The Great Depression as an Energy Transition

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Bard College, May 8, 2026

Challenge

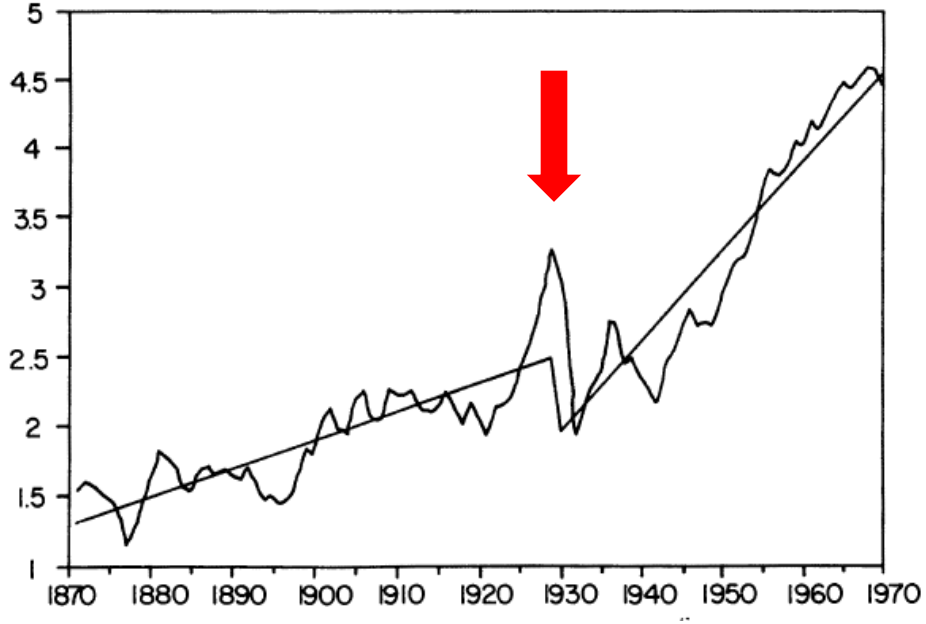
Climate change mitigation requires a transformation of energy systems.

We have little to no macroeconomic understanding of energy transitions.

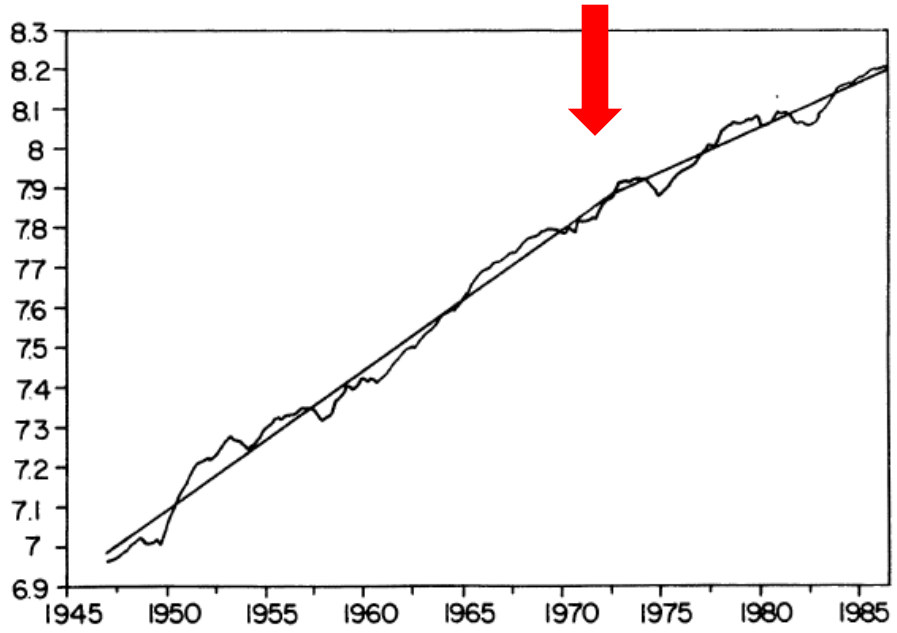
Econometrica, Vol. 57, No. 6 (November, 1989), 1361–1401

THE GREAT CRASH, THE OIL PRICE SHOCK, AND THE UNIT ROOT HYPOTHESIS

BY PIERRE PERRON[1]



Log stock price



Log Real GNP

"To understand the Great Depression is the Holy Grail of macroeconomics"

(Bernanke, 2000)

Five aspects of the Depression

Wall Street Bubble

(1927-29)

Deflation

Great Crash

Collapse in Industrial Production (& Jobs)

Bank Failures

1920s Oil Scarcity Concerns

"Oil, of which our resources are limited, is largely taking the place of coal…"

President Coolidge (1926, p.6), in his Introduction to the First Report of the new Federal Oil Conservation Board (FOCB)

Oil Discoveries, 1929

"In October 1929, U.S. commercial crude **stocks** peaked at a staggering 545 million barrels, following the discovery of a series of huge new oil fields in Oklahoma, Texas, the rest of the Southwest and California."

