

# **The End of the Great Depression 1939-41: VAR Insight on Policy Contributions and Fiscal Multiplier**

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# Three Big Questions about the Great Depression

- Why it happened at all? 1929-33
- Why it lasted so long, 1933-41
- Why it eventually ended, 1939-41
- This paper is about the third of these topics, with partial implications for the second topic
- The Obama Administration's top economists all have published positions: Summers, Bernanke, and C. Romer

# Our Paper Attempts to Replace Polemics by Science

- C. Romer (1992). “Only money mattered” and fiscal policy had no role in ending the Great Depression
- Vernon (1994) “after 1940 only fiscal expansion mattered”
- Bernanke and Summers-deLong: the economy recovered through mean-reversion. A non-starter, why mean reversion in 1939-41 instead of 1933-35?

# This Paper Makes Six Contributions

- (1) New quarterly (and monthly) data set for components on spending on real GDP, 1919-51. Avoid adding-up problem of chain-weighted GDP by using \$1937
- (2) New criterion for “end of Great Depression” based on a new estimate of potential real GDP for 1919-51
- (3) Rejection of nonsensical “band pass filter” estimates of GDP trend for the interwar period. These methods imply ludicrously implausible variation

# Contribution #4

- (4) Review of contemporary 1940-41 print media
  - To document the fact that the fiscal stimulus of WWII began in June 1940, not December 1941.
  - To document that capacity constraints in the last half of 1941 taint estimates of fiscal multipliers
  - Puts perspective on the preceding academic literature, reviewed in Part 4.

# #5 The VAR Results on Policy Contributions

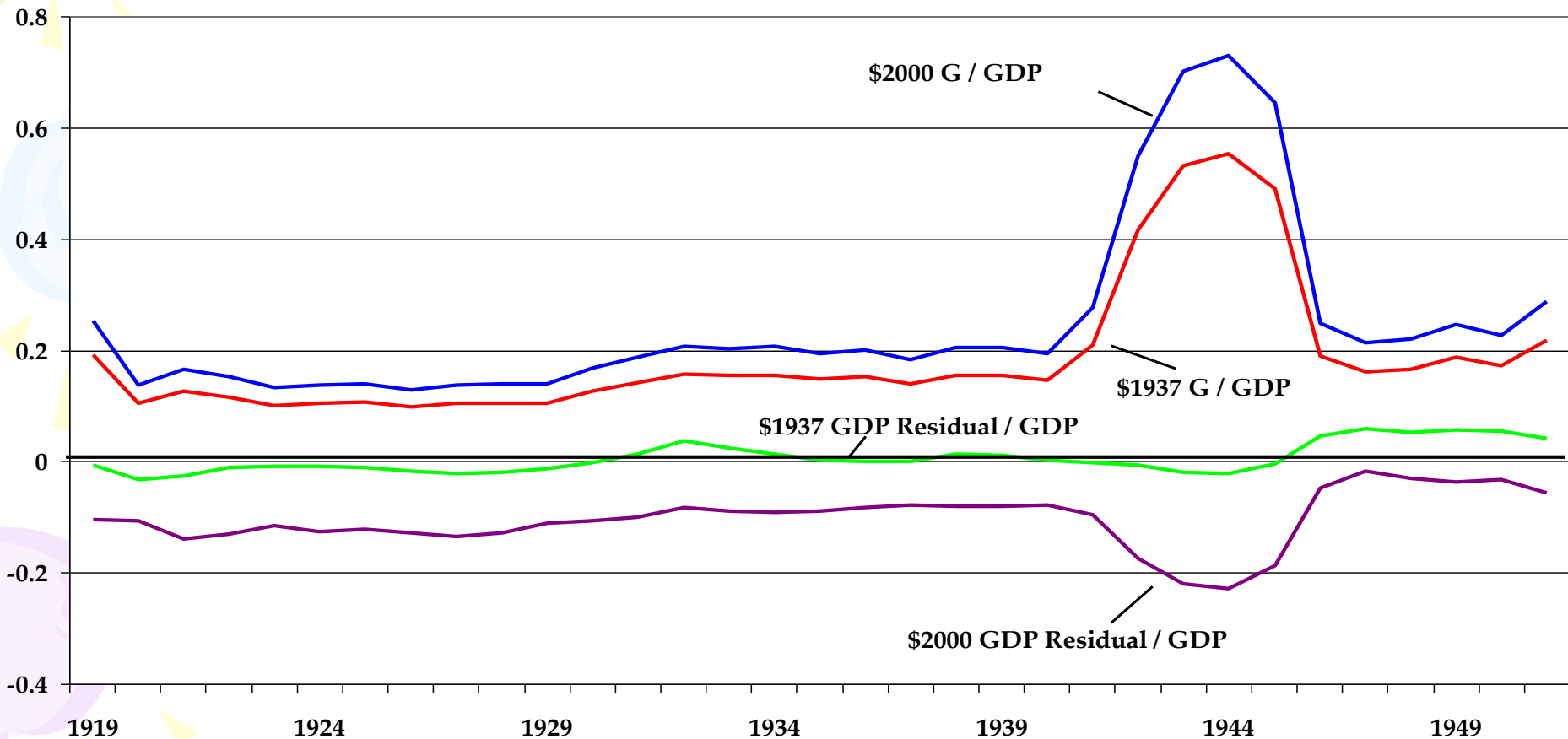
- (5) Basic VAR model
  - Variables: G/YN, M1, MM, N/YN, R
  - Five variables, five lags
  - Extensive robustness tests
- Our baseline result division of policy contributions 89% fiscal, 34% monetary,  
-23% N/YN
  - Latter is interpreted as the result of capacity constraints

# #6 Results on Fiscal Multiplier

- Not just  $\Delta Y / \Delta G$  but rather model forecasts of effects of G innovations vs. baseline no-innovation VAR forecast
- For 1940:Q2 to 1941:Q2, mult = 1.80
- For 1940:Q2 to 1941:Q4, mult = 0.88
- Difference is interpreted as the result of capacity constraints

# Why We Can't Use \$2000 Real GDP to Assess 1939-41

Figure 1: \$1937 vs. \$2000 Comparison for GDP Residual / GDP and G / GDP: 1919-1951

