7	131.3	133.0	133.0	138.6	144.8	127.4	129.1
Iron/steel	97.9	108.2	97.0	114.6	108.7	108.2	120.2	119.3	112.6
Nonferrous metals	106.5	144.2	145.9	147.1	147.1	146.8	185.3	133.0	144.2
Structural steel	100.0	106.2	113.8	110.6	110.6	109.7	131.0	126.4	120.0
All metal products	99.4	107.9	111.5	109.9	110.1	107.9	115.4	113.5	110.1
Autos	99.4	100.0	102.9	102.0	102.0	...	...	96.5	93.5
Pulp/paper	98.1	114.4	114.0	108.5	108.5	107.1	122.8	108.4	101.3
Auto tires	87.8	101.4	103.0	103.7	103.7	102.3	123.3	123.2	129.8
Rubber	121.3	295.1	446.9	400.8	400.8	413.0	626.2	394.1	515.5
Farm equipment	100.0	102.4	107.9	110.6	118.8	109.8	105.5	105.7	102.7
All building materials	100.6	122.6	123.8	119.3	119.3	119.1	129.3	117.5	117.2
Average*	103.2	117.1	120.0	122.6	123.7	116.8	124.6	117.9	113.8

* The average does not include rubber.

Source: Cole and Ohanian

TABLE 5
DISAGGREGATE WHOLESALE PRICE INFLATION IN THE 1930S

	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
Raw materials	2.5	19.4	11.7	3.6	6.0	-16.4	-2.5	2.4	15.0	18.6
Manufactured goods	0.3	10.4	5.0	-0.2	6.1	-5.9	-2.2	1.5	8.8	10.1
All commodities	1.7	12.8	6.6	1.0	6.6	-9.3	-1.9	1.9	10.5	12.4
Farm products	6.4	23.9	18.8	2.6	6.6	-23.2	-4.8	3.6	19.6	25.1
Cotton	30.2	35.2	-3.8	1.9	-5.7	-28.1	8.9	9.5	33.6	31.2
Hides	47.4	2.7	26.0	6.5	21.9	-38.1	4.3	1.7	14.7	6.7
Silk	2.6	-25.1	22.9	7.7	5.1	-9.1	46.5	2.5	—	—
Anthracite coal	-7.3	-2.6	-0.5	1.0	-3.4	0.3	-2.9	4.0	4.7	3.3
Bituminous coal	1.0	13.2	2.3	0.7	1.2	0.4	-1.5	0.1	6.6	5.0
Crude petroleum	-35.7	50.5	0.0	9.9	10.8	-3.5	-15.7	0.6	9.9	4.5
Iron ore	0.0	0.0	0.0	0.0	7.6	1.6	0.0	-7.1	-3.3	0.0
Steel scrap	25.8	22.6	12.5	25.4	15.3	-31.6	17.0	17.7	6.6	-1.3
Gravel	2.8	6.5	-1.8	1.3	3.7	-1.1	-2.0	-1.5	1.8	4.9
Sand	4.0	11.7	-0.7	-0.5	4.3	-0.4	-2.4	-1.4	1.6	5.4
Crude sulphur	0.0	0.0	0.0	0.0	0.0	-2.8	-8.9	0.0	0.0	0.0
Phosphate rock	-3.7	2.5	7.1	-57.5	0.0	0.0	2.7	-1.3	8.2	18.4
Nitrate	-19.5	1.4	-3.7	4.3	5.8	2.9	0.0	0.4	1.6	9.1
Crude rubber	51.4	77.6	-4.2	29.7	16.9	-28.4	19.9	10.9	10.5	0.4

Notes: The aggregate raw materials, manufactured goods, and all commodities indexes are those described in the text. The farm products series is the aggregate for all farm products. The particular observations that I use for the disaggregate series are: cotton, middling, New York; hides, Chicago, steer, packers' heavy, native; silk, raw, Japan, double extra cracks; anthracite coal, composite price; bituminous coal, composite price; petroleum, crude, Kansas-Oklahoma; ore, iron, Mesabi, Bessemer; scrap, steel; gravel, building, composite price; sand, building, composite price; sulphur, crude; phosphate rock, Florida land pebble; soda, nitrate of, 95 percent; and rubber, crude, New York.

Sources: See the text.

Source: Romer (1999)