Kemp (2015)

New York Times, Oct. 22, 1929

STANDARD OIL CUTS CALIFORNIA PRICES

Reduction of 50 to 75 Cents a Barrel Attributed to Big Overproduction.

OTHERS TO FALL IN LINE

Shell Company Announces It Will Meet New Rates—Union Oil Expected to Act Also.

New York Times, Oct. 29, 1929

STANDARD OIL CUTS BIG CRUDE STORAGE

New Jersey Company Announces Reduction of 20,000,000 Barrels, or 22%, in 2½ Years.

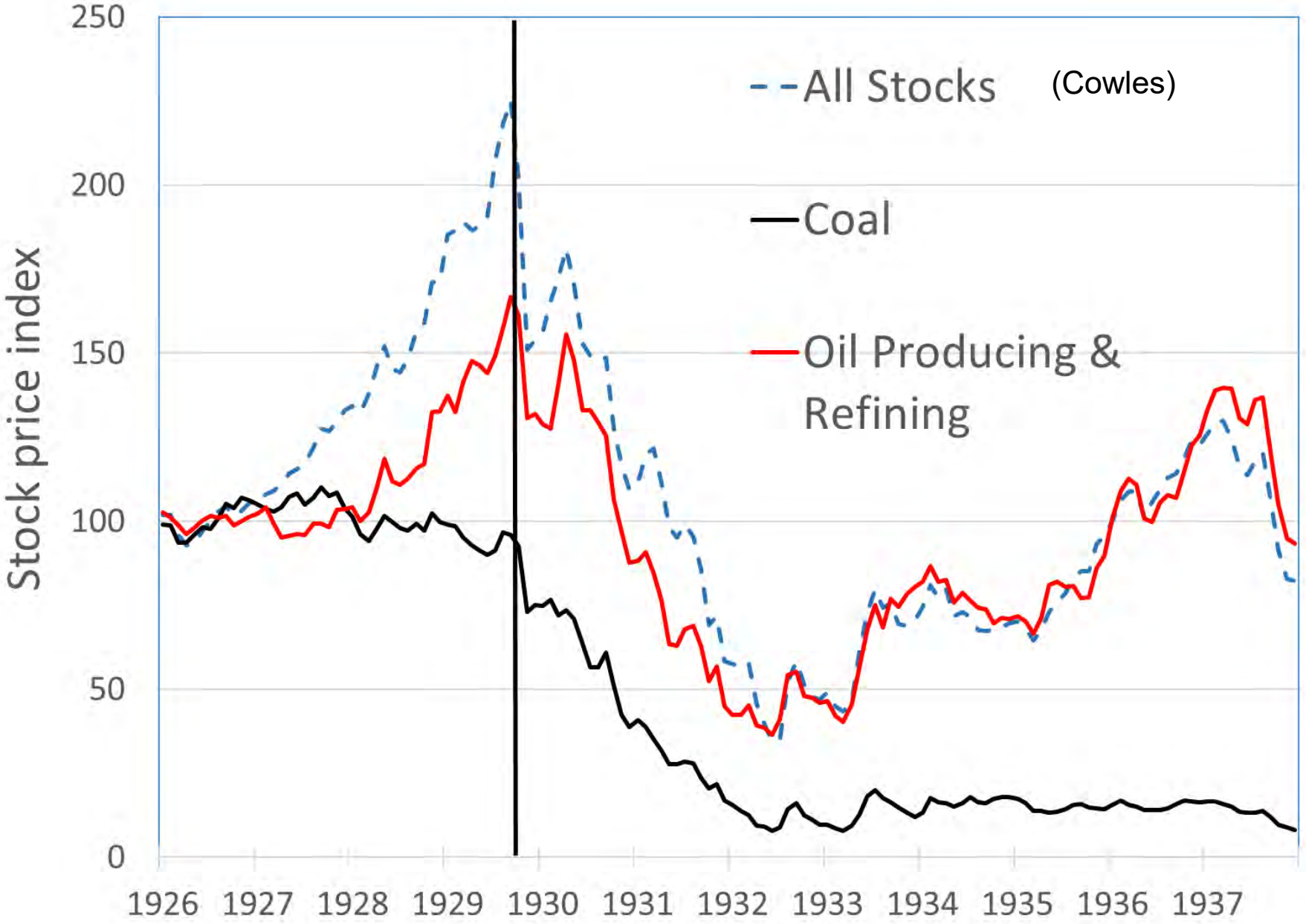
REVERSES PREVIOUS POLICY

Future Held No Longer Uncertain and Utilization of Stocks Financially Desirable.