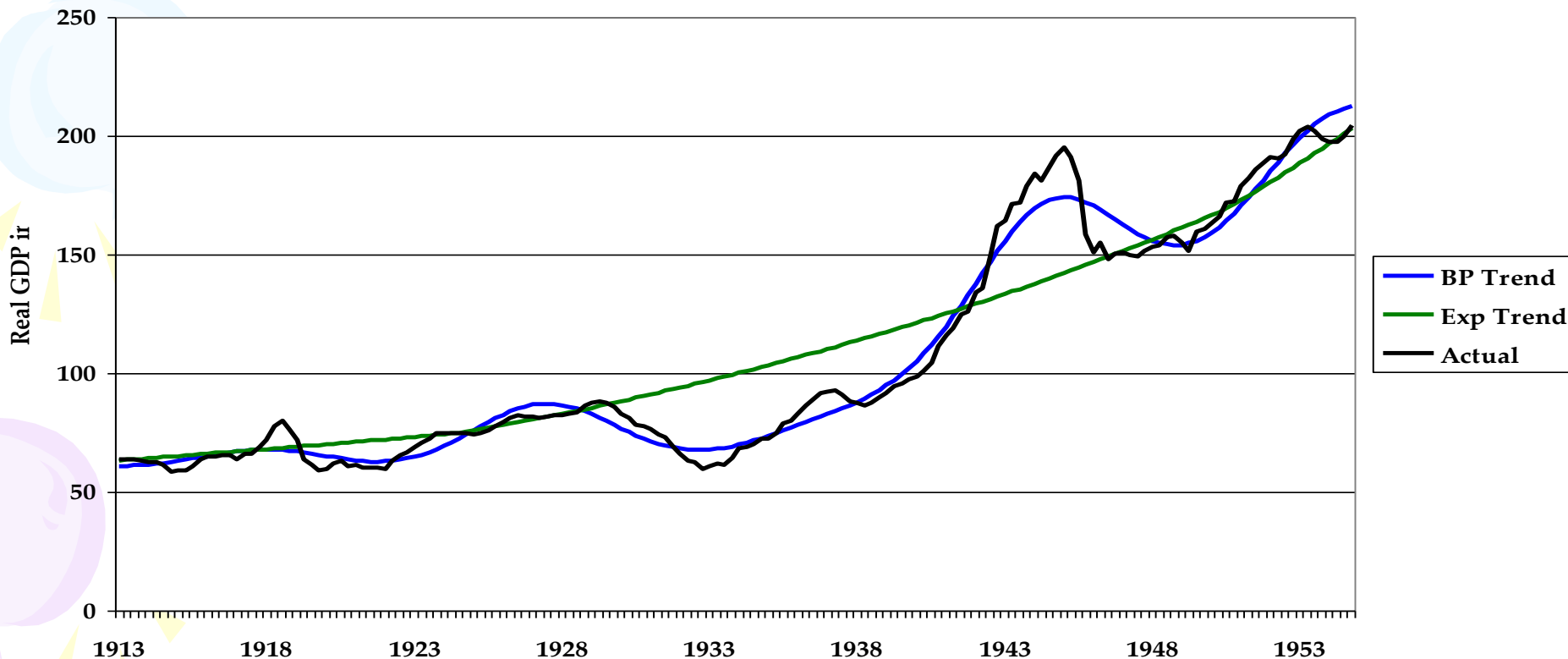


Source: 1919-1929 annual data from Balke and Gordon (1989), ratio-linked in 1929 to annual data from BEA NIPA Table 1.1.6 for \$2000, ratio-linked in 1929 to annual data from BEA NIPA Table 1.1.6A (which is reverse ratio-linked in 1947 to NIPA Table 1.1.6) for \$1937.



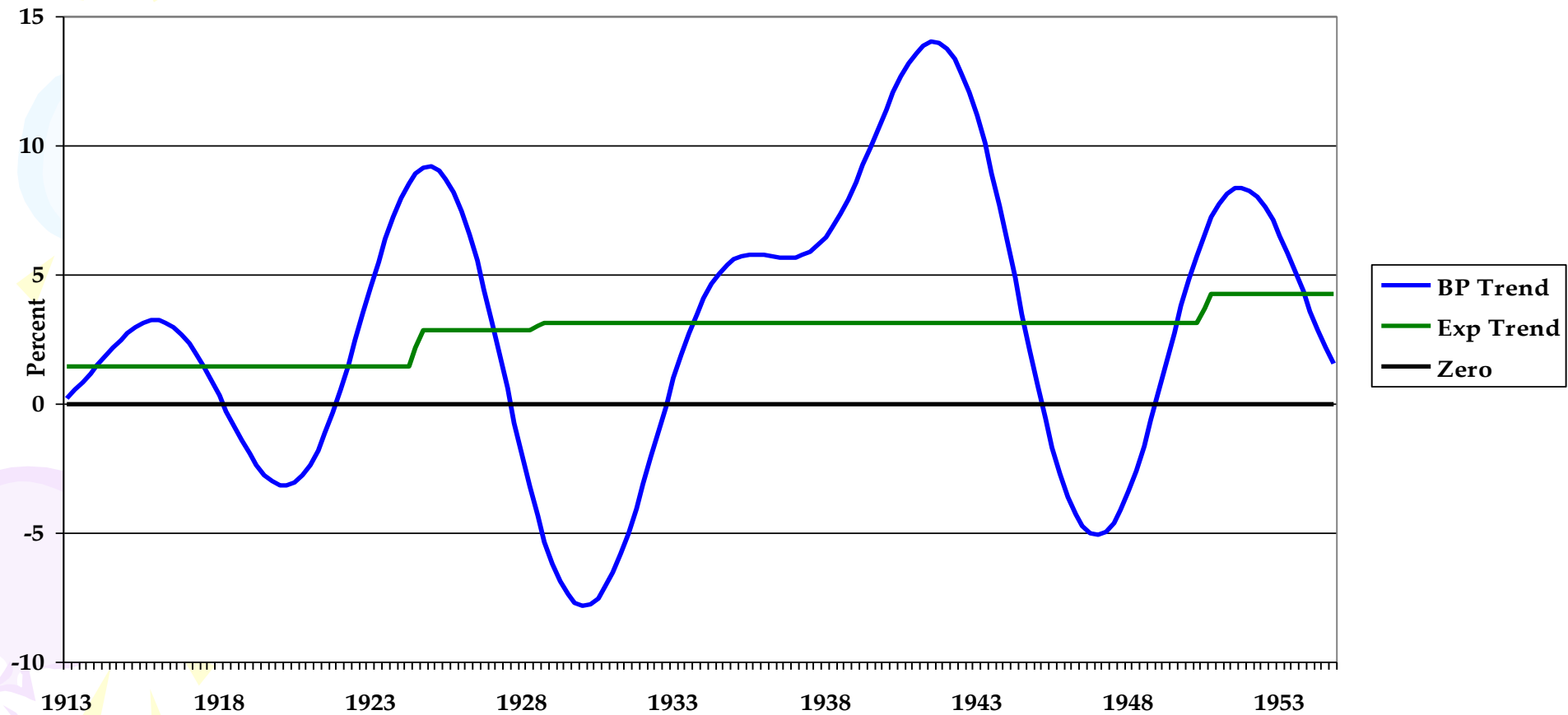
# Population and Productivity were Growing, So Why Does BP Filter Register a Decline?

Figure 2. Real GDP in \$1937, Actual and Two Trends, Band-Pass Filtered and Exponential-through-Benchmarks, 1913-54



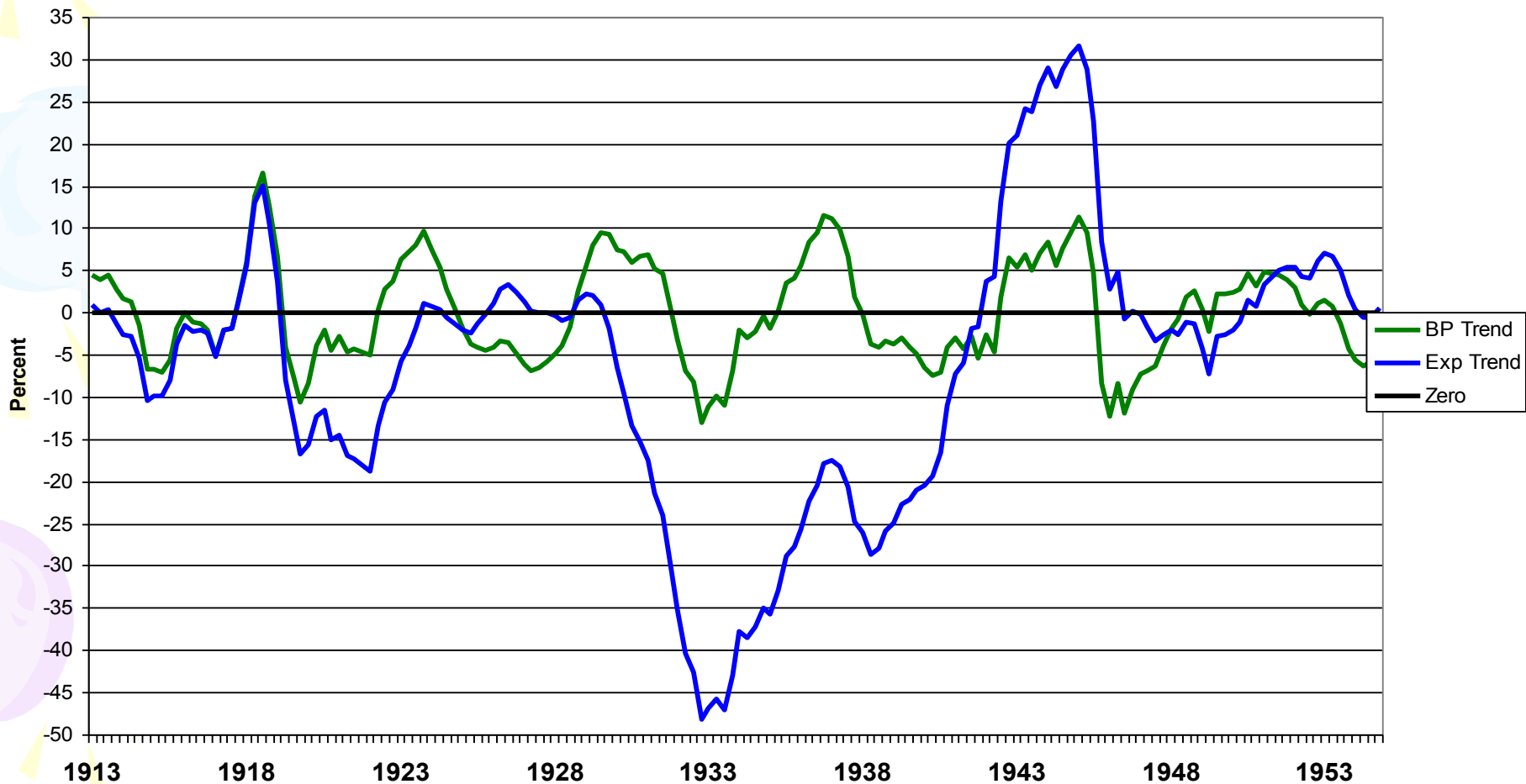
# BP Filter Implies Gyrationations in Potential Real GDP Growth