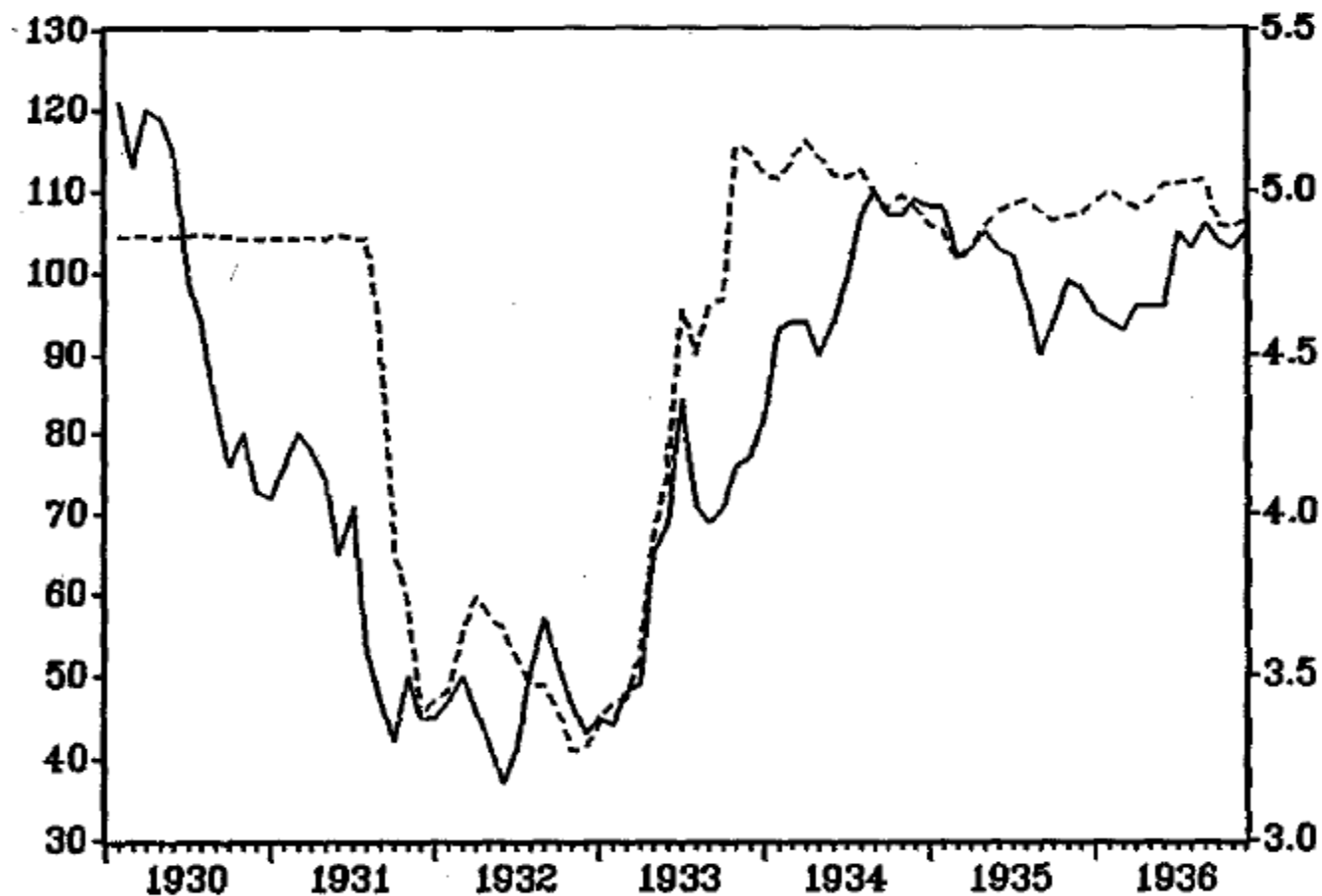


FIG. 3. The price of cotton and the exchange rate, 1930-1936. Solid line: cotton price; dotted line: value of the dollar in pounds.

Source. *Survey of Current Business*, Supplement, 1936, p. 15; Federal Reserve System, 1943, p. 681.

Source: Temin and Wigmore (1990)

