Monetary Theory and Policy Graphs

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I Introduction

A CPI/Inflation

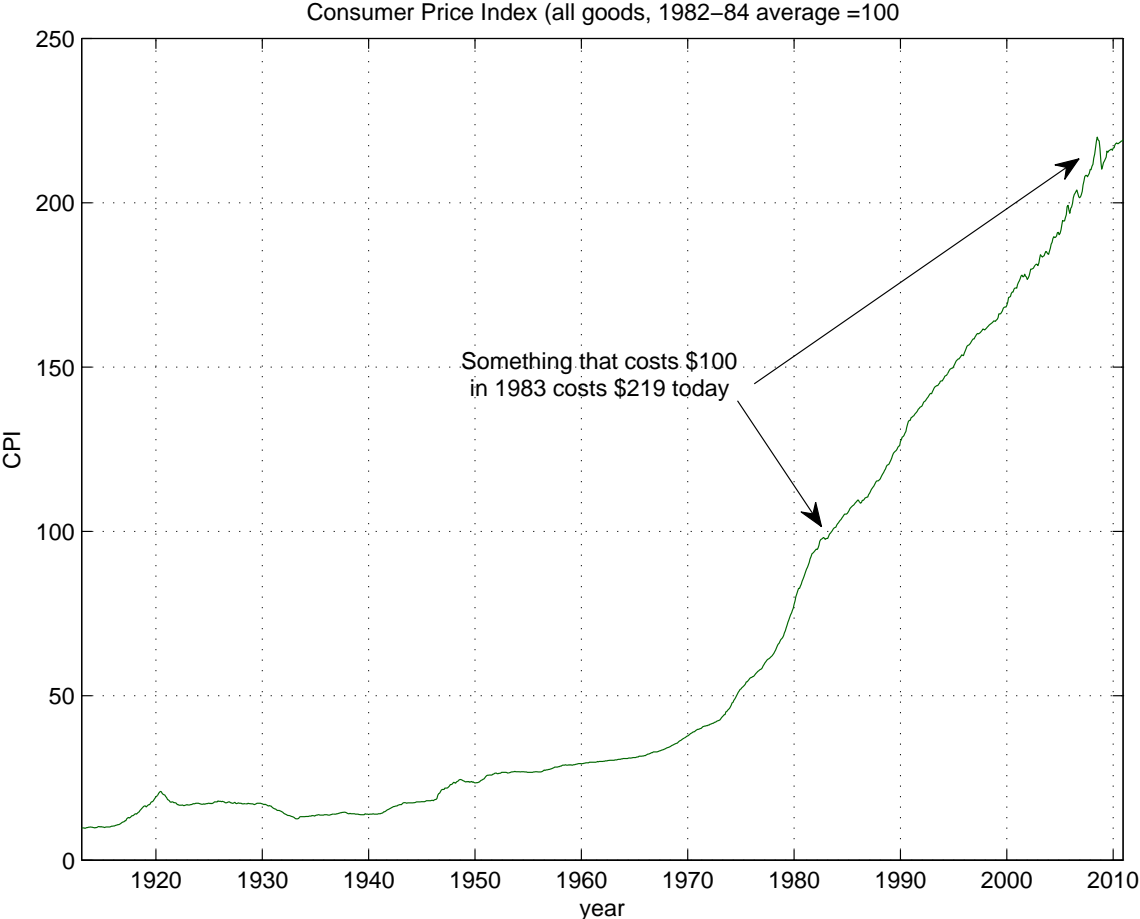Consumer Price Index (all goods, 1982–84 average =100