Figure 3. Annual Rates of Change of Band-Pass Filtered and Exponential-through-Benchmarks Estimates of Real GDP, 1913-54



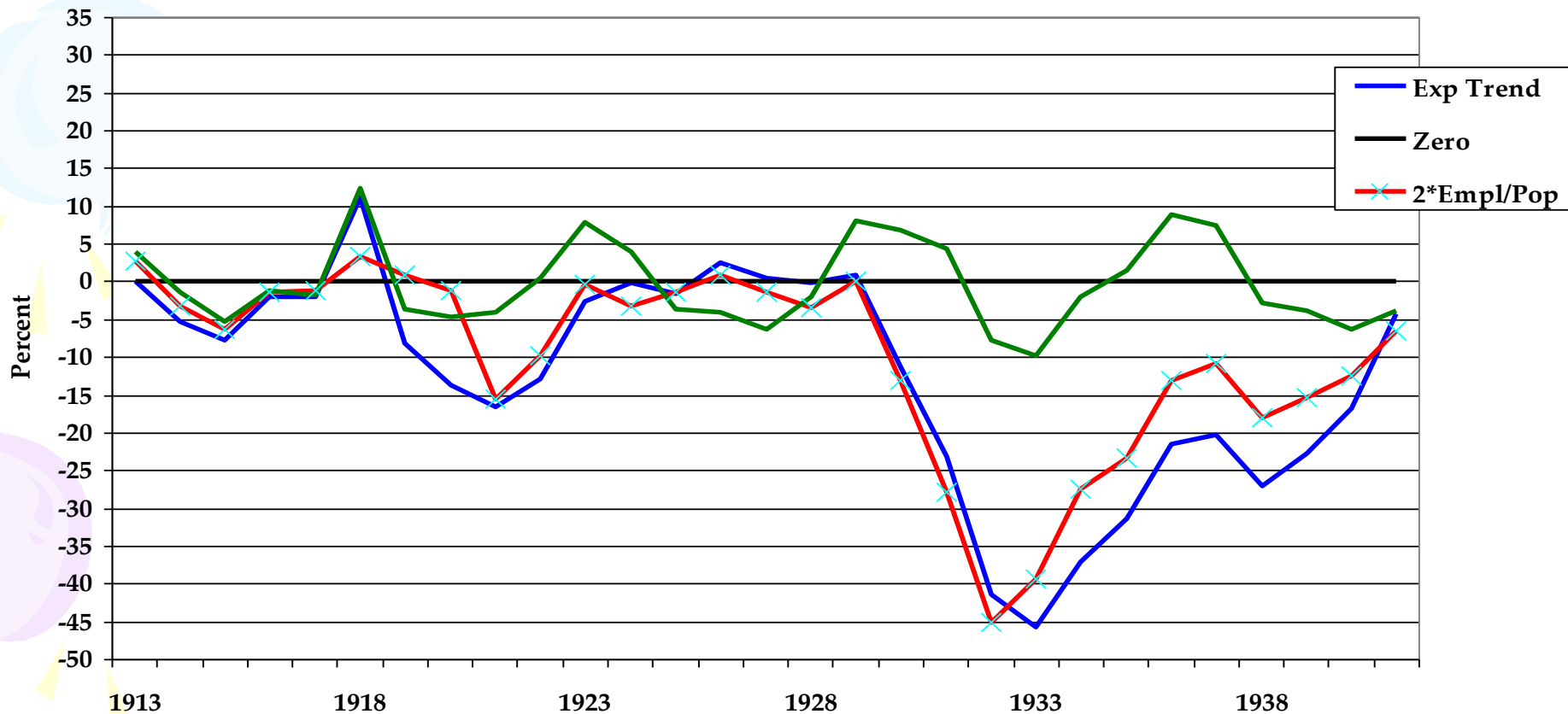
# According to BP Filter, the Log Output Gap in 1930s was just like the 1920s!

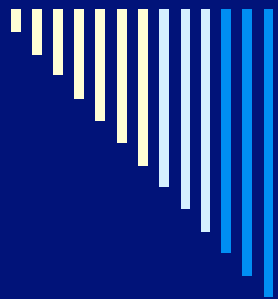
Figure 4. Percent Log Ratio of Actual to Trend Real GDP, Band-Pass Filtered and Exponential-through-Benchmarks, 1913-54



# Compare with an pure piece of data: Employment Population Ratio, 1913-1941

Figure 5. Percent Log Ratio of Actual to Trend Real GDP, BP Filter and Exponential-through-Benchmarks, and Twice the Percent Log of the Employment/Population Ratio (1929=1), Annual, 1913-41



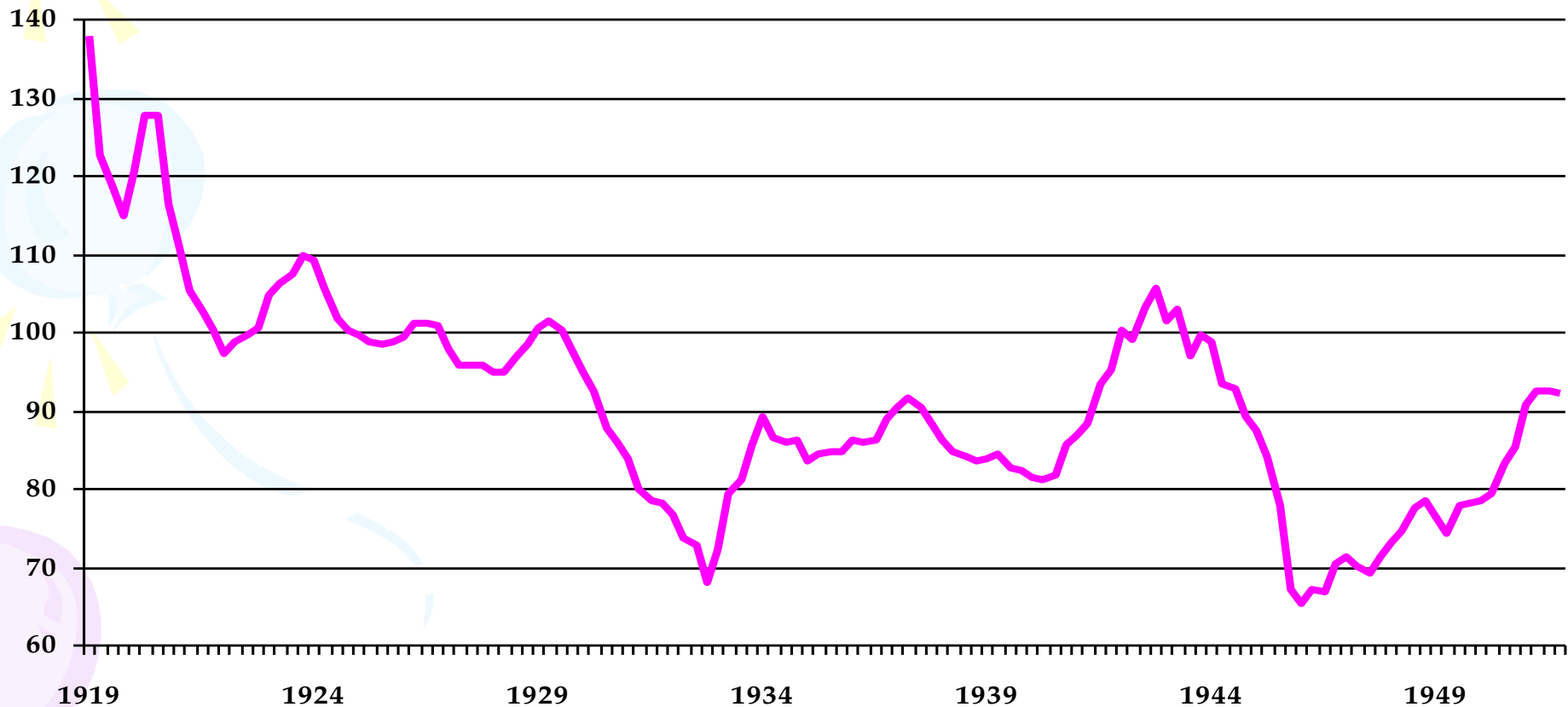


# A Theme of This Paper: Possible Error in Exponential Trend

- The exponential trend applies a constant log growth rate from 1928 to 1950.
  - The reason is that we have no solid information on any benchmark year between 1928 and 1950
  - 1941? The paper weighs the evidence of tight markets in some parts of manufacturing vs. loose labor markets
  - The paper raises the possibility that the 1928-50 trend overstates potential output in 1941
    - Our trend is consistent with the possibility that the employment/pop ratio expresses loose labor markets compared to tight product markets
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- Decline in labor's share in 1939-41