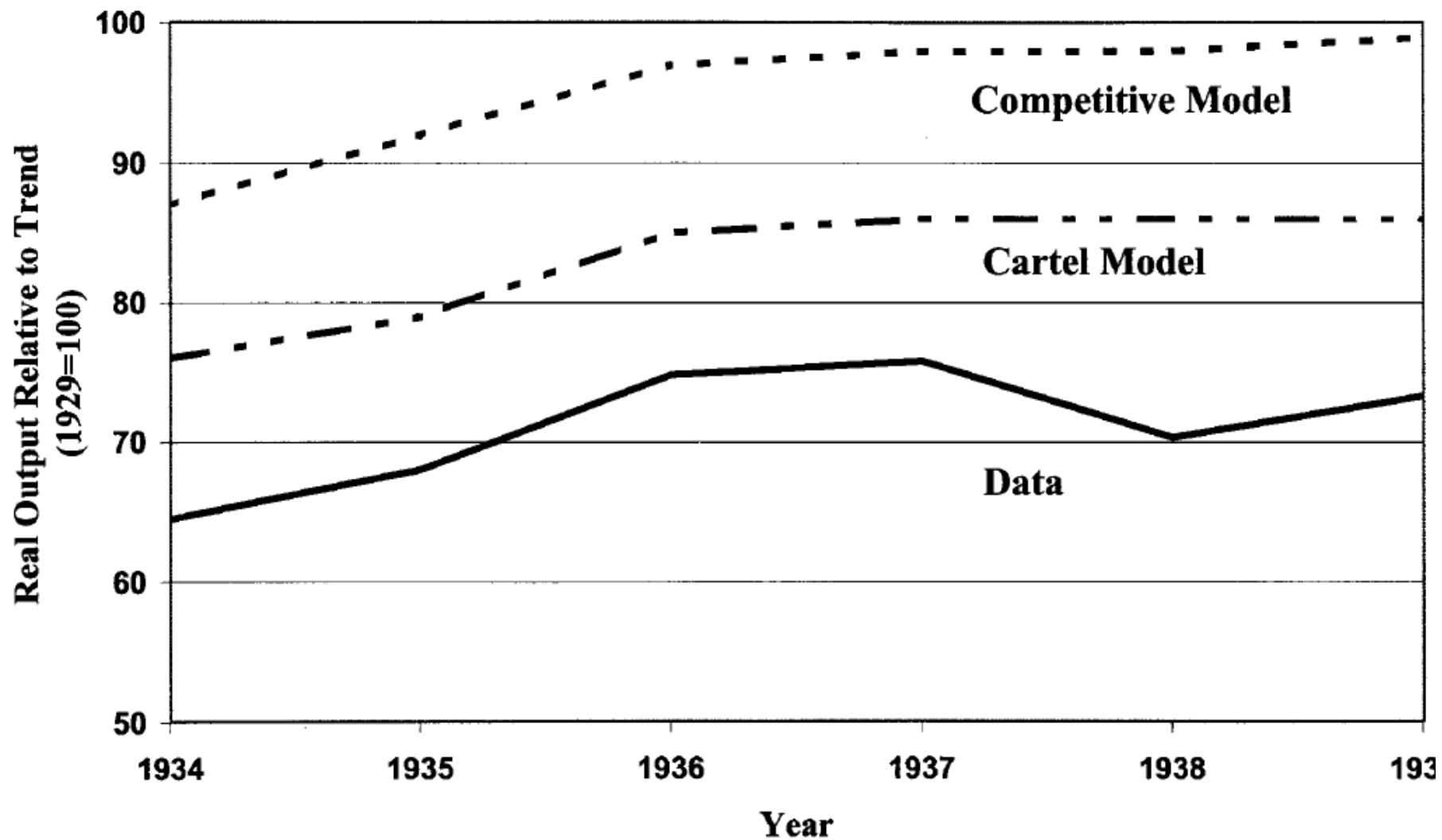


FIG. 2.—Output in the data and in the models

Source: Cole and Ohanian

Does It Matter that Cole and Ohanian Don't Explain Why Output Was So Low before the NRA?

- What does their analysis imply output growth would have been in 1934 in the absence of the NRA?
- With nominal rigidity and $i = 0$, what are the effects of a fall in potential output?

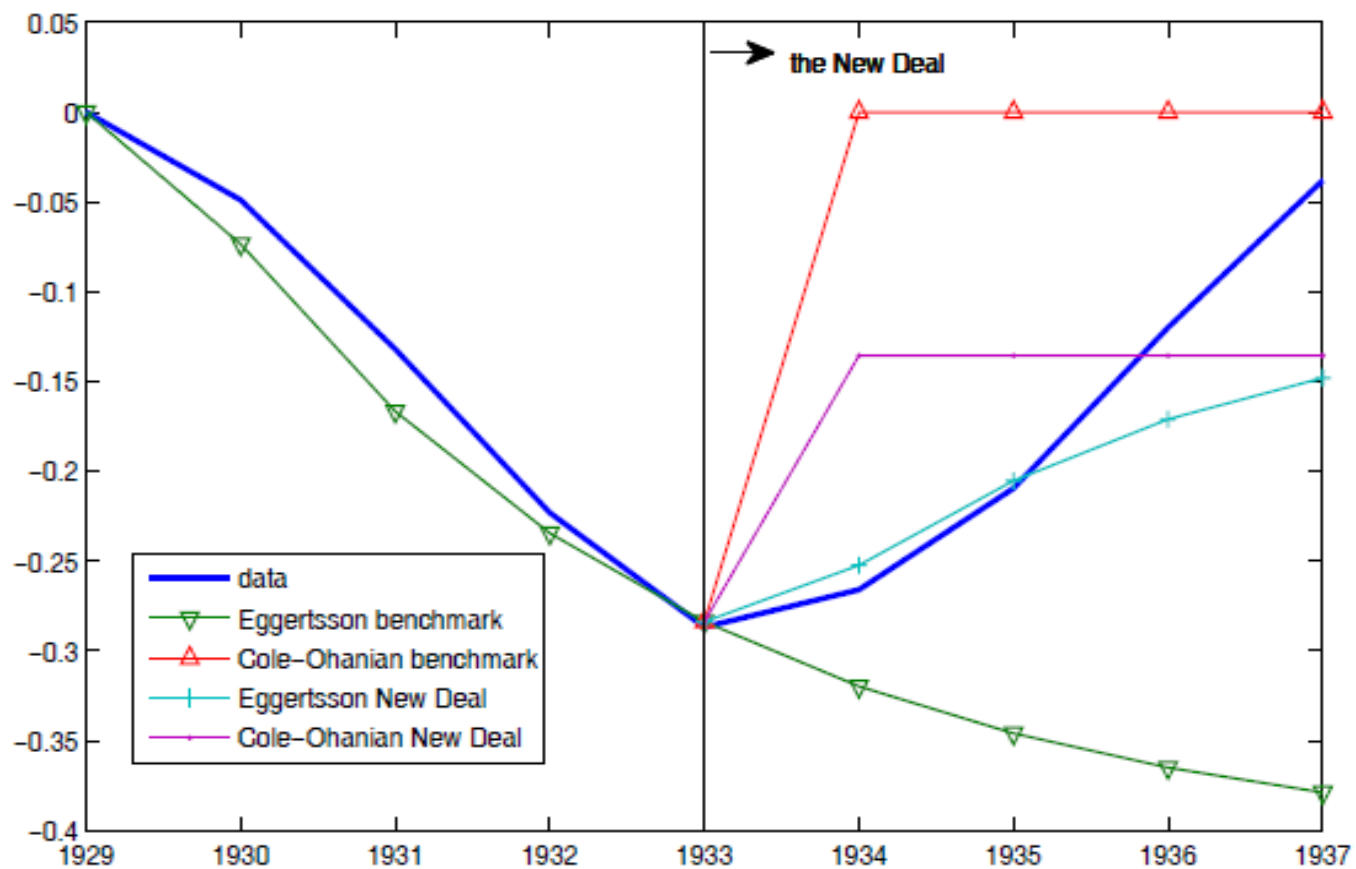


Figure 11: Comparison to Cole and Ohanian's (2004) result

Source: Eggertsson (2008)