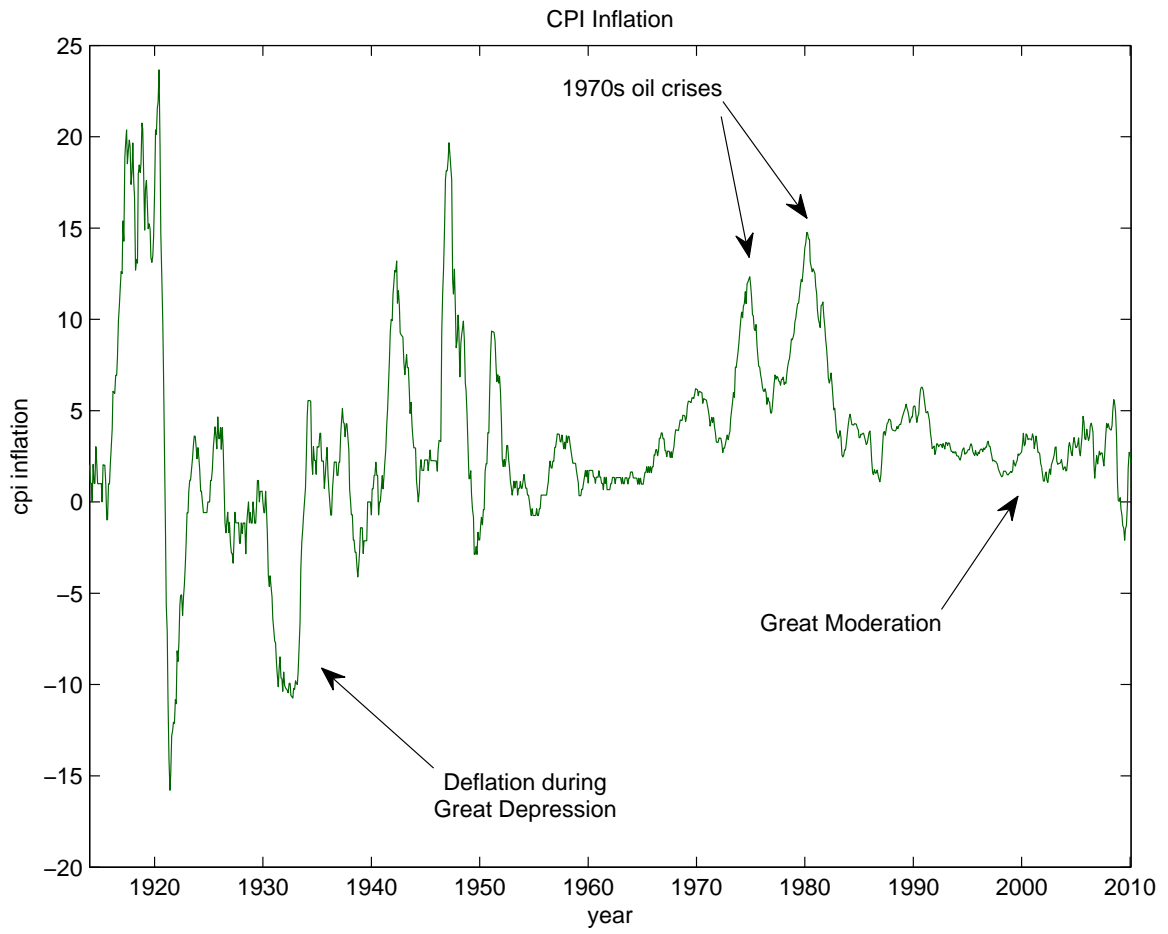Figure 1: Consumer Price Index
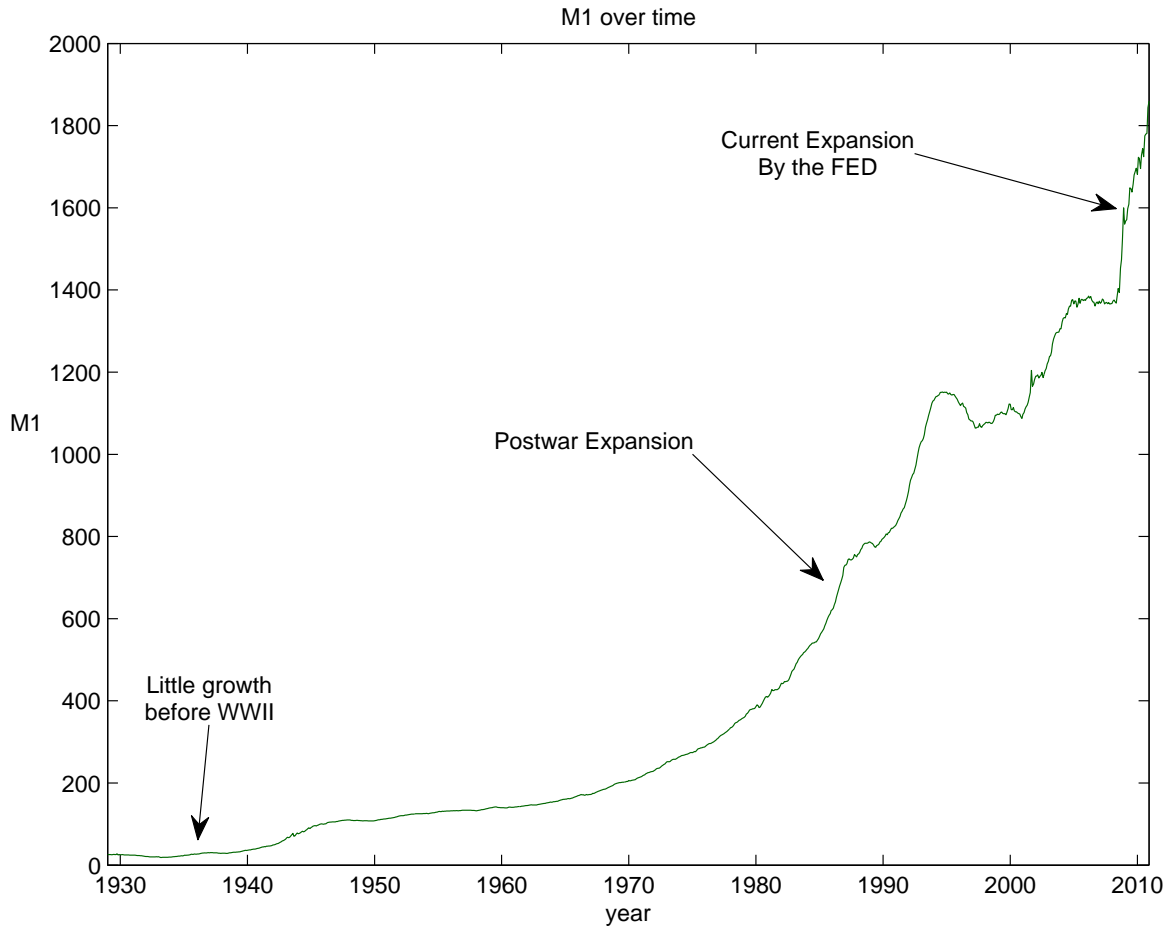