JOURNAL OF INDUSTRIAL ECOLOGY

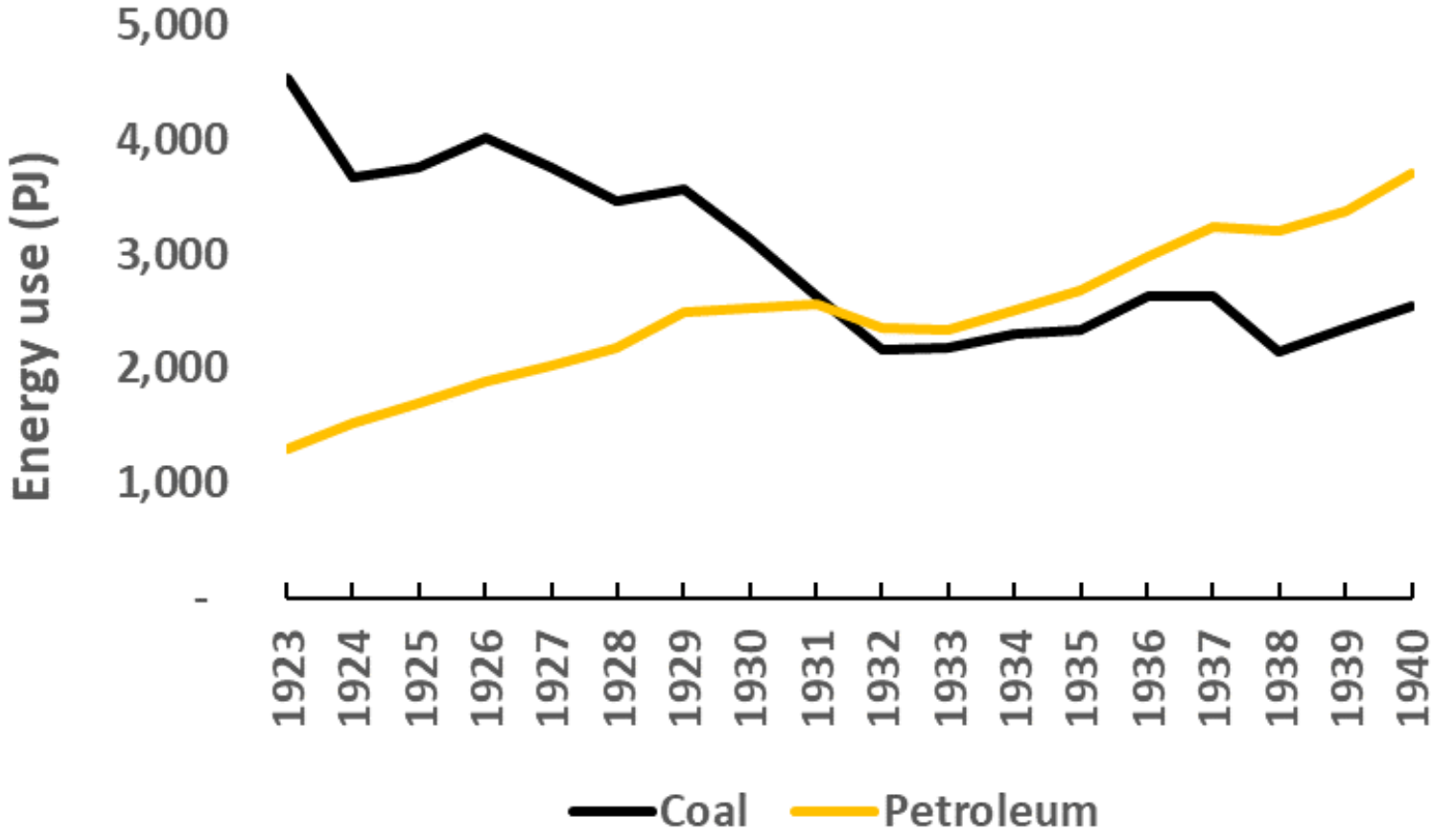
New York Times, Oct. 29, 1929
Black Tuesday

"Holding that the future supply of crude oil was no longer an uncertainty, the Standard Oil Company of New Jersey yesterday announced a reversal of the long established policy of storage of crude oil against a possible shortage" (my emphasis added).