TABLE 2
 Monthly Growth Rates, 1933
 (Percent per Month; Seasonally Adjusted)

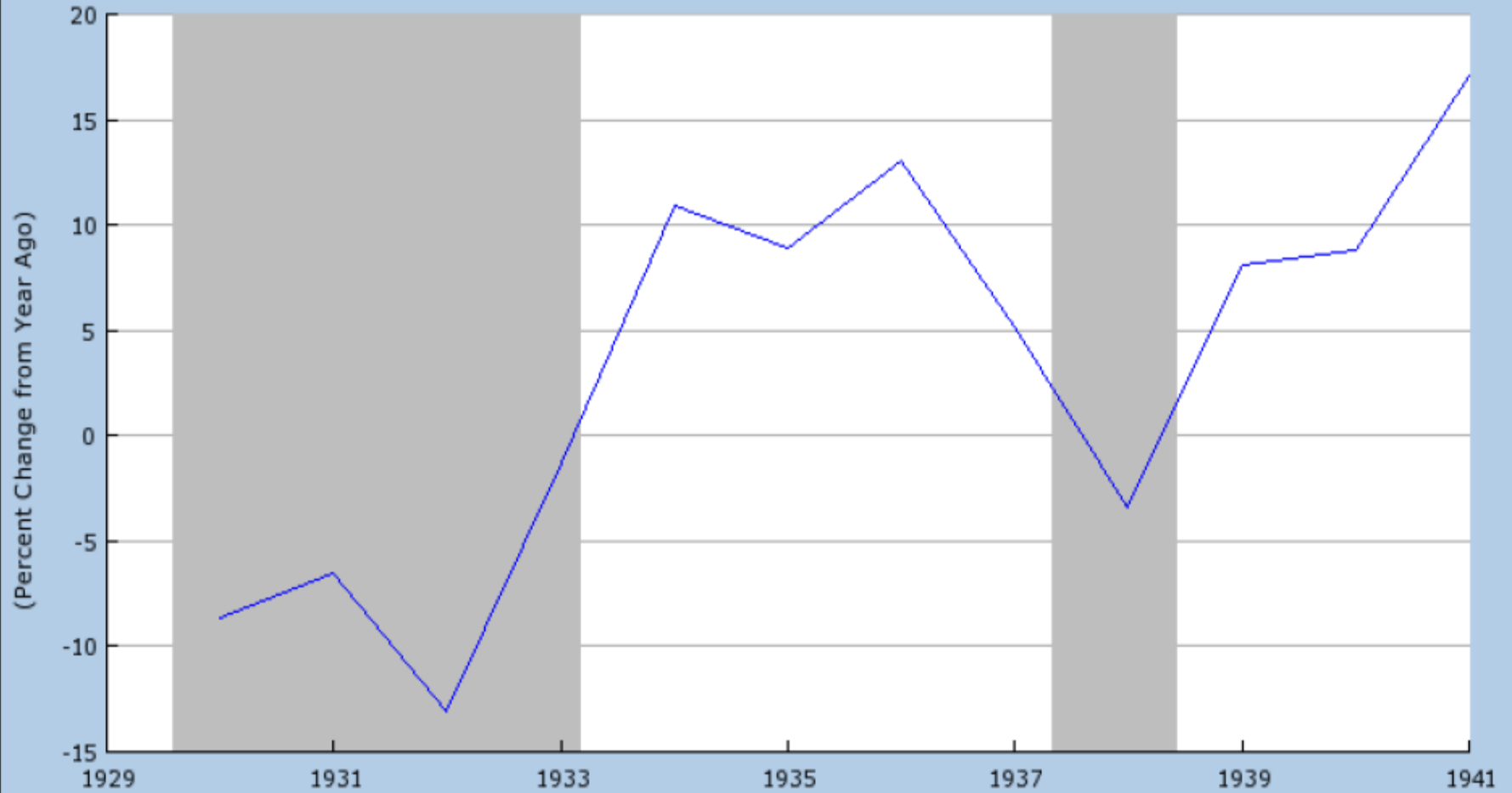
Month	Autos	Steel	Industrial production	Purged industrial production
January	-02	07	00	-00
February	-29	00	-02	-01
March	-20	-26	-05	-04
April	42	46	07	04
May	18	35	16	14
June	19	35	14	11
July	14	29	10	07
August	06	-20	-05	-03
September	03	-21	-06	-05
October	-03	-09	-05	-05
November	-72	-28	-06	-01
December	03	24	01	-01

Source. Federal Reserve System (1940).

Note. Industrial production was purged of steel and autos by subtracting the indexes of those sectors times their weights in the overall index and then rebasing the index to 1935-39 = 100.