# Velocity of M1 Works Against a Money-Only Interpretation

Figure 10: Velocity of M1, 1929 = 100, 1919:Q1 - 1951:Q4



# Data and Media Review on Capacity Constraints

- Utilization rate in steel industry
  - 39.6% in 1938
  - 82.1% in 1940
  - 97.3% in 1941 (never higher in 1942-45)
- *BW* 5/31/41 “new cars are selling faster than auto companies can make them”
  - Forecast of 50 percent drop in car production in 1942
- *Fortune* April 1940 machine tool industry “tearing along close to capacity” (“thrown out of office”)
- GDP deflator rose 9.3 percent year ending

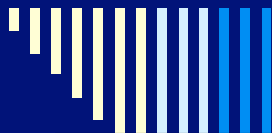
# The Fire Was Ignited in 1940:Q2, *Not* on 12/7/41

- Even before 1940:Q2, January exports jumped to combatant nations jumped 50 percent or more Y-o-Y
- In June defense appropriations jumped by 1.5 percent of GDP
- June 22 “National Defense has become the dominant economic and social force in the U. S. today”
- June 10 “Stripping of the

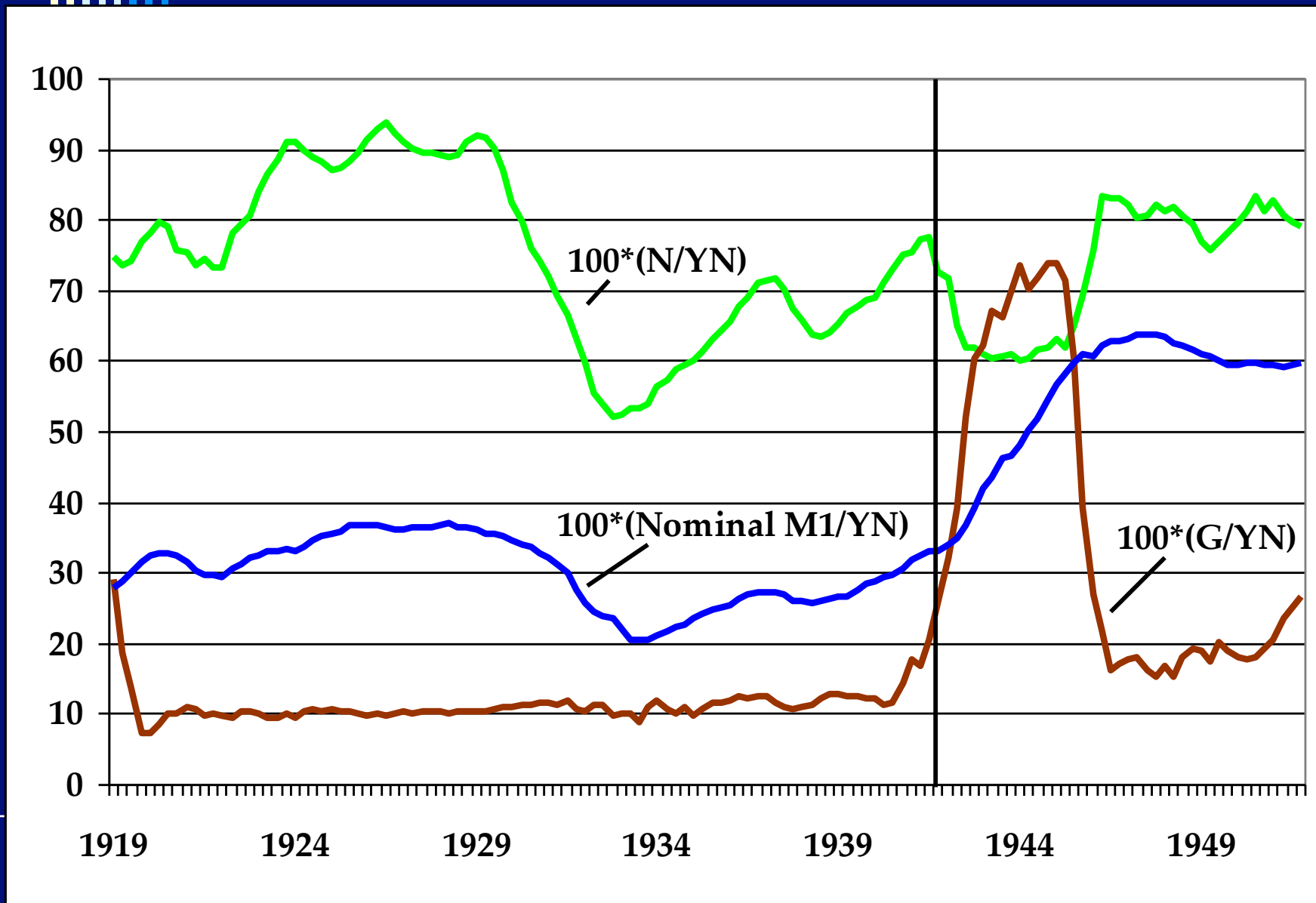


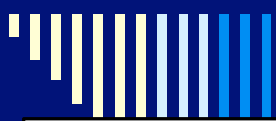
# Summer and Fall of 1940

- August: defense appropriations jumped by 5 percent of GDP
  - Plans for a two-ocean navy “by 1944”
  - 50,000 warplanes by June, 1942
- September: Selective Service, 1.2 million to be drafted
- 400,000 construction jobs to build army training camps (1% of 1940 employment)
- Aircraft industry employment in Los Angeles County 12,000 in 10/38, projected at 100,000 by end 1941 (*Fortune*, March