Tipping Point from the *Coal Age* to *Oil Age*

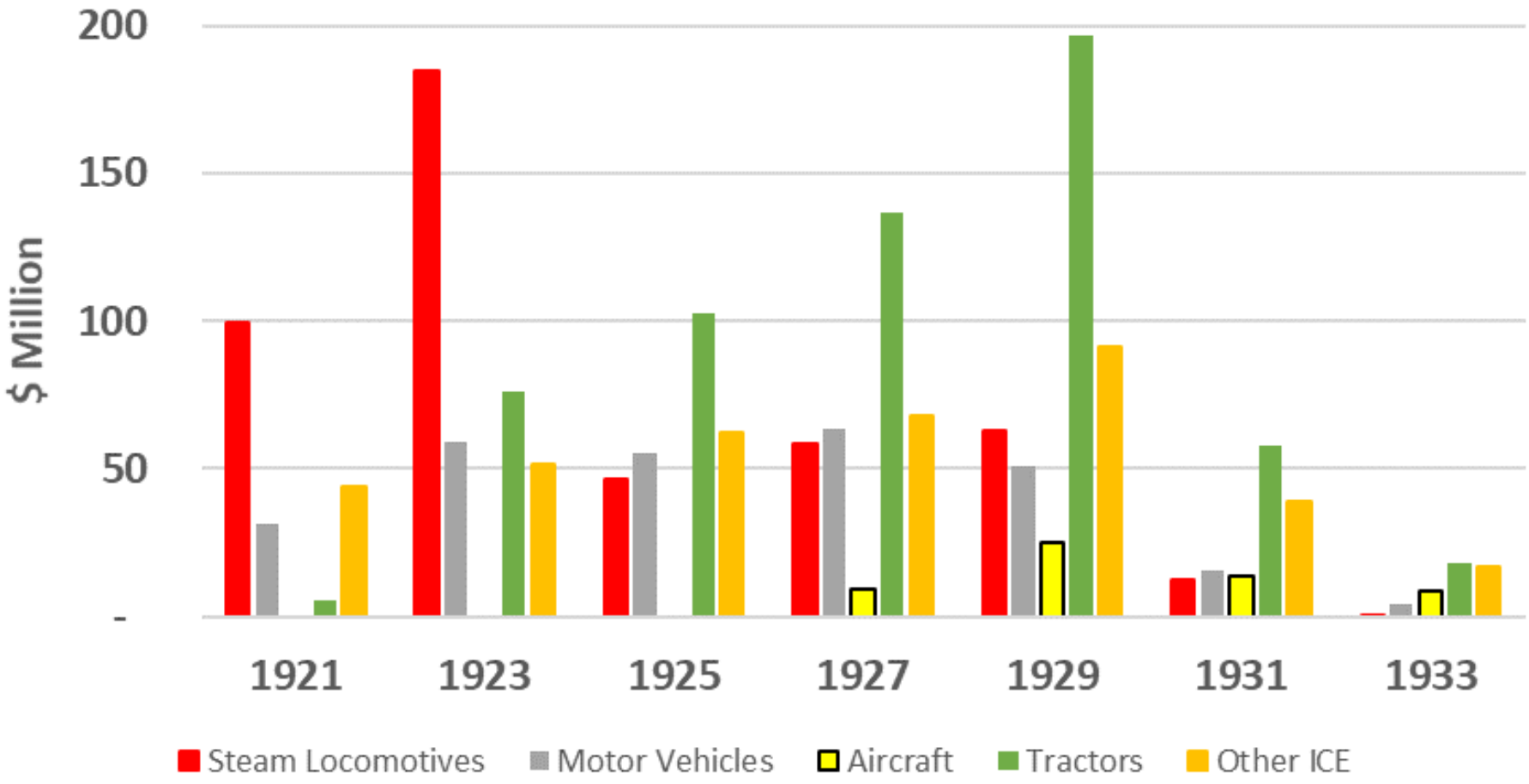
Kennedy (2024)



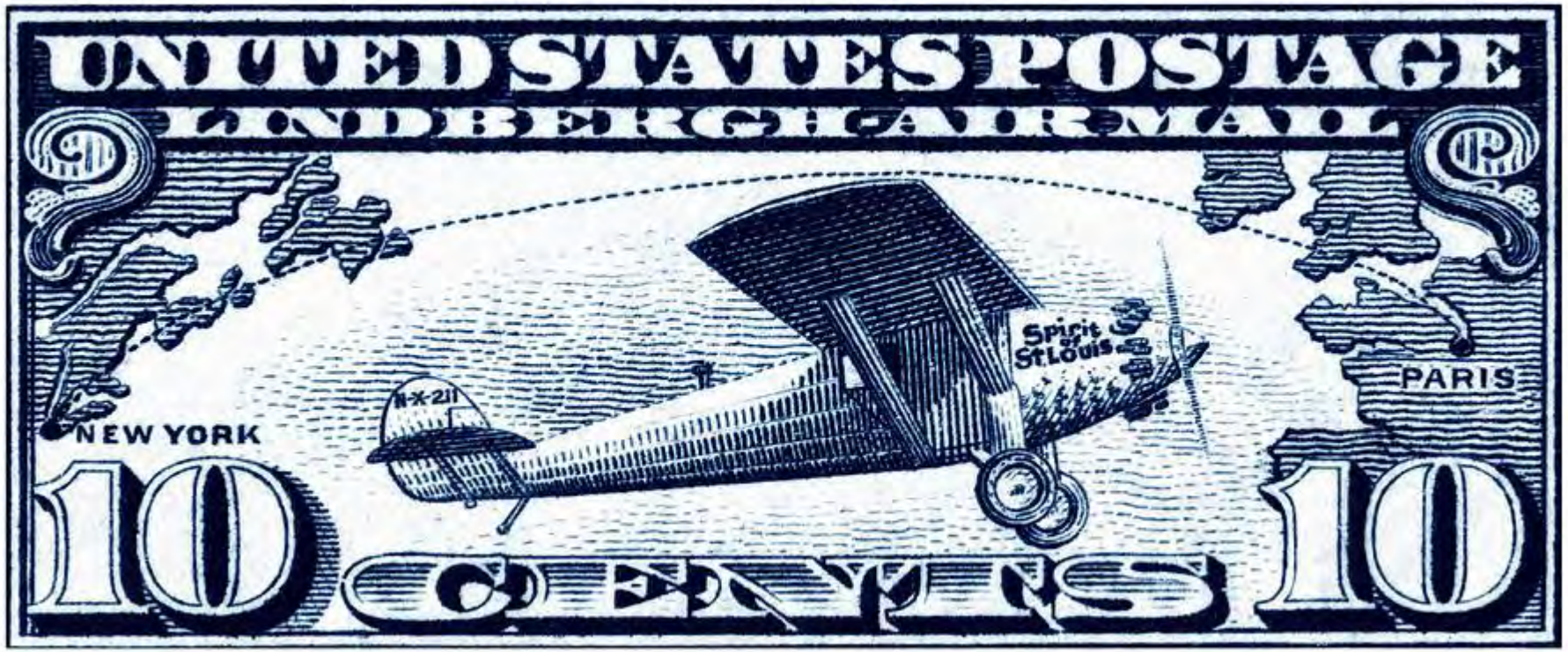
US Ground Transportation Fuel Use,1923-40