Source: Temin and Wigmore (1990)

Real Gross Domestic Product (GDPCA)
Source: U.S. Department of Commerce: Bureau of Economic Analysis

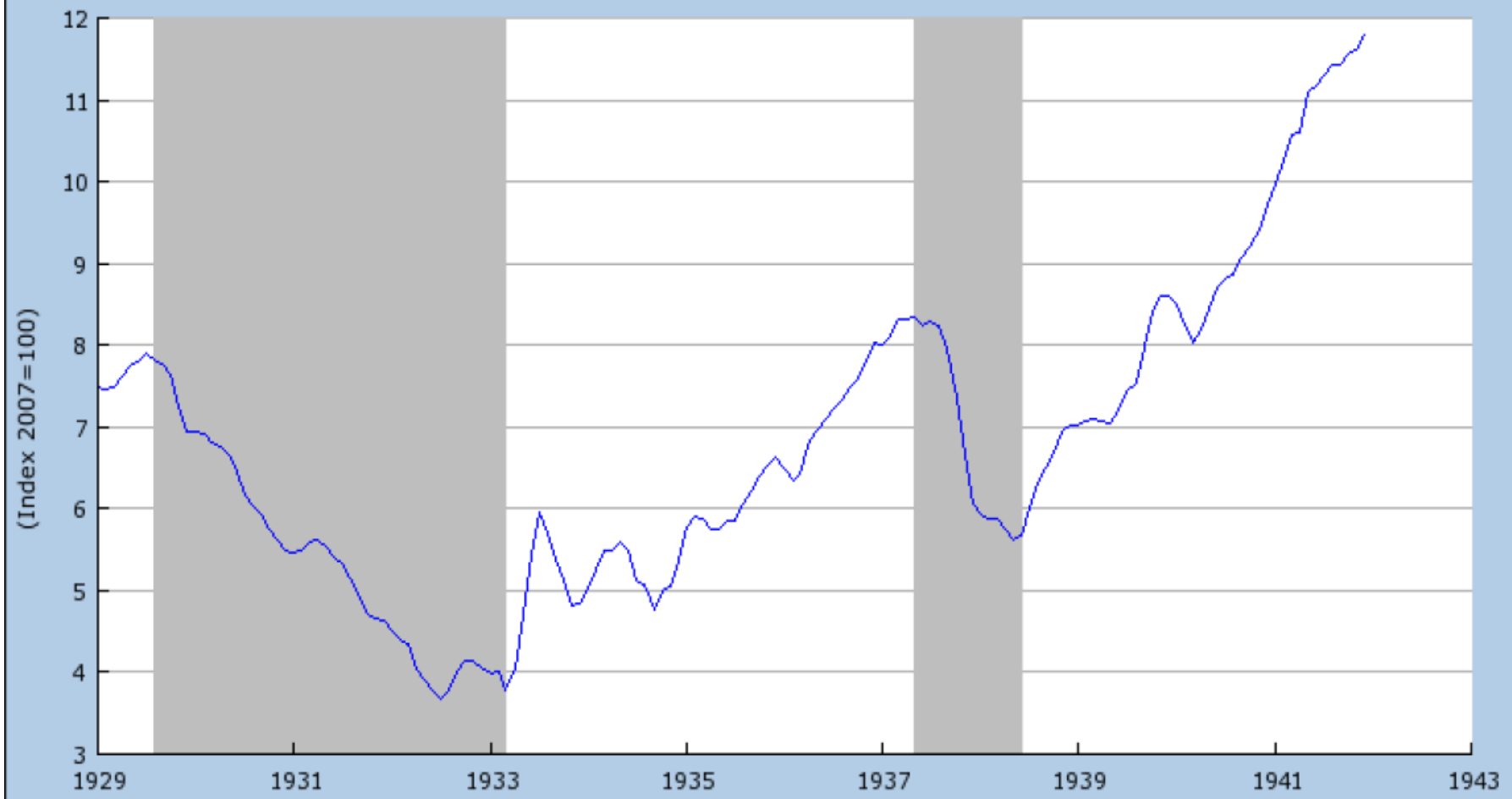


Shaded areas indicate US recessions.
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V. GAUTI EGGERTSSON AND BENJAMIN PUGSLEY, “THE
MISTAKE OF 1937”

Industrial Production Index (INDPRO)
Source: Board of Governors of the Federal Reserve System