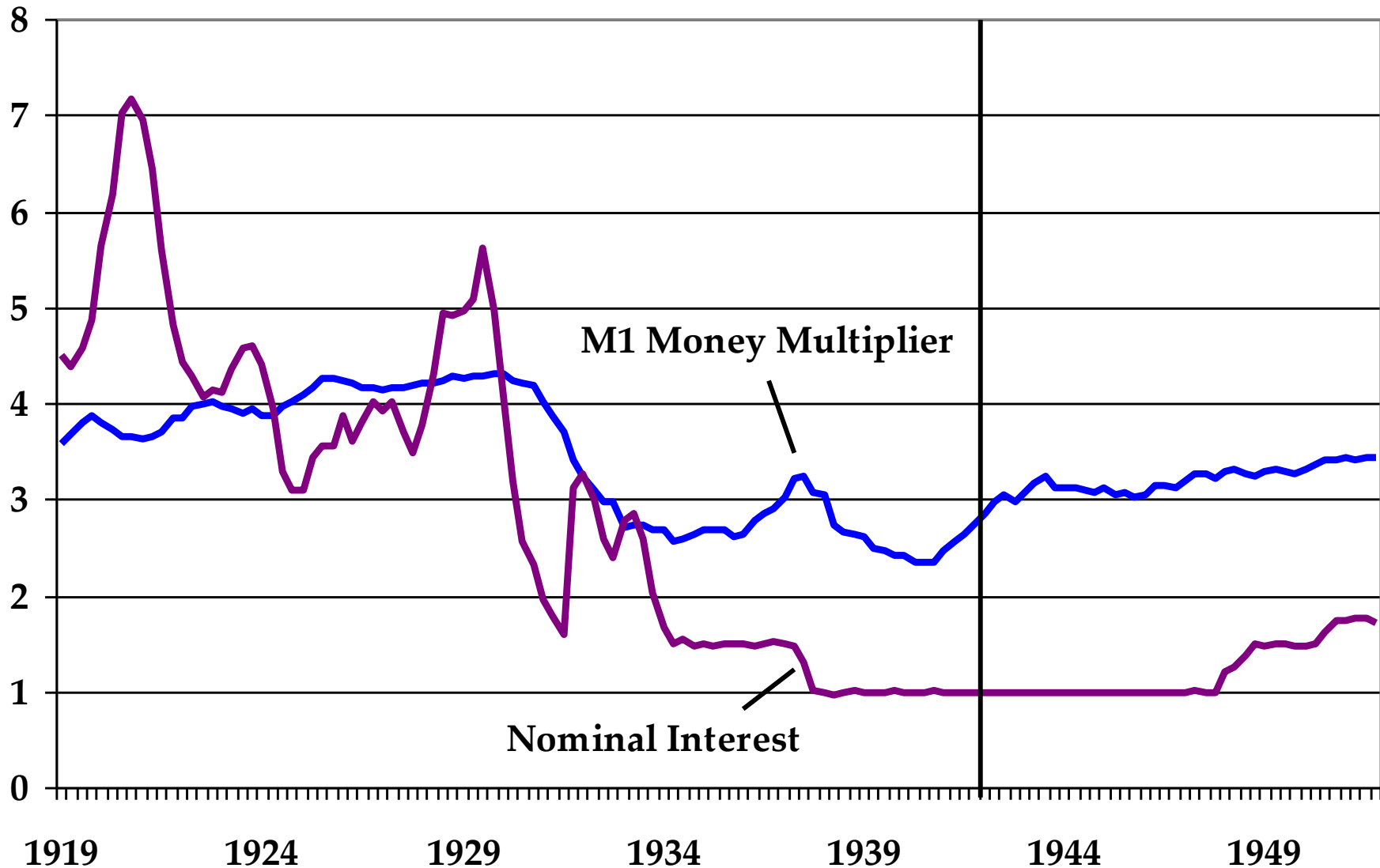


# VAR Variables: 1919:Q1-1951:Q4

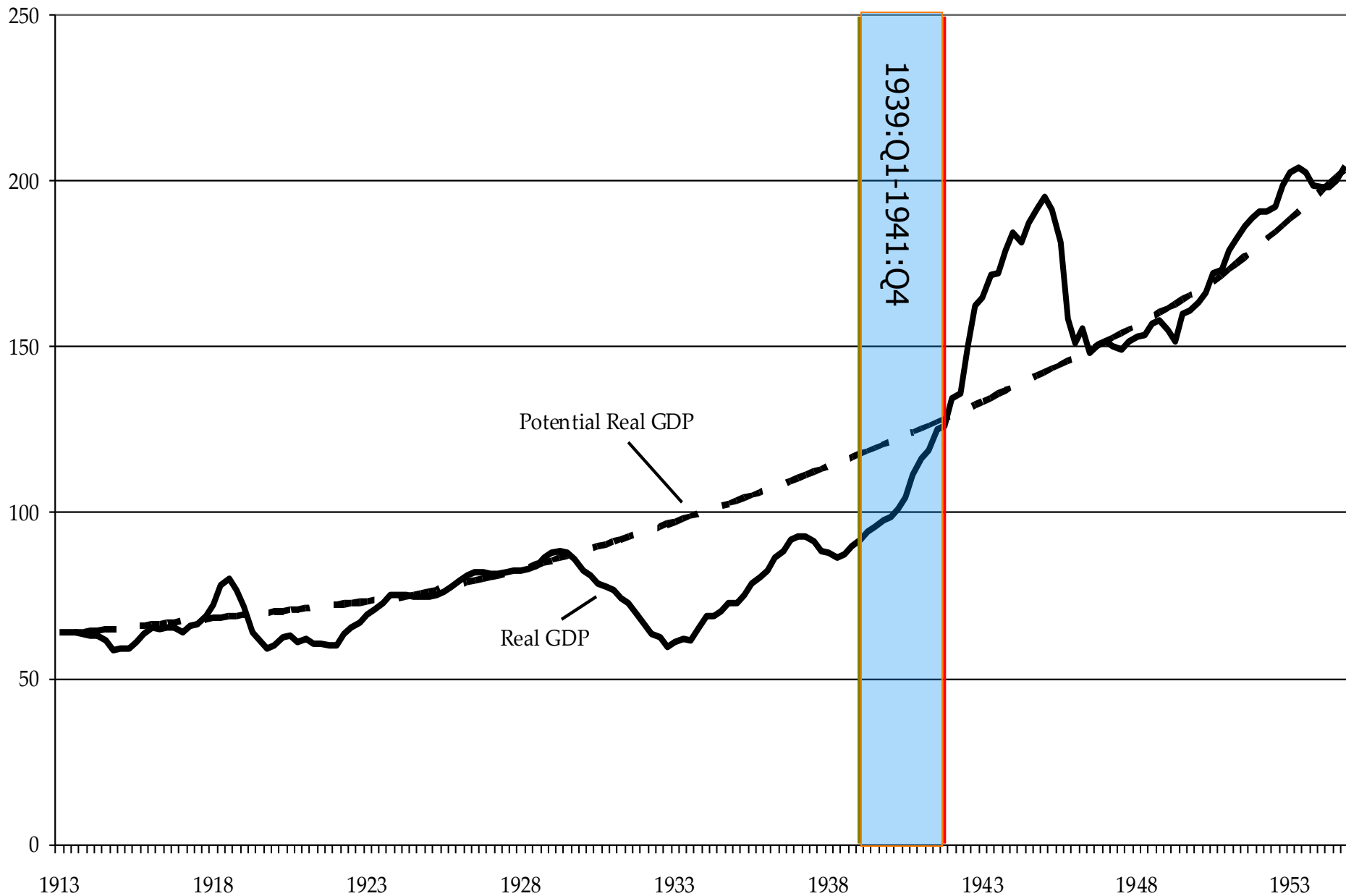




# VAR Variables: 1919:Q1-1951:Q4



Real GDP versus Potential Real GDP, 1913:Q1-1954:Q4, Billions of Chained \$1937



Source: See Data Appendix

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## Section 6: VAR Results

- We perform three main tests using VARs: historical decompositions, dynamic forecasts and impulse response functions
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Figure 10: Historical Decomposition of G: 1939:Q1 to 1941:Q4