Kennedy (2023)

Investments in Engines, Tractors and Locomotives, 1921 to 1933

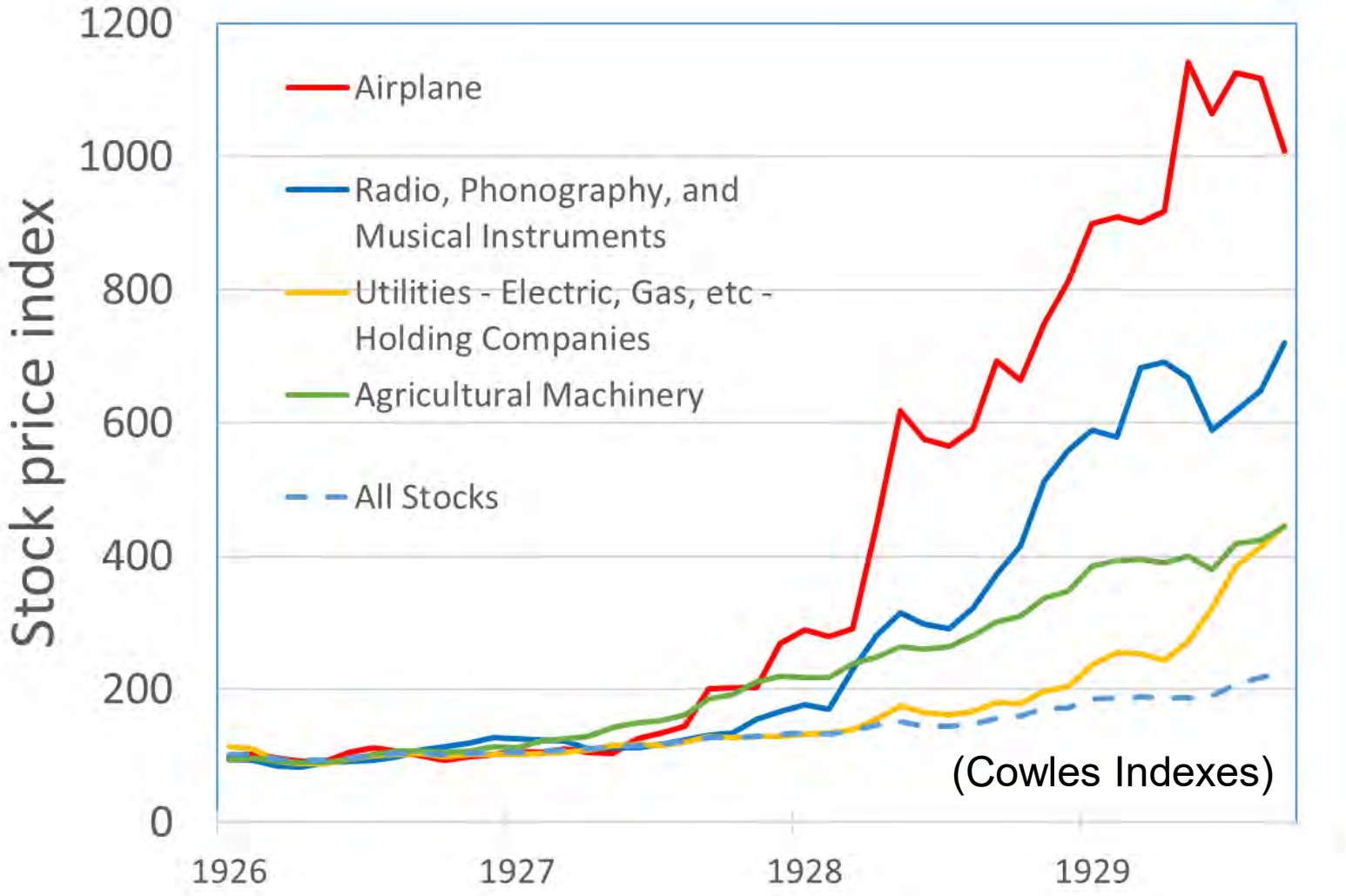


(US Census Bureau, 1930 & 35)