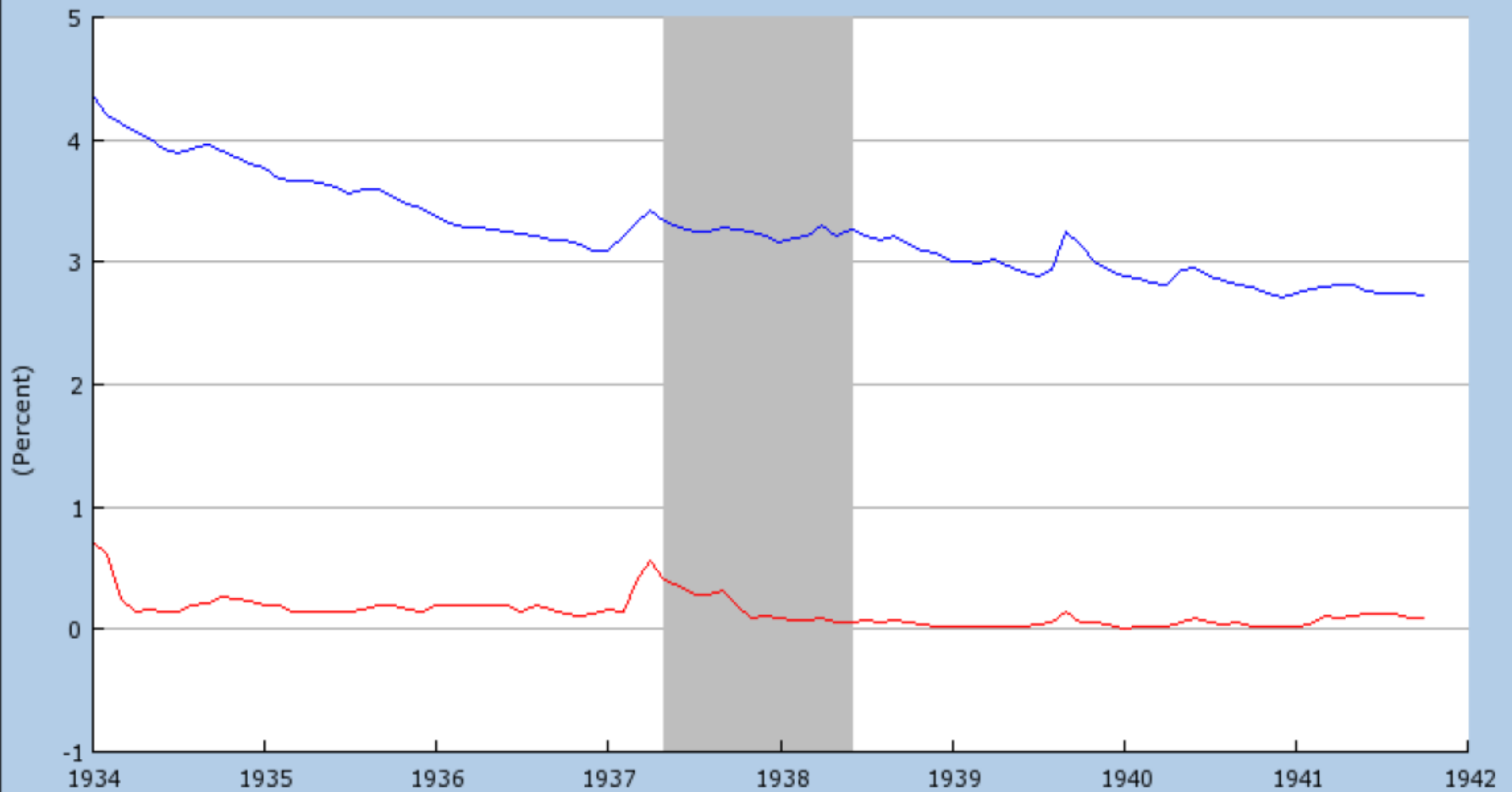
Shaded areas indicate US recessions.
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Producer Price Index: All Commodities (PPIACO)
Source: U.S. Department of Labor: Bureau of Labor Statistics



Shaded areas indicate US recessions.
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Moody's Seasoned Aaa Corporate Bond Yield (AAA)
3-Month Treasury Bill: Secondary Market Rate (TB3MS)