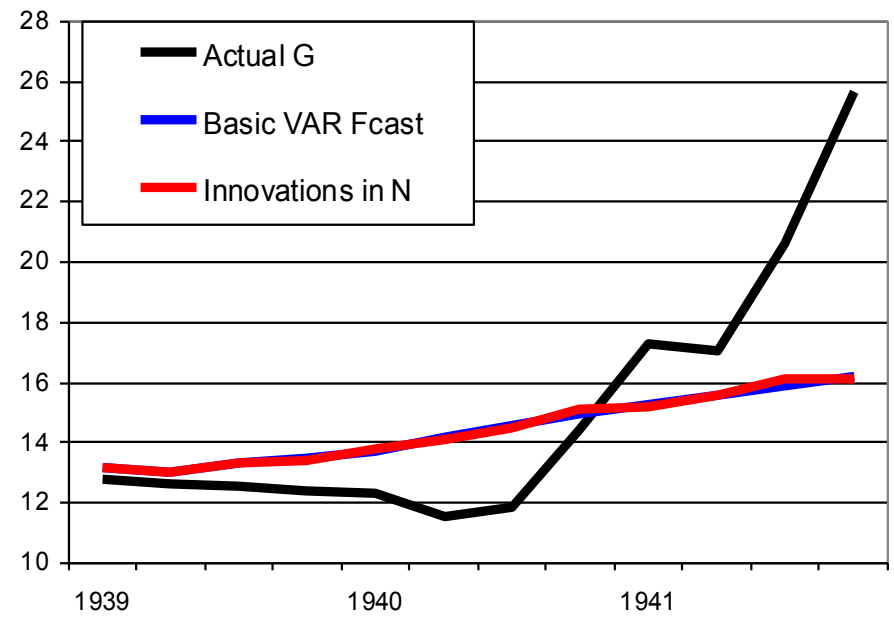
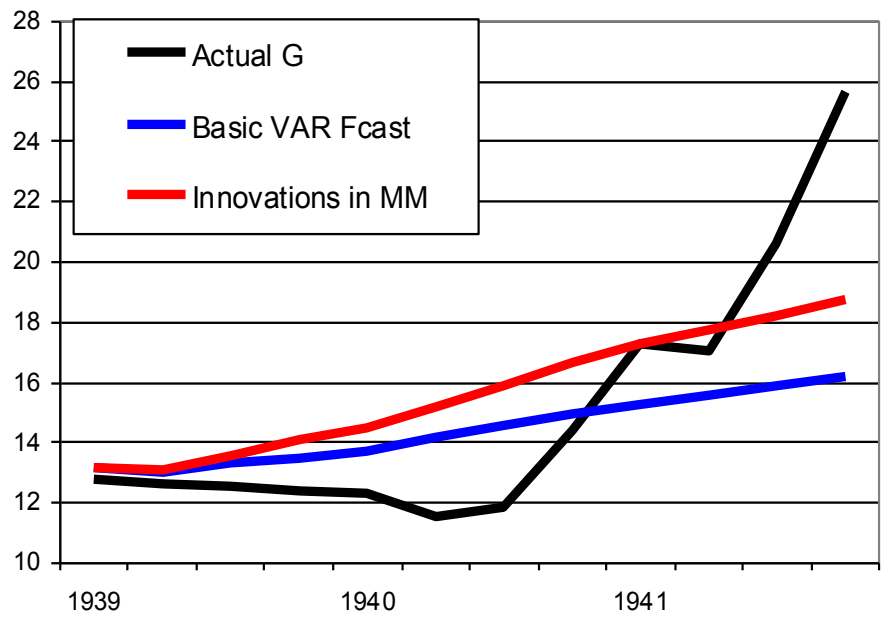
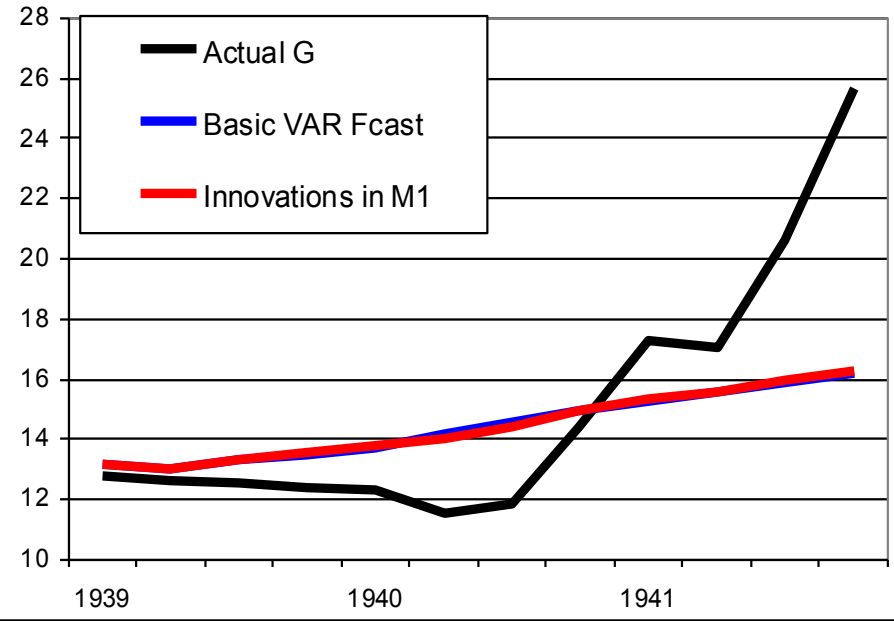
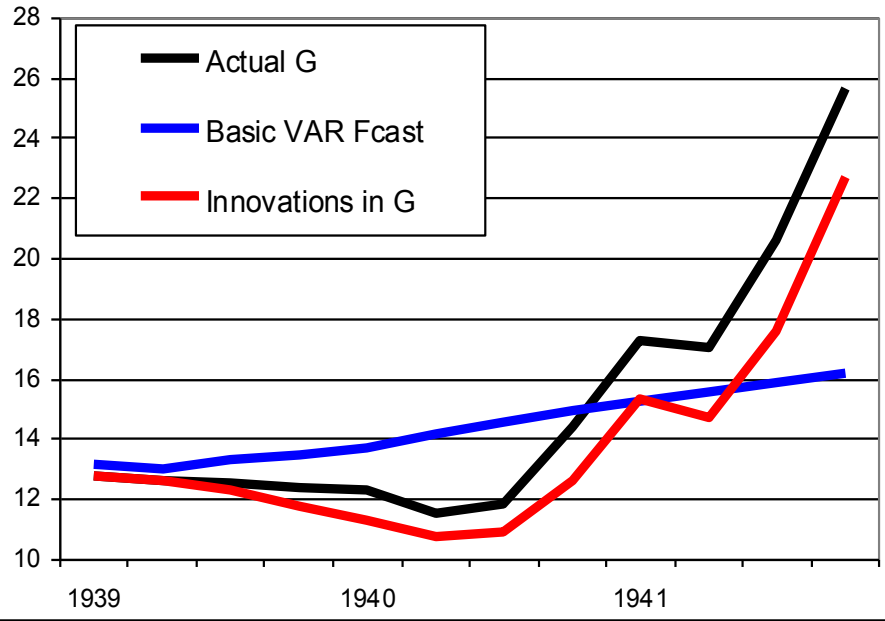