Figure 2: Consumer Price Index Inflation
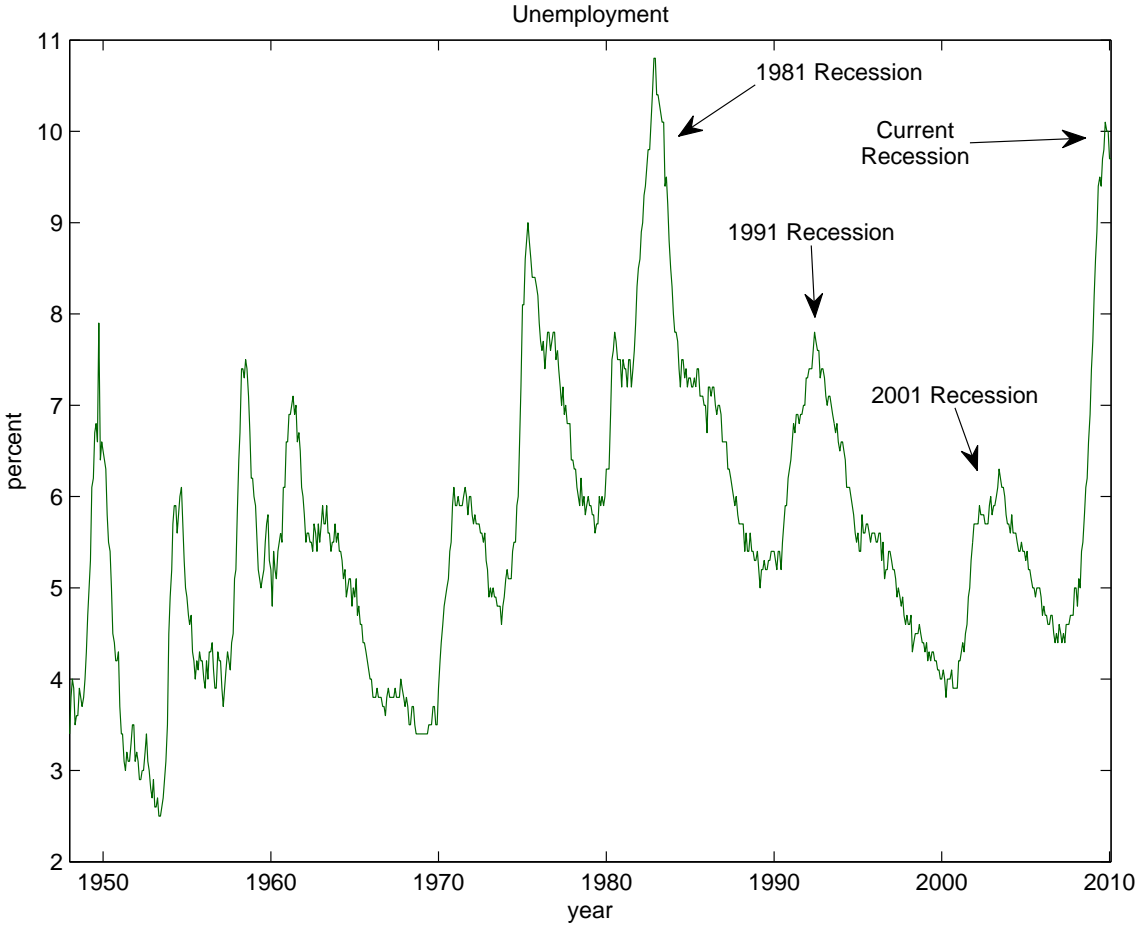
Figure 3: M1