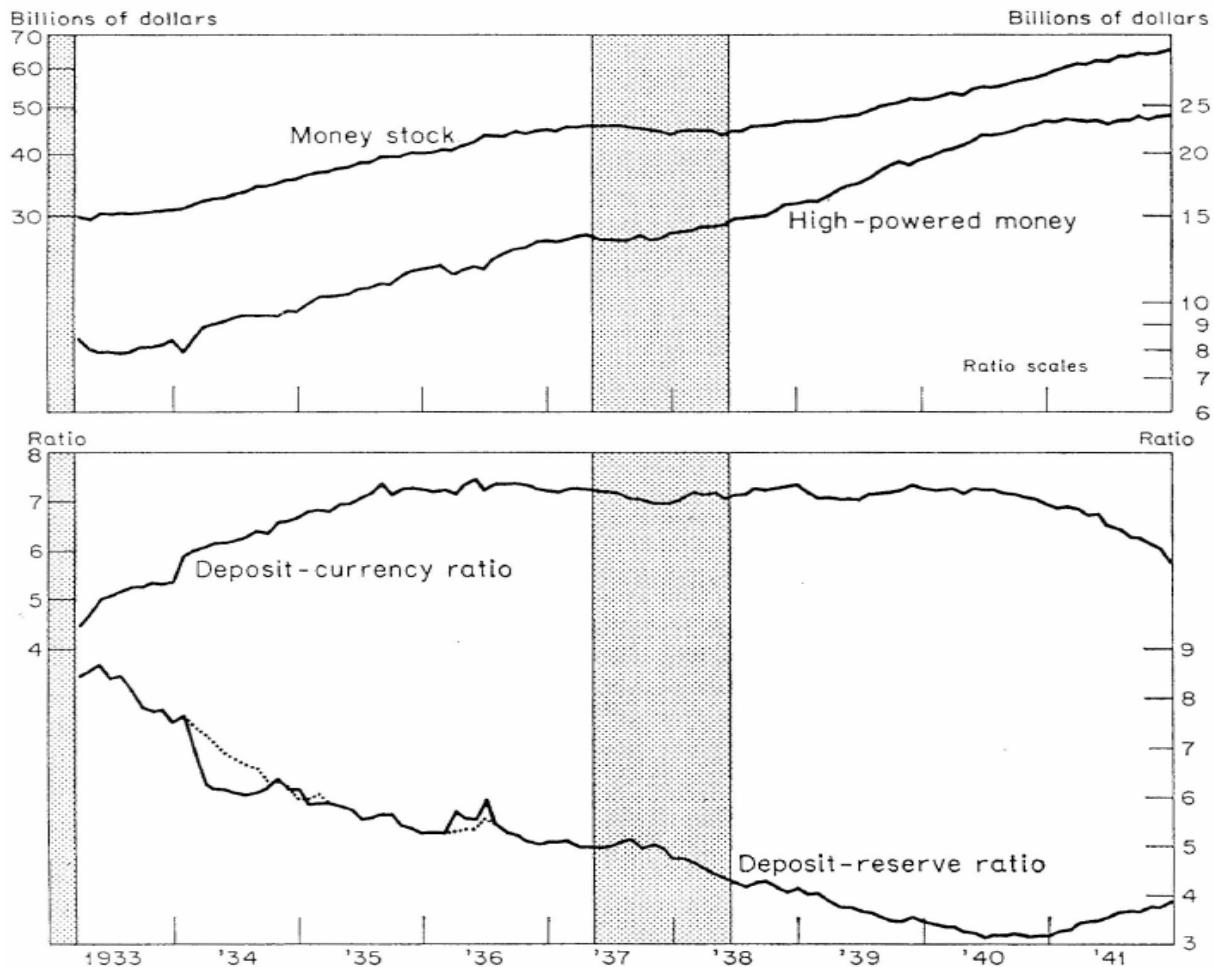


Shaded areas indicate US recessions.
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— AAA
— TB3MS

CHART 38
The Stock of Money and Its Proximate Determinants,
March 1933–December 1941



NOTE: Shaded areas represent business contractions; unshaded areas, business expansions.
 SOURCE: Tables A-1 (col. 8) and B-3. Dotted section of deposit-reserve ratio smoothes deposits and reserves (see Chart 44 and the accompanying text).

Source: Friedman and Schwartz (1963)

Table 8-5. E. C. Brown's estimates of net shift of demand as percent of full employment level of GNP in constant dollars

YEAR	ALL GOVERNMENTS	FEDERAL	STATE AND LOCAL
1929	1.4%	-0.4%	1.8%
1930	1.9	0.0	2.0
1931	3.6	1.7	1.8
1932	1.8	1.0	0.9
1933	0.5	0.5	0.1
1934	1.5	2.0	-0.4
1935	1.6	1.9	-0.3
1936	2.6	2.5	0.2
1937	0.2	0.1	0.1
1938	1.2	1.2	0.0
1939	2.0	1.4	0.5

Source: "Fiscal Policy in the 'Thirties: A Reappraisal," *American Economic Review*, December 1956. The data appear as Col. 14 in a table on p. 865.

Source: Chandler (1970)

The Key Elements of Eggertsson's and Pugsley's Proposed Explanation

- A change in expectations of future policy.
- The economy is incredibly sensitive to those expectations:

A change from a situation where “the public fully believes that the government is committed to targeting 4 percent inflation” to one where “the public thinks there is a 5 percent chance that the government will [adopt] a zero inflation goal within the next two years ... results in a double-digit output collapse and deflation” (Eggertsson-Pugsley, p. 3).

Other Theories of the Downturn

- Friedman and Schwartz: A largely conventional monetary contraction caused by the increase in reserve requirements.
- Telser and others: A fiscal contraction.
- Cole and Ohanian and others: adverse supply shocks, especially from unionization.