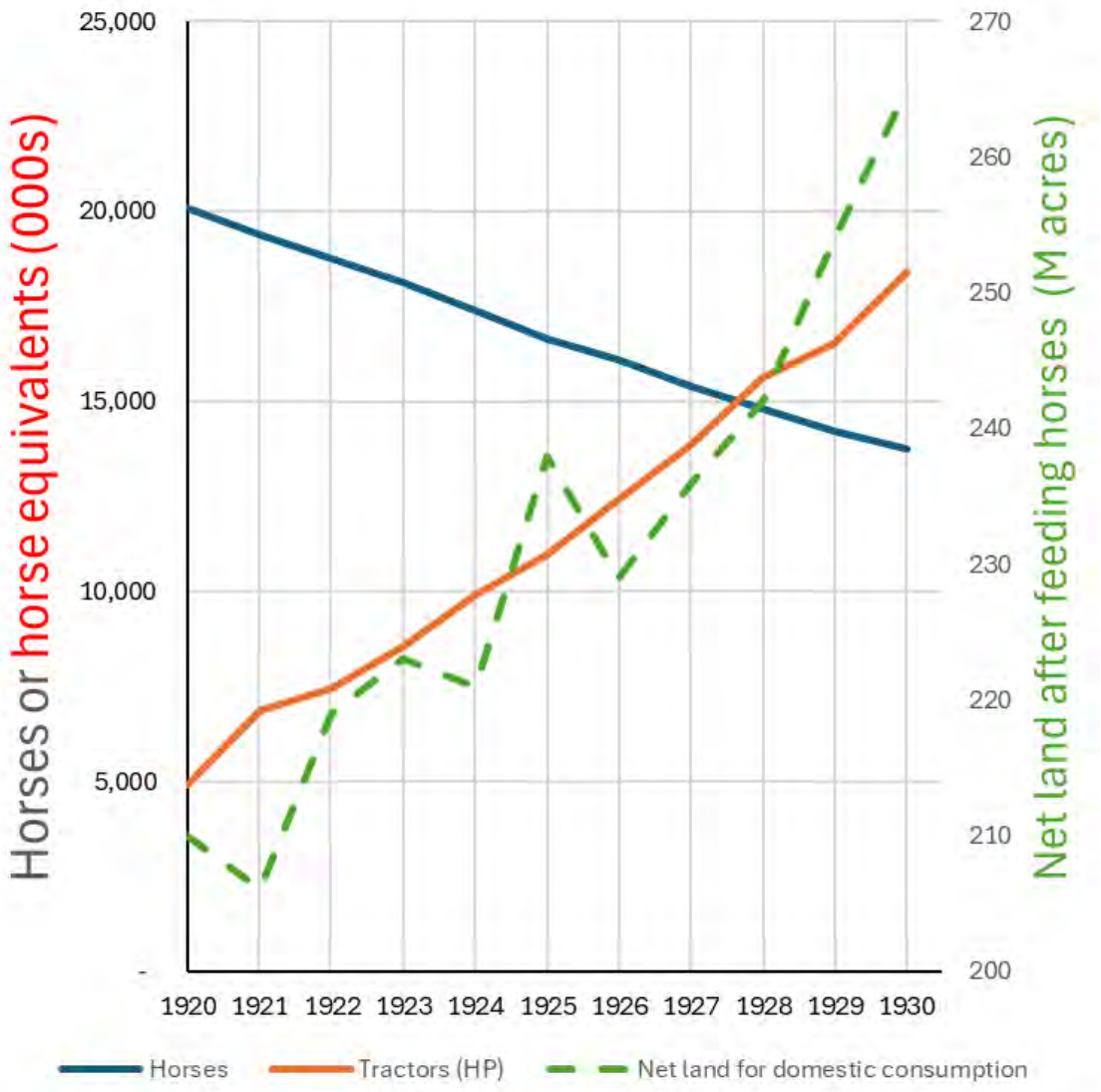


The Lindbergh Boom
1927-29

Which technologies were behind the 1927-29 Wall Street Bubble?



The Deep Role of Tractors



US had 920,000 tractors by 1930 (and had exported 383,000)

'Net' farmland increased by 55 million acres (26%) over the 1920s.