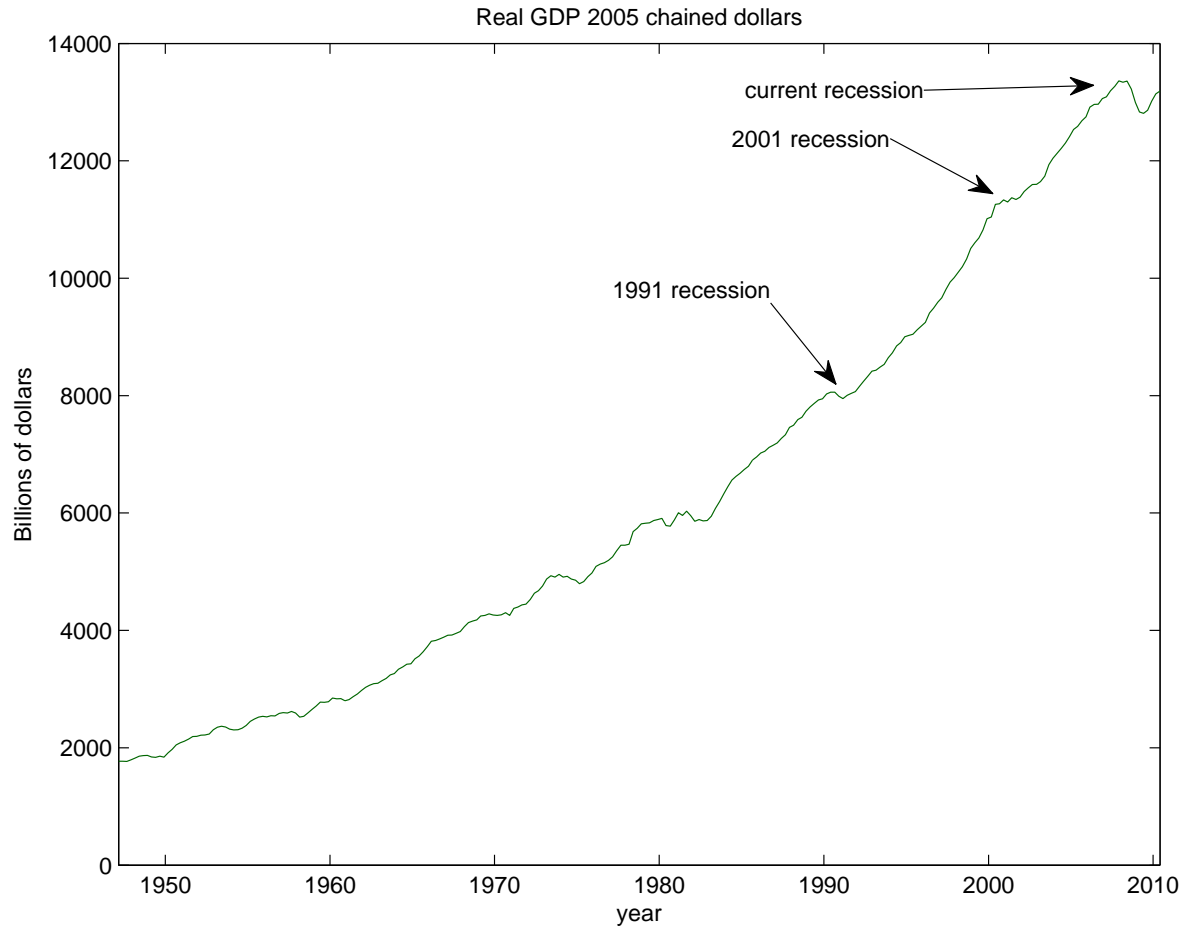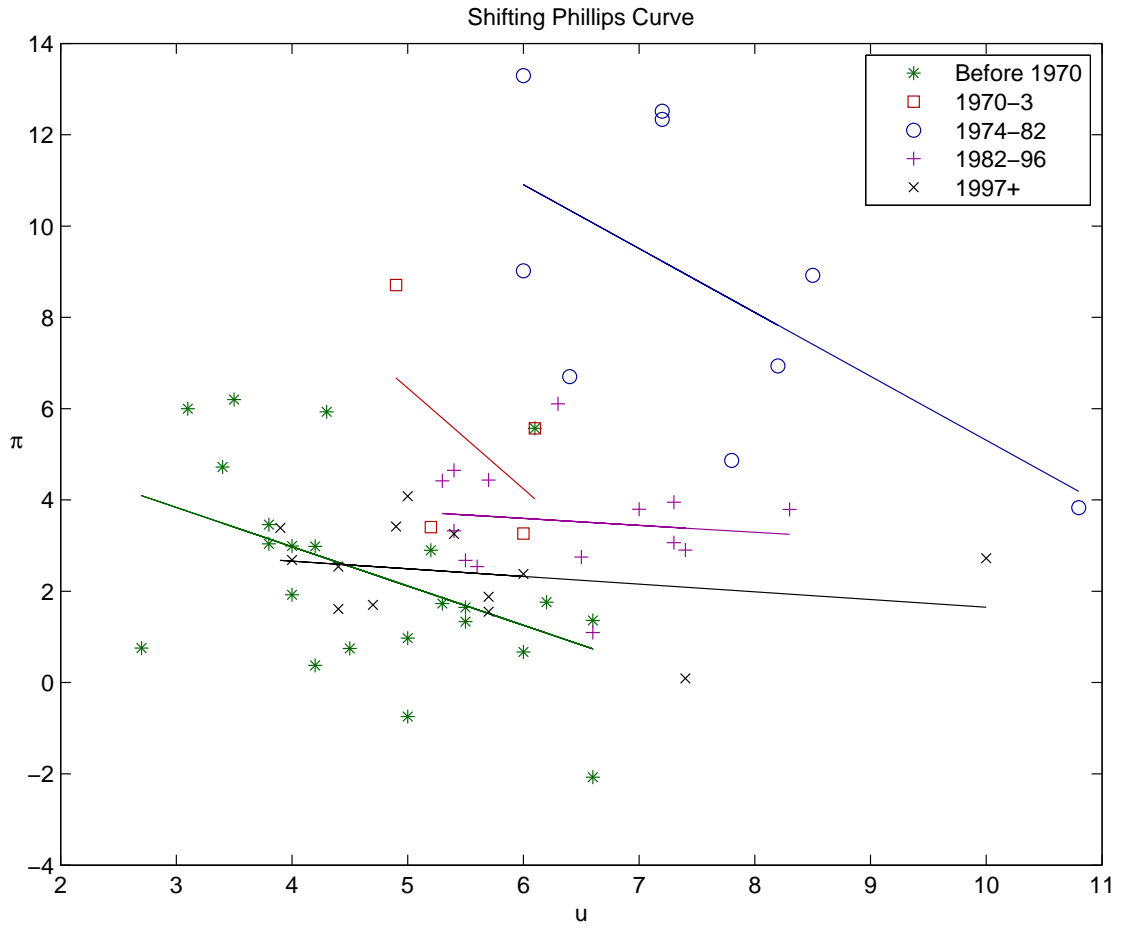## B   GDP/Unemployment