Figure 11: Historical Decomposition of N: 1939:Q1 to 1941:Q4

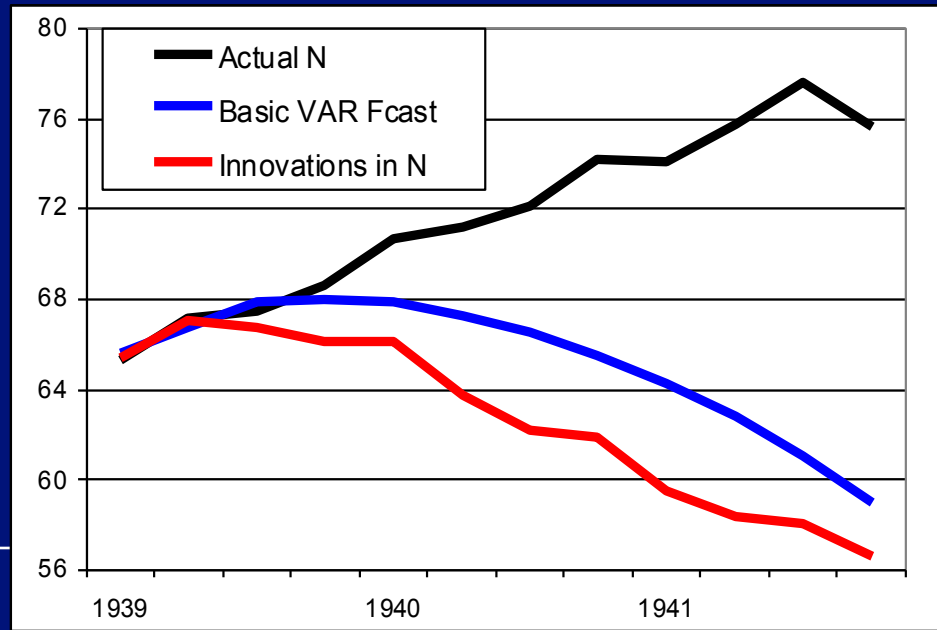
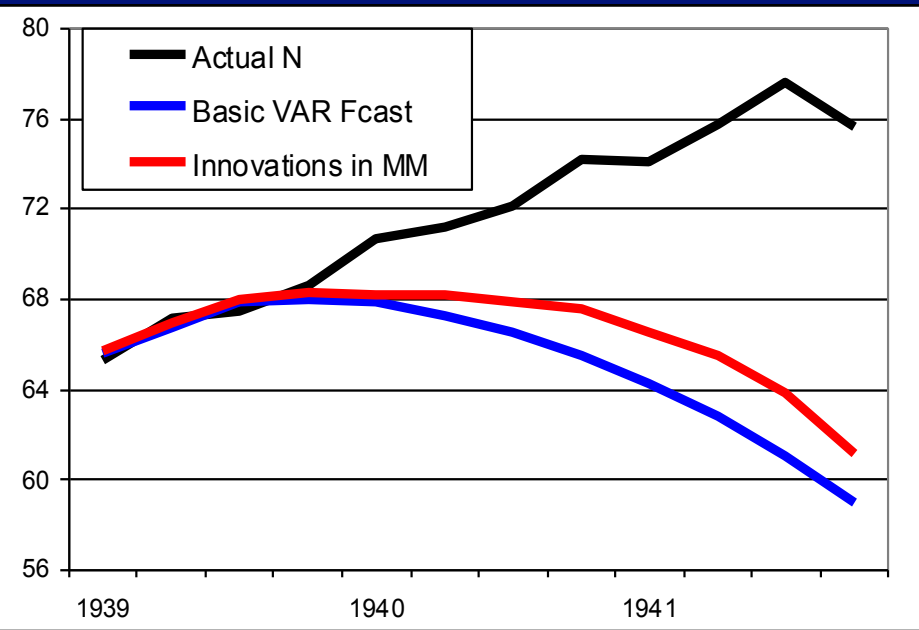
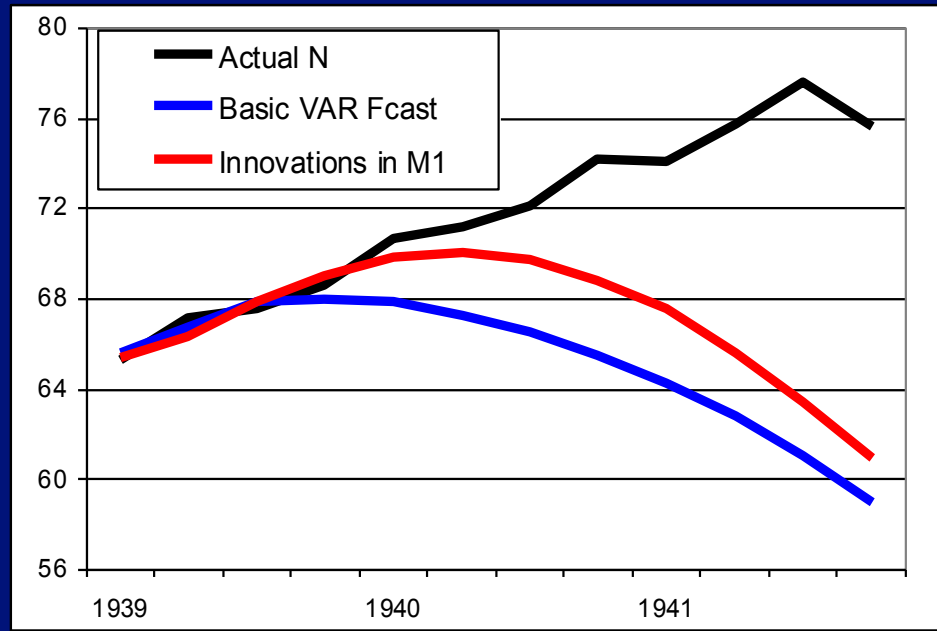
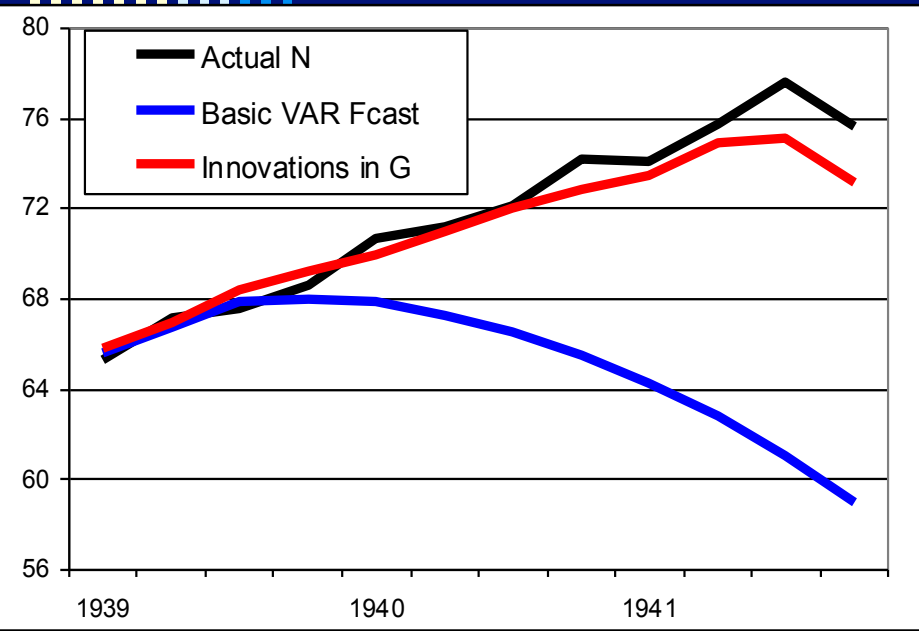
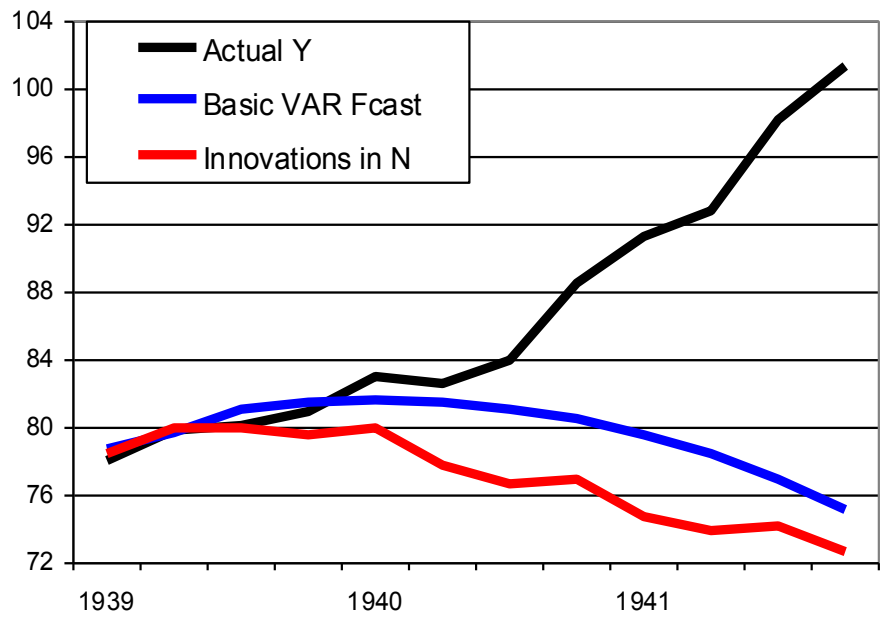
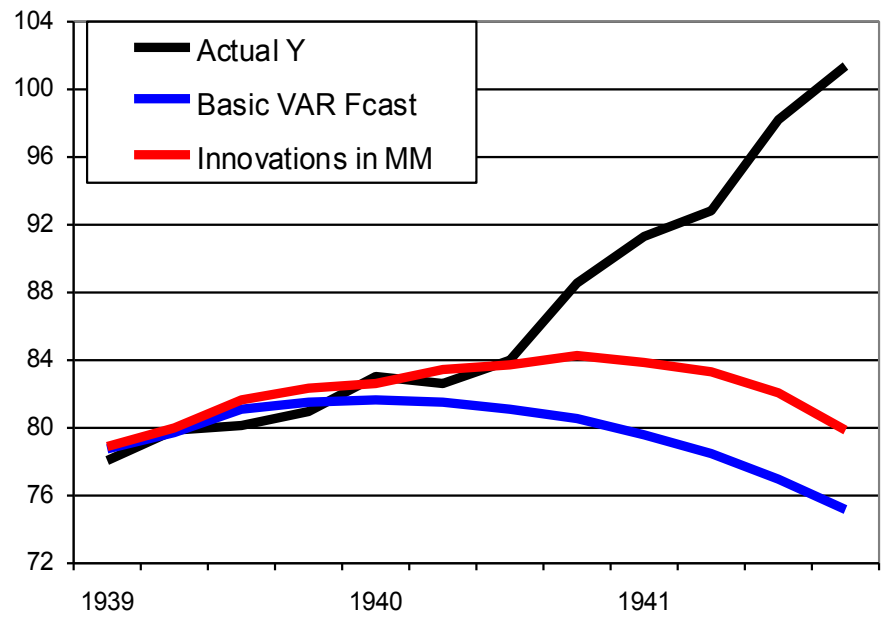
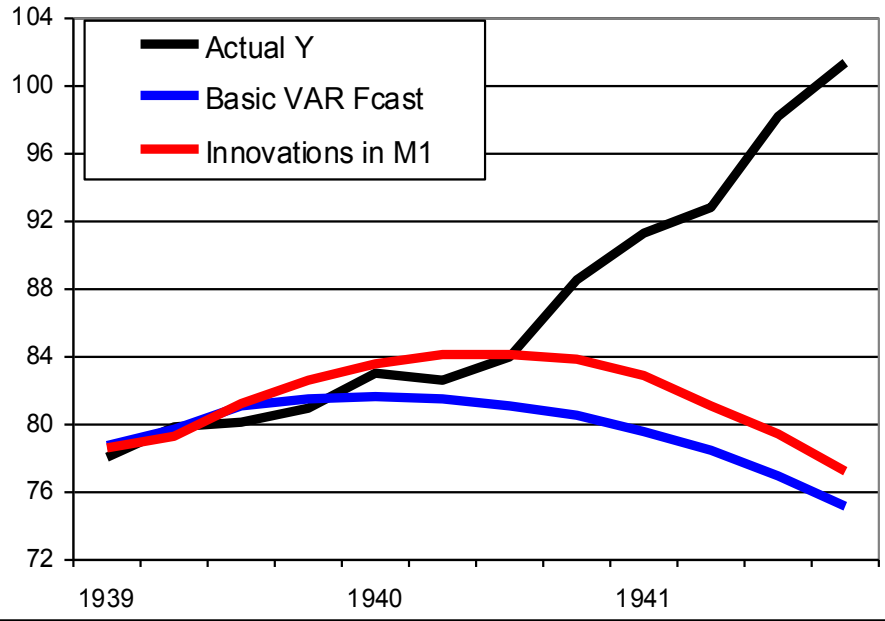
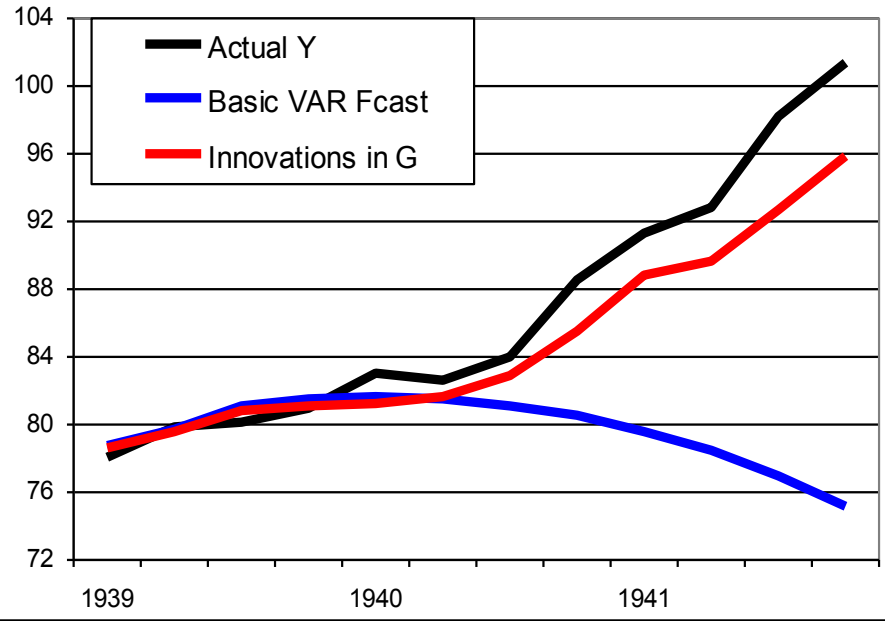
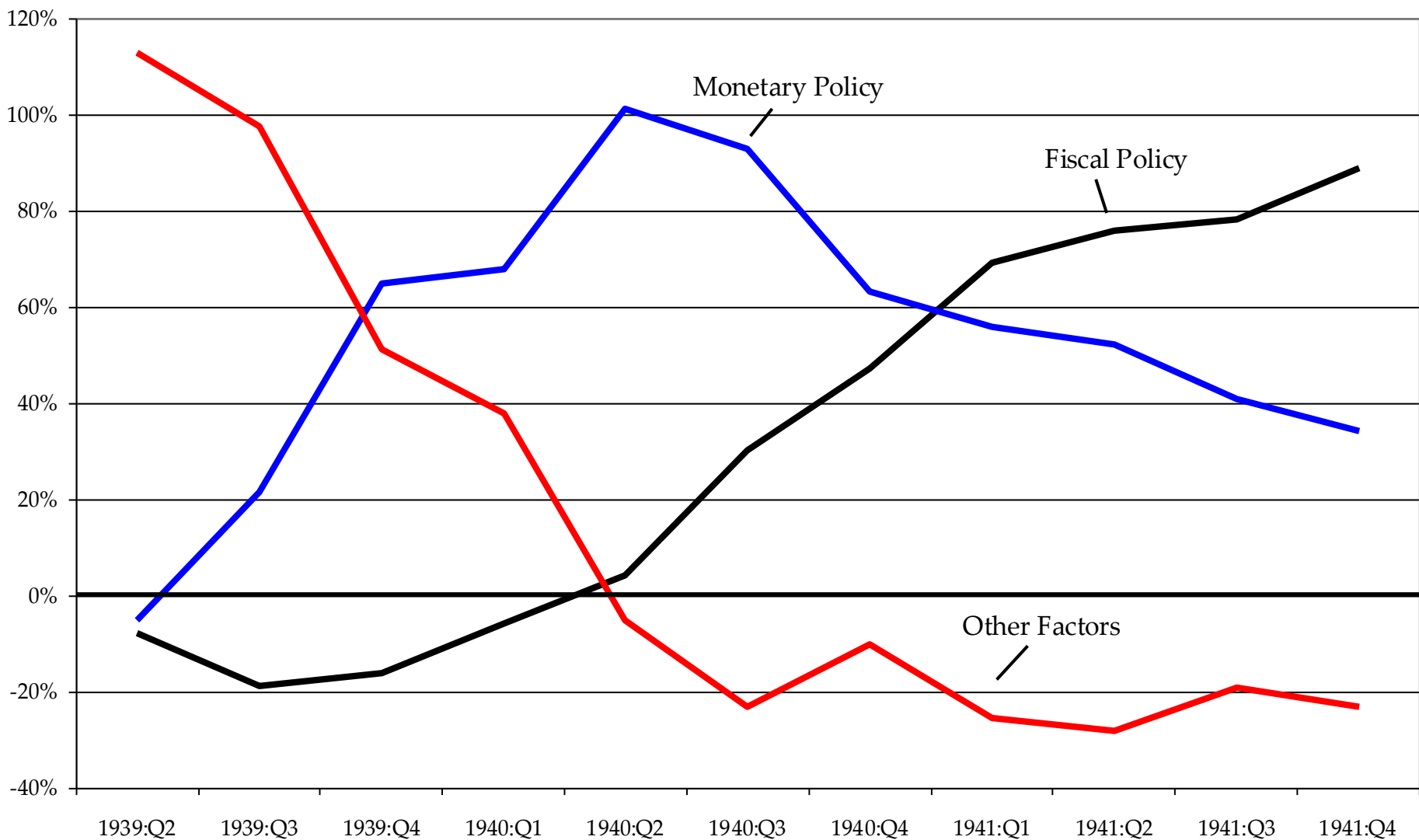