Eggertsson and Pugsley's Evidence

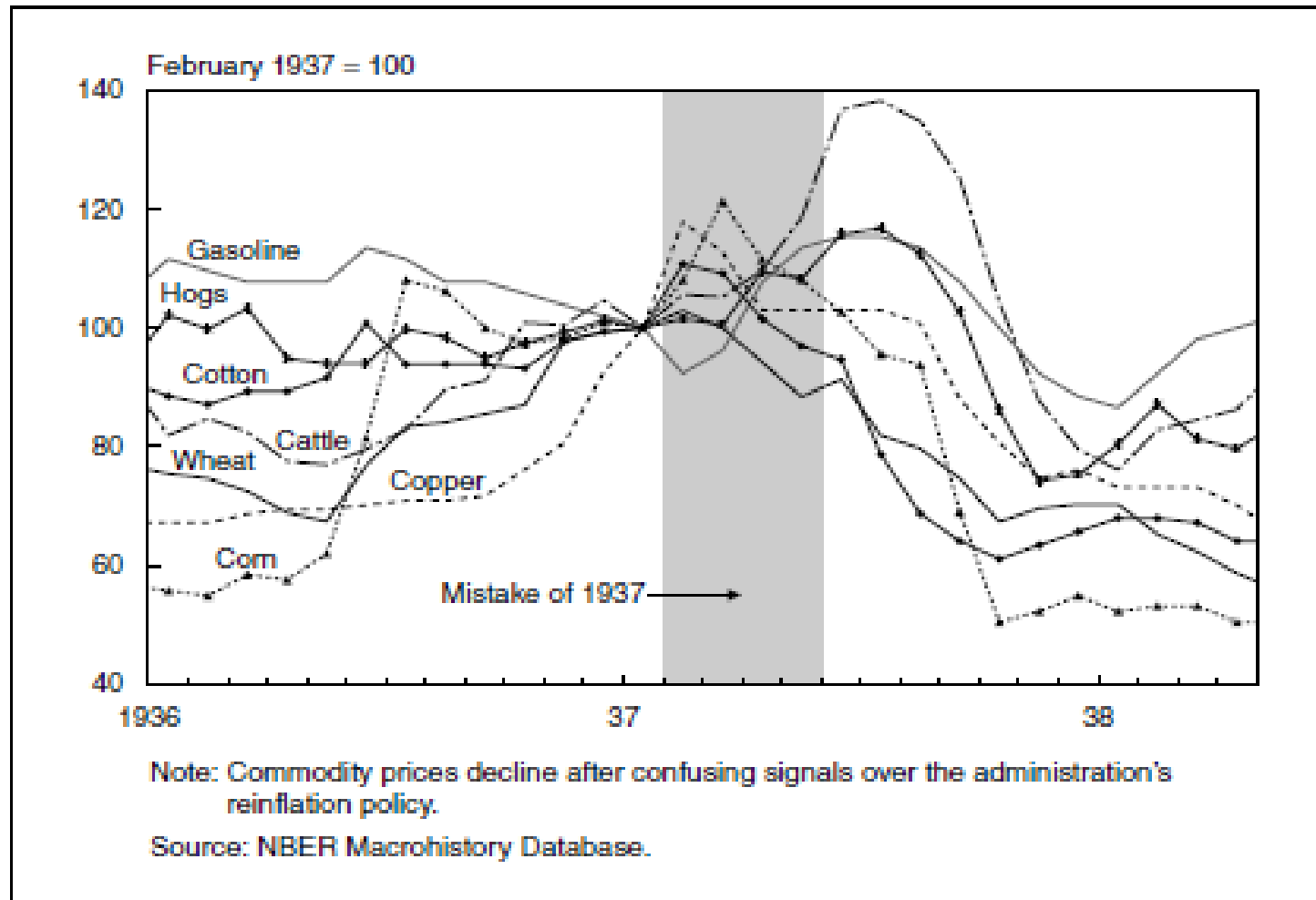
- Narrative evidence from statements and actions.
- Behavior of commodity prices.
- Hamilton's and Cecchetti's estimates of expected inflation.
- The behavior of the economy when statements and actions changed back.

Table 3 The Mistake of 1937: Anti-Inflationary Communications

1. July 14, 1936	The Fed announces the first reserve requirement increase, to become effective on August 15.
2. January 30, 1937	The Fed announces the second and third reserve requirement increases, to become effective on March 1 and May 1.
3. February 18, 1937	Marriner Eccles, Chairman of the Board of Governors of the Federal Reserve System, in Senate hearings: "The short-term rates are excessively low and there may be a tendency for rates near the vanishing point to increase." (<i>Wall Street Journal</i> , February 19, 1937, p. 1).
4. March 15, 1937	Marriner Eccles, Chairman of the Board of Governors of the Federal Reserve System, gives a statement: "The upward spiral of wages and prices into inflationary levels can be as disastrous as the downward spiral of deflation." (<i>Chicago Daily Tribune</i> , March 16, 1937, p. 1)
5. March 17, 1937	Commerce Secretary Daniel C. Roper and Secretary of Agriculture Henry A. Wallace hold press conferences: both Secretaries warn against excessive inflation. (<i>Wall Street Journal</i> , March 18, 1937, p. 8)
6. March 24, 1937	Marriner Eccles, Chairman of the Board of Governors, on inflation: "Chairman Eccles outlines five steps to avert 'dangerous inflation' in <i>Forbes</i> magazine, which are (i) reserve requirement increases 'to eliminate excess reserves,' (ii) fiscal policy that balances the budget, (iii) reduction in the gold price of the dollar, (iv) increase in the labor share of national income, and (v) antitrust legislation." (<i>The Christian Science Monitor</i> , March 25, 1937)
7. April 2, 1937	FDR holds a press conference: "I am concerned—we are all concerned—over the price rise in certain materials."
8. August 3, 1937	FDR's views on price level targeting are revealed: Senator Elmer Thomas publishes a letter from FDR to him rejecting his proposal that the Fed should formally target the 1926 price level. (<i>Wall Street Journal</i> , August 4, 1937, p. 6)

Source: Eggertsson and Pugsley

Figure 7 Commodity Prices



Source: Eggertsson and Pugsley

FDR as a Nominal GDP Targeter?

<p>2. February 18, 1938</p>	<p>FDR releases a written statement at a press conference that was prepared by Henry Morgenthau, Jr., Secretary of the Treasury; Henry A. Wallace, Secretary of Agriculture; Frances Perkins, Secretary of Labor; Marriner Eccles, Chairman of the Board of Governors of the Federal Reserve System; and economists of various executive departments:</p> <p>It is clear that in the present situation a moderate rise in the general price level is desirable Our program seeks a balanced system of prices such as will promote a balanced expansion in production. Our goal is a constantly increasing national income through increasing production and employment. This is the way to increase the real income of consumers.</p>
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Source: Eggertsson and Pugsley