Figure 4: Unemployment Rate

Figure 5: Real GDP

Figure 6: Inflation and Unemployment: The shifting Phillips Curve

Figure 7: The Taylor Rule

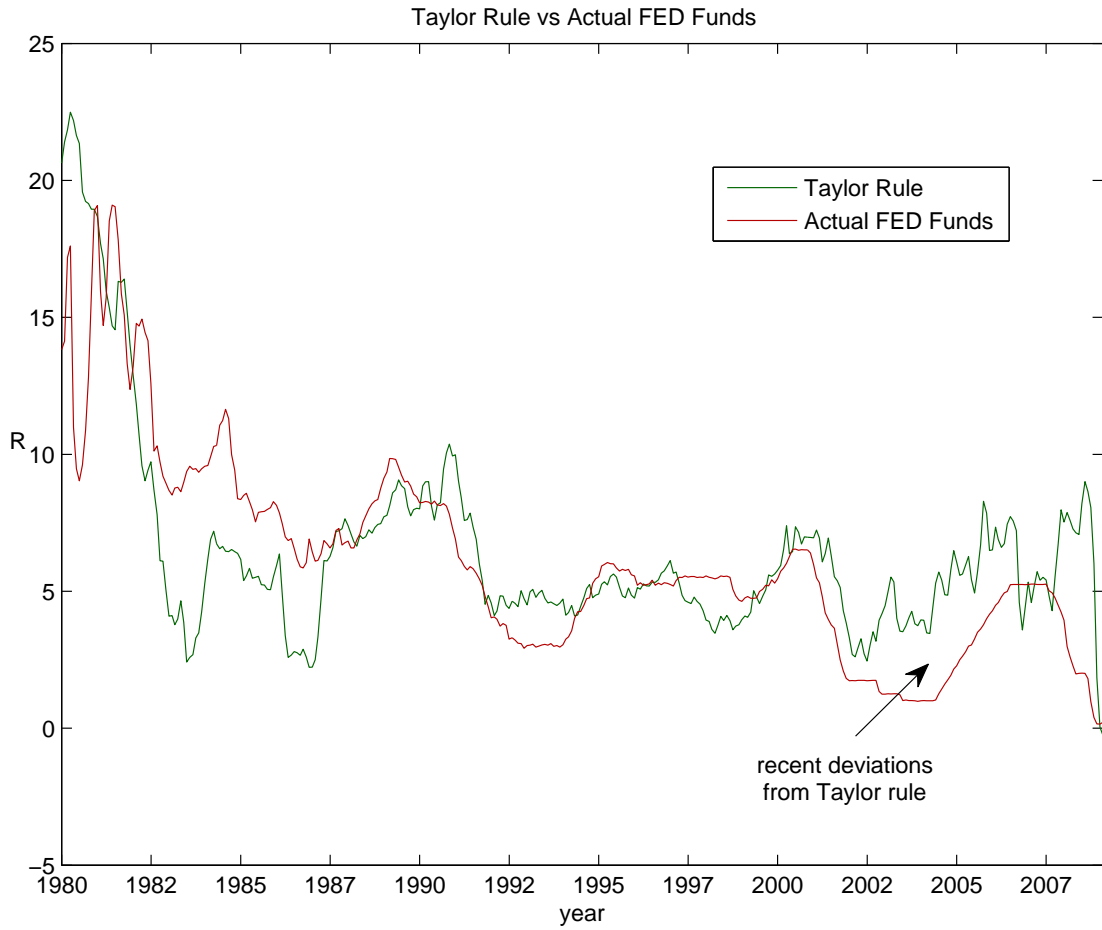## C   Recessions

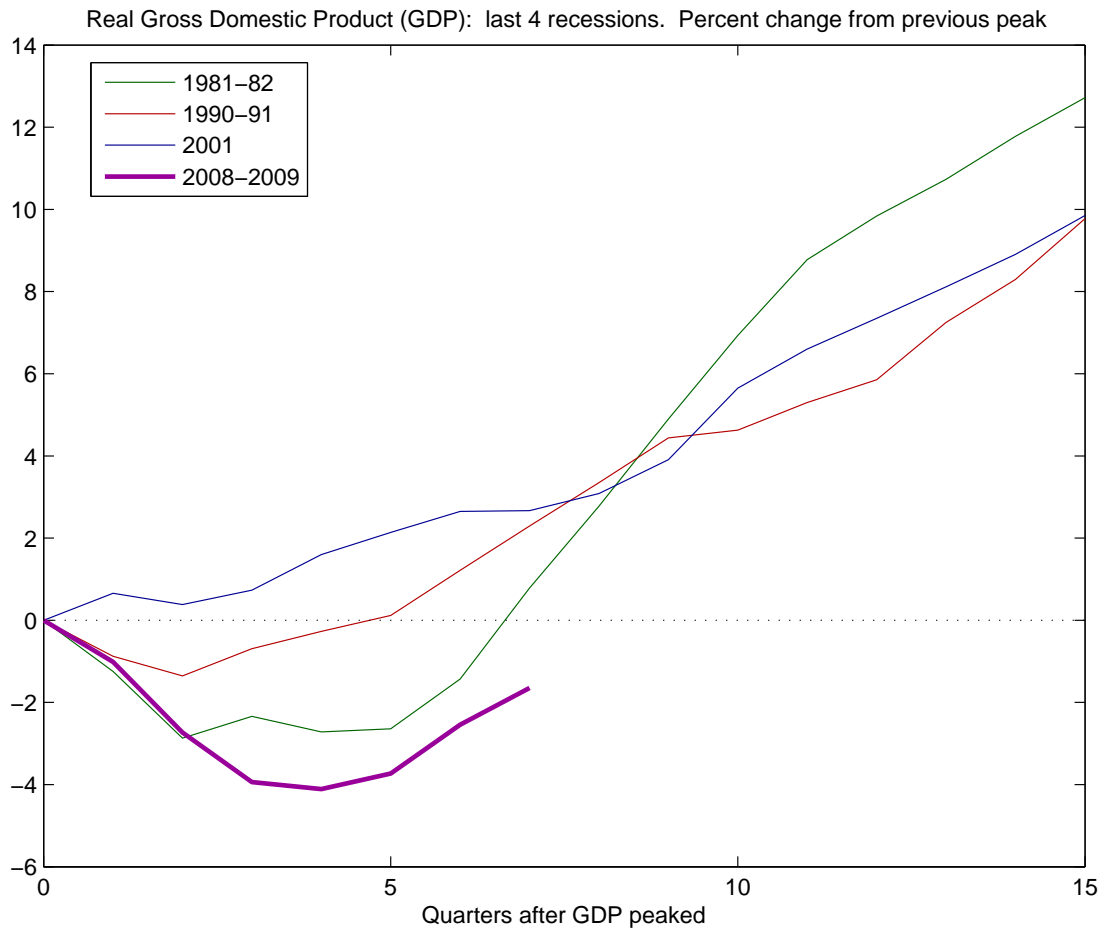Real Gross Domestic Product (GDP): last 4 recessions. Percent change from previous peak
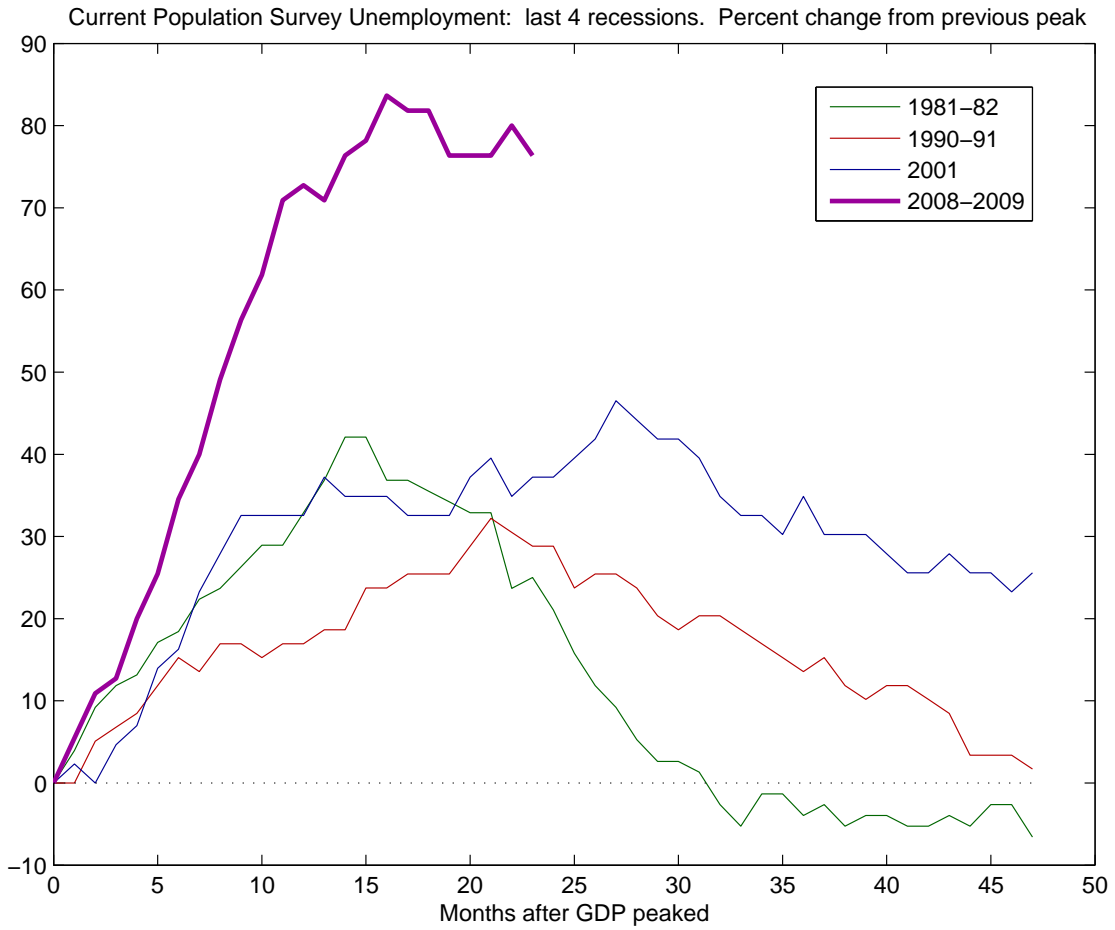
Figure 8: RGDP: Last 4 recessions