(Kennedy, 2025)

Statistical Tests

Changes in **farm** and **petroleum product prices** explain 89% of changes to all-commodities prices over the 1930s.

Changes in **real coal prices** uni-directionally Granger-caused changes in **money supply**, **household income** and **industrial production**

Railroads

"The railroad crisis transcended the Great Depression; the railroads were in a long-term decline from which they would never recover."

Olson (1988) *Saving Capitalism*

Did Railroads Cause US Banks to Fail in the 1930s?

(Kennedy & Schiffman, 2026)

US Bond Prices (Source: Survey of Current Business)

Five aspects of the Depression

Wall Street Bubble (1927-29)	Led by aviation, agricultural machinery, utilities and other stocks
Deflation	Caused by decline in farm products and petroleum prices
Great Crash	Oil discovery (Tipping point from **Coal Age** to **Oil Age**)
Collapse in Industrial Production (& Jobs)	Explained by rising real coal prices
Bank Failures	Influenced by collapse in railroad bonds

Conclusions

An ENERGY TRANSITION underlay the GREAT DEPRESSION.

We should NOT conclude that all energy transitions involve Depressions.

BUT economics has much to learn about energy transitions.

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EXTRA SLIDES

Lock-in to the incumbent socio-technological regime

In 1929, 46% of refined petroleum products were carried by rail oil cars

Heavier EVs Mean Heavier Car Carriers, So The Trucking Industry Is Fighting For Higher Weight Limits

CARSCOOPS

Carscoops.com, accessed May 2, 2023

US Wholesale Prices Indices

Price Index	October 1929 Nominal	February 1933 Nominal	February 1933 Real
All-commodities	96.3	59.8	100
Farm products	103.9	40.9	68.4
Petroleum products	70.8	34.3	57.4
Bituminous coal	92.0	79.4	132.8
Iron & steel	96.8	77.3	129.3
Building materials	97.8	69.8	116.7

US Bureau of Labor (1926 =100)

Jevons (1865): *The Coal Question*

"Coal in truth stands not beside, but entirely above all other commodities. It is the material energy of the country – the universal aid – the factor in everything we do.."

(Jevons, p.2)