Figure 12: Historical Decomposition of Y: 1939:Q1 to 1941:Q4





**Figure 13: Percentage of the Recovery Explained by Fiscal Policy Innovations, Monetary Policy Innovations and Other Factors: 1939:Q2 to 1941:Q4**



Source: See Data Appendix

# Section 7: Conclusion

- This paper examines the recovery of the United States from the Great Depression of the 1930s, a topic that has been intensely debated by economists in recent decades.
- A newly created quarterly dataset of real GDP components, the GDP Deflator and potential real GDP allows the paper to take a fresh look at the issue of whether fiscal or monetary policy dominated the recovery.
- All testing in the paper is done within a 5 variable, 5 lag VAR framework that accounts for the correlations between the variables and presents a more realistic model for the recovery period than those used in previous studies.

# Robustness Tests and Fiscal Multipliers

- Robustness tests
  - Change VAR start and end dates
  - MB in place of M1
  - Add GDP Deflator
  - Use logs instead of G/YN, N/YN
  - Use Ramey data
  - Shuffle VAR orderings
- Fiscal Multipliers 1.80 vs. 0.88

# Main Results

- The majority of the recovery from the Great Depression can be attributed to fiscal policy innovations, with monetary policy innovations playing a supporting role
- The U. S. Economy in 1941 was schizophrenic, with loose labor markets but tight capacity utilization in durable mfg
- These capacity constraints taint use of annual 1941 data for fiscal multiplier estimates by Hall, Barro, and others

# Comparison to Other Findings on Policy Contributions

- Rejection of Romer (1992) and De Long and Summers (1988), who believe that fiscal policy did not meaningfully contribute to the recovery until 1942
- Confirmation of Vernon (1994) as we both find that the majority of the recovery up through 1940 can be explained by monetary policy innovations, but that after 1940 fiscal policy innovations completely dominated the recovery.