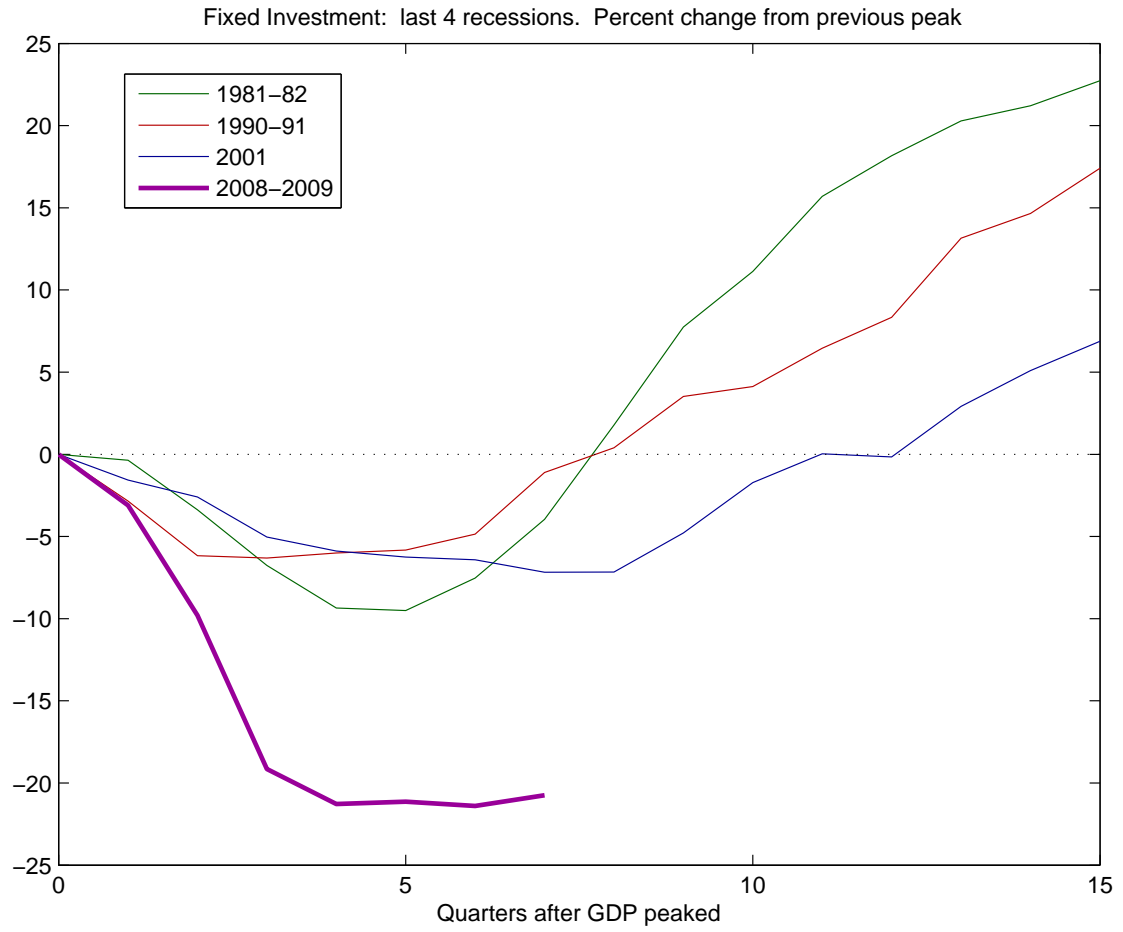Figure 9: Unemployment: Last 4 recessions

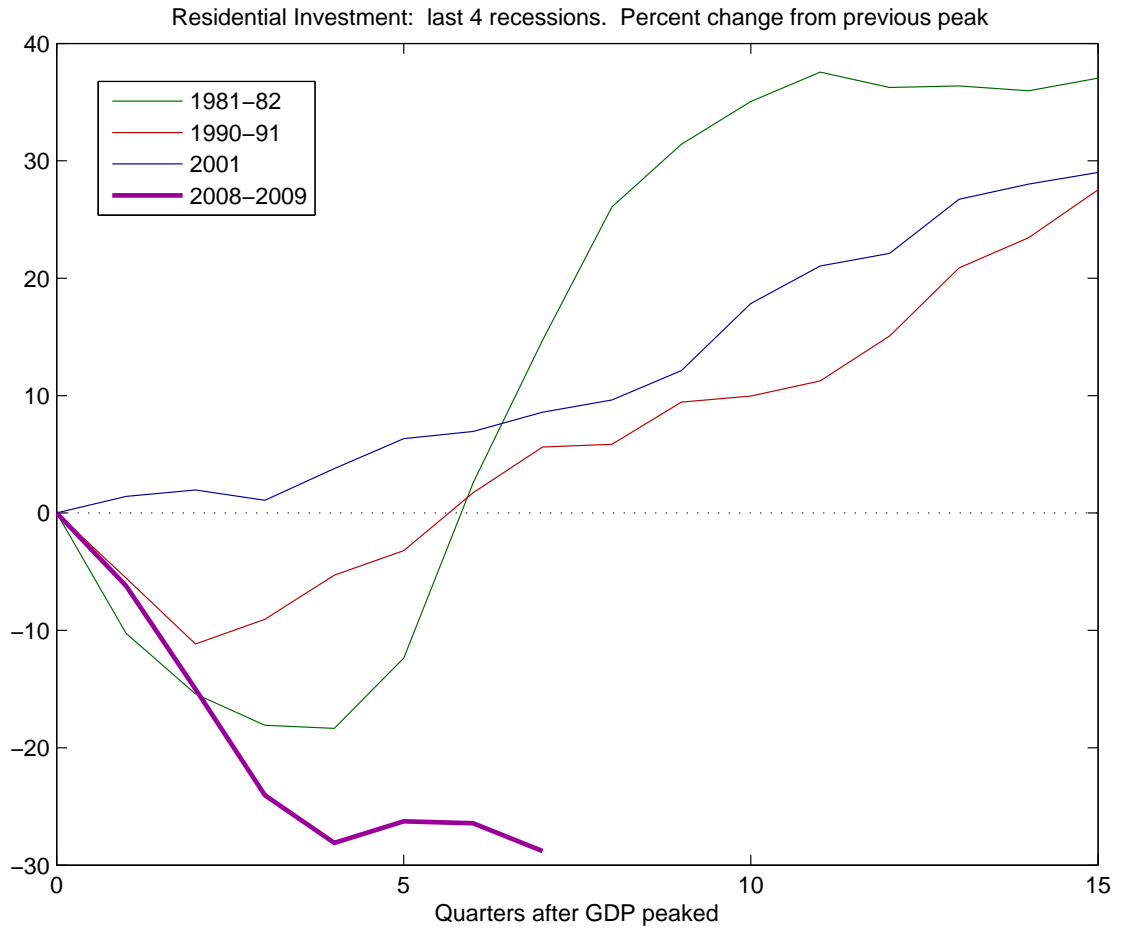Figure 10: Fixed Investment: Last 4 recessions

Figure 11: Residential Investment: Last 4 recessions

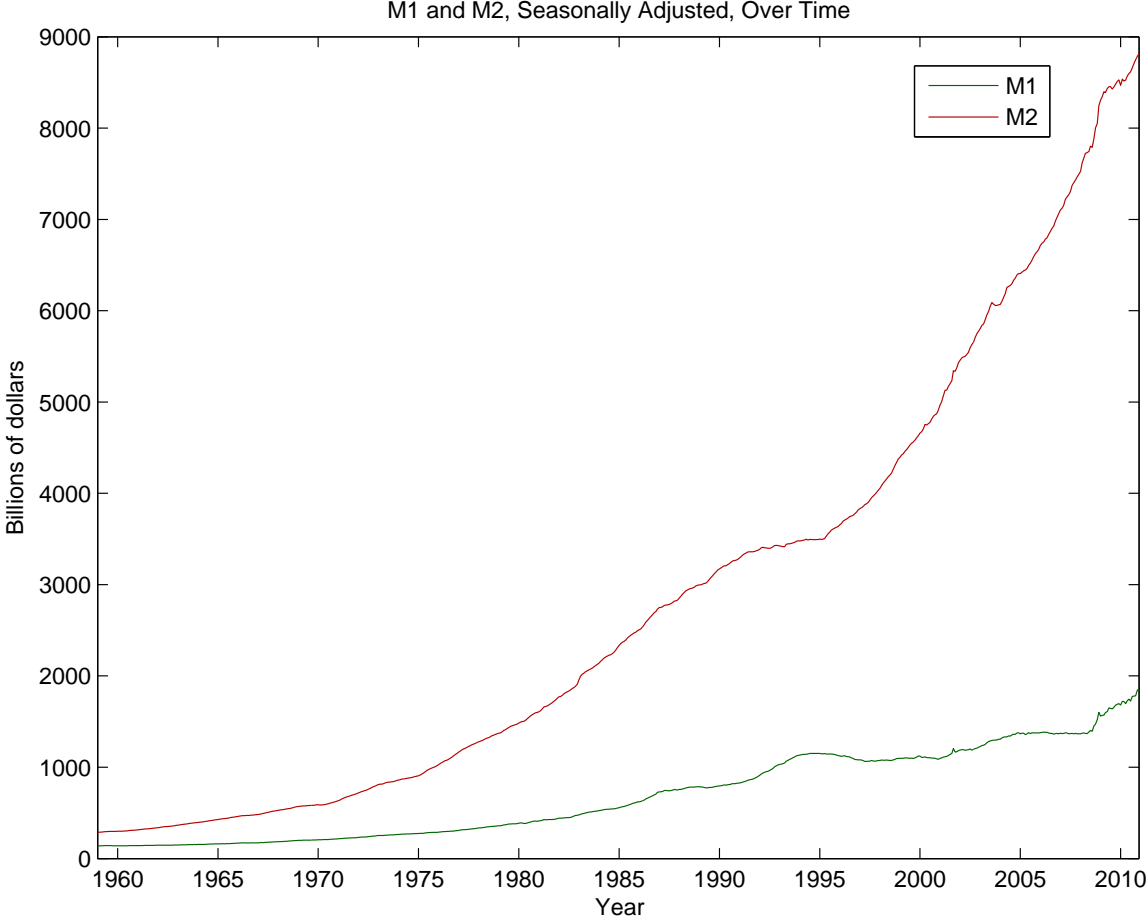## II Money

A Measures of Money
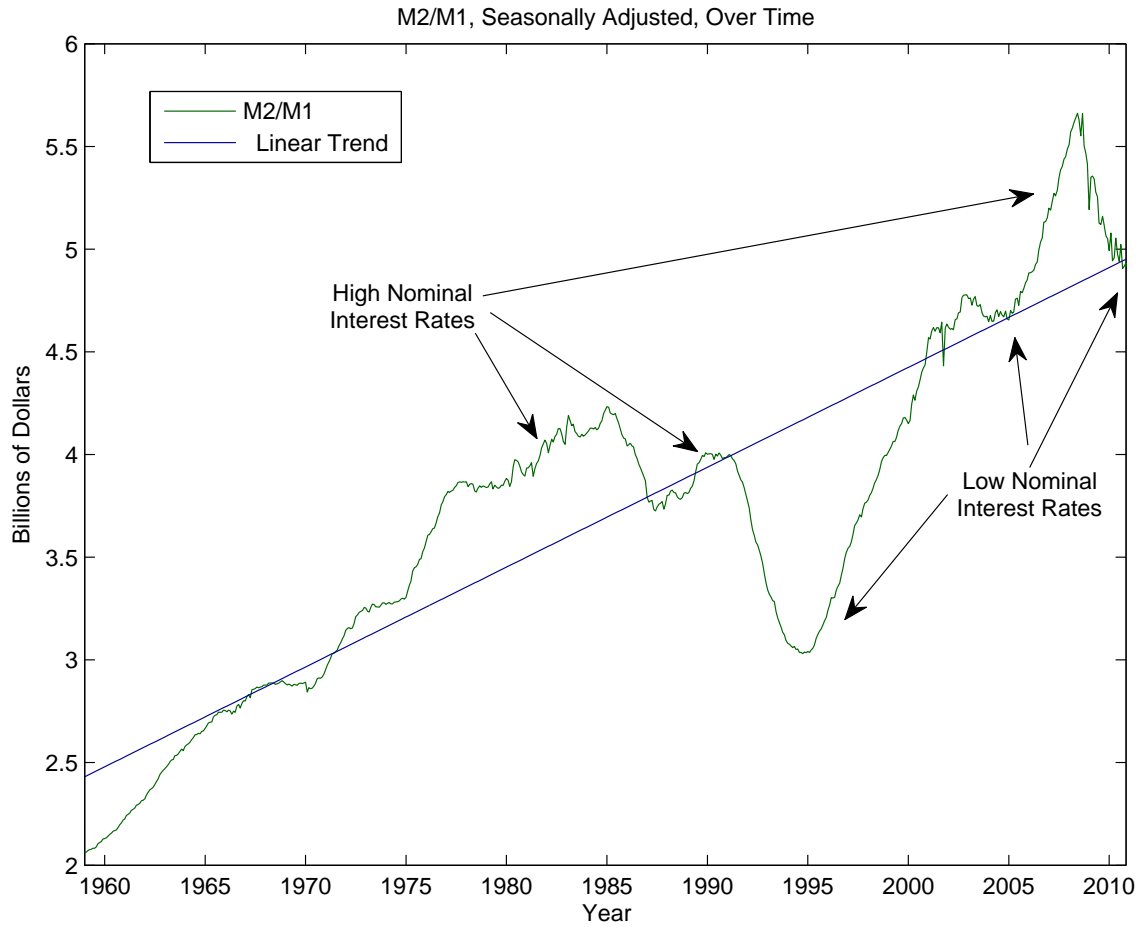

Figure 12: M1 and M2 over time.

Figure 13: Ratio of M2 to M1 over time. Deregulation and technological