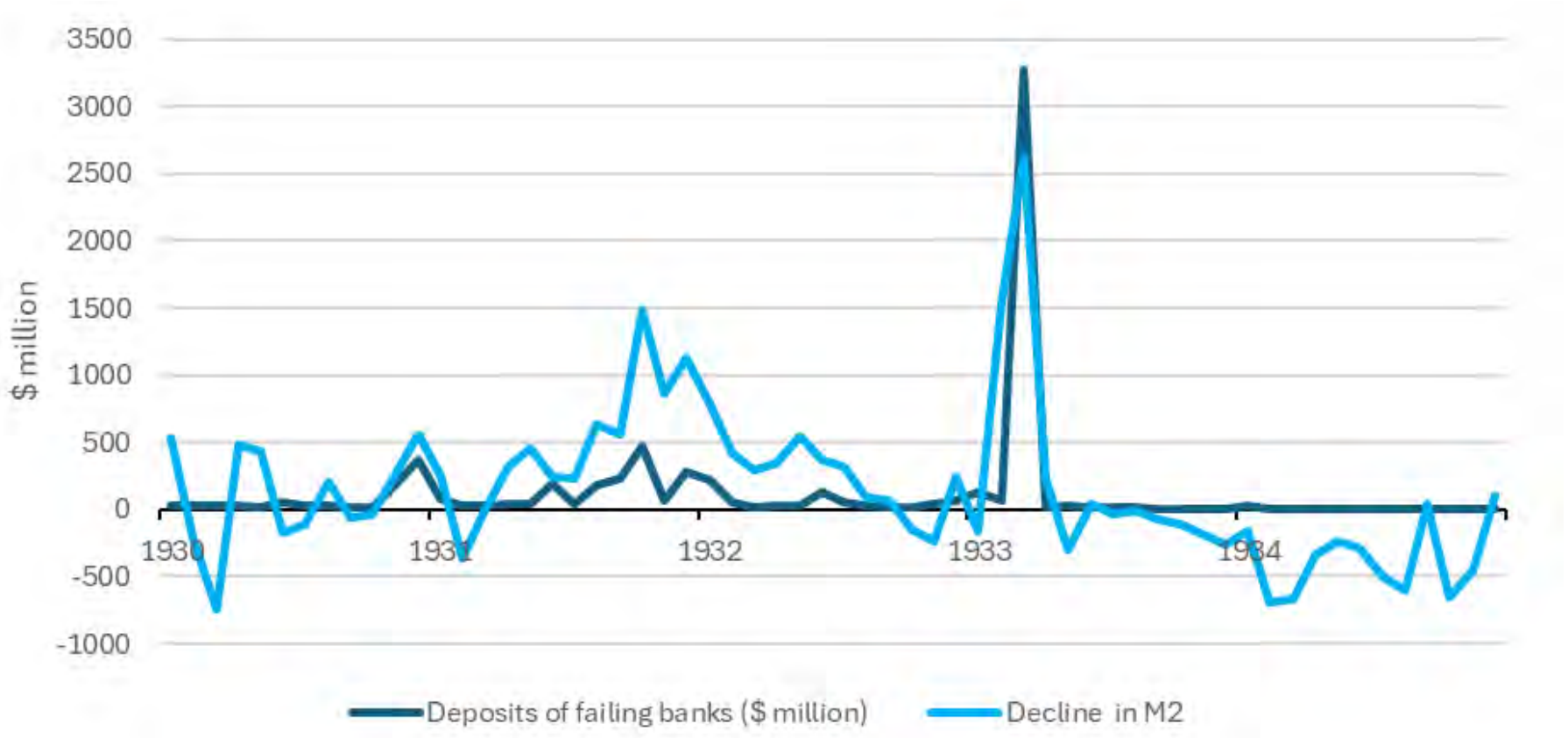
Robbins (1934) *The Great Depression*

Amongst possible causes for changes to production of capital assets:

“discovery of new natural resources”

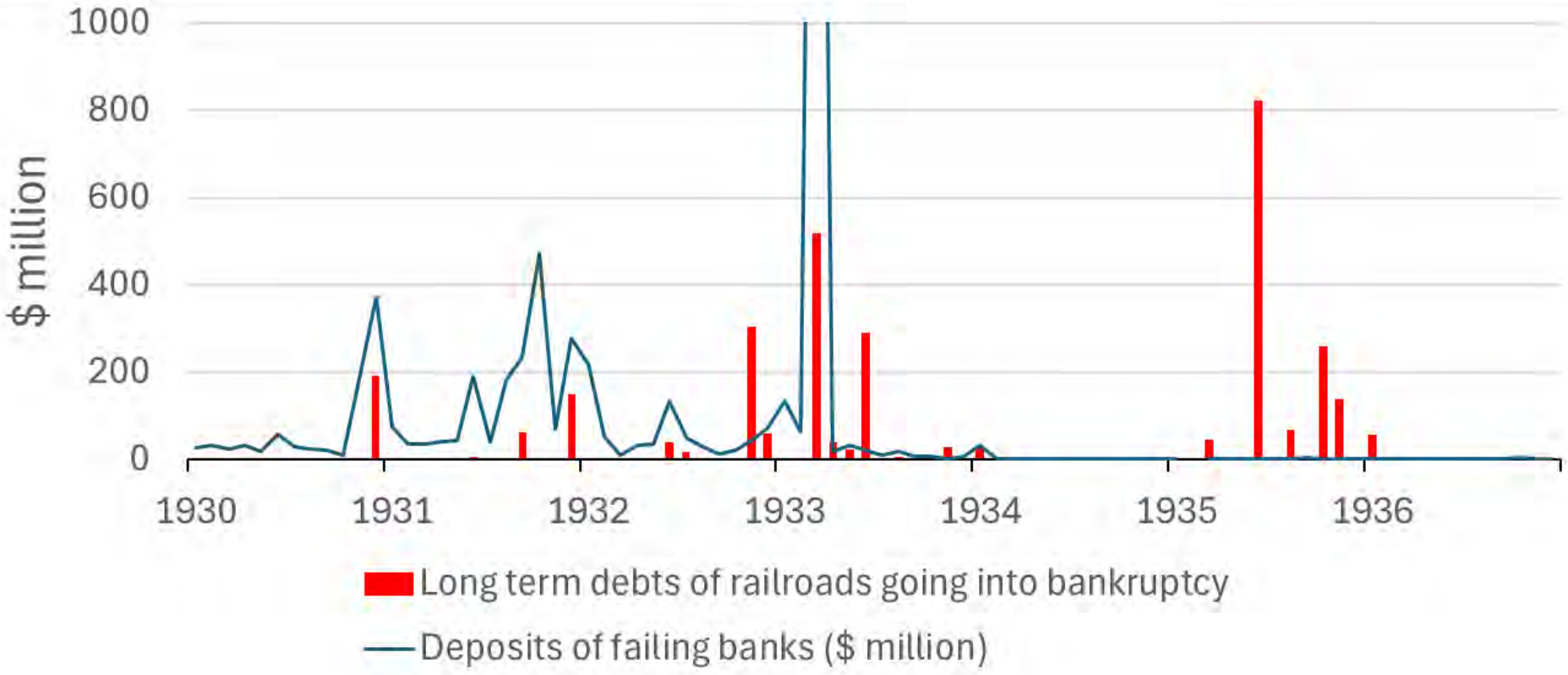
(Robbins, p.42 of 2011 version).

Why did money supply decline?



Kennedy & Schiffman (in progress)

Long term debt of railroads going into bankruptcy and deposits of suspended banks,1930-37



Note: deposits of suspended banks reach $3,276 million in March 1933 (month of the bank holiday)

Kennedy & Schiffman (2026)