advances result in households shifting to M2. But decisions to hold M1 versus M2 are closely related to real interest rates and inflation.
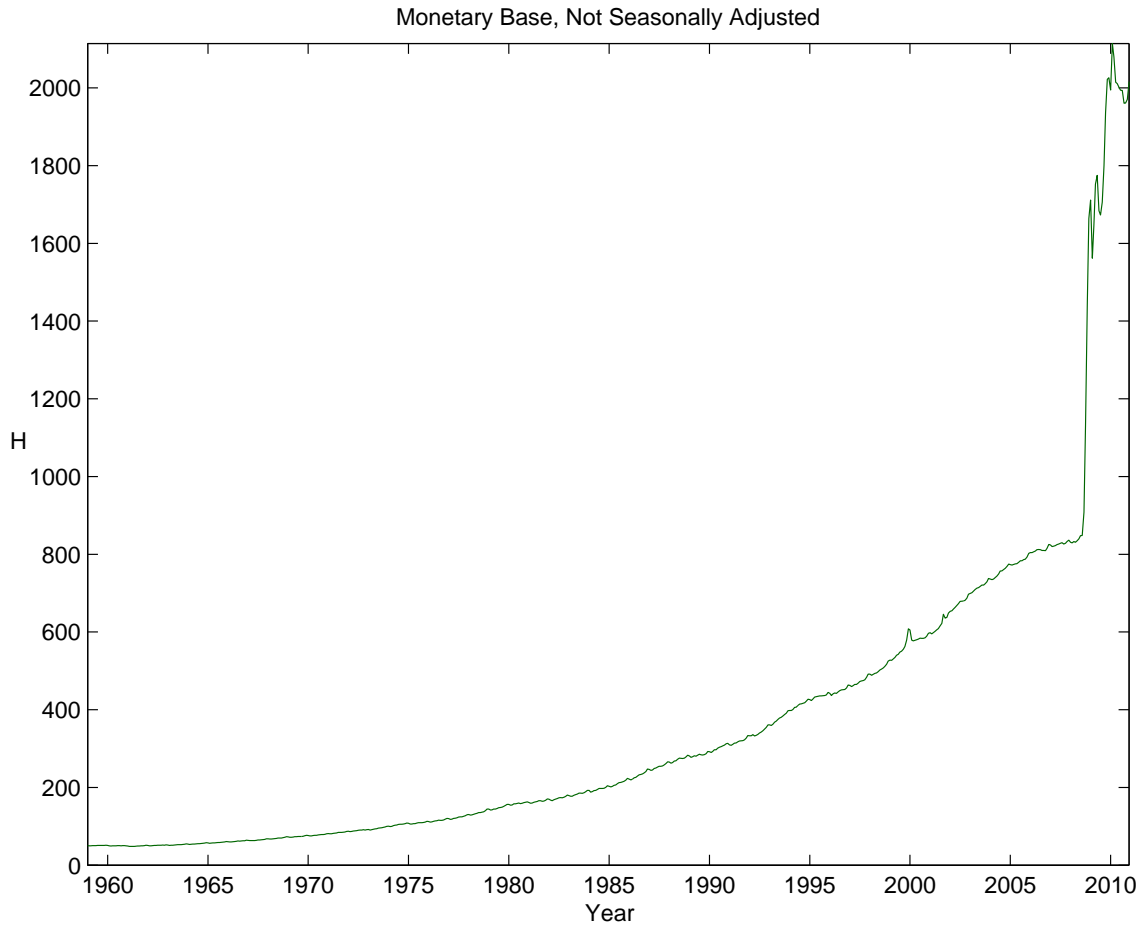
Figure 14: Monetary Base Over Time. The monetary base more than doubled during the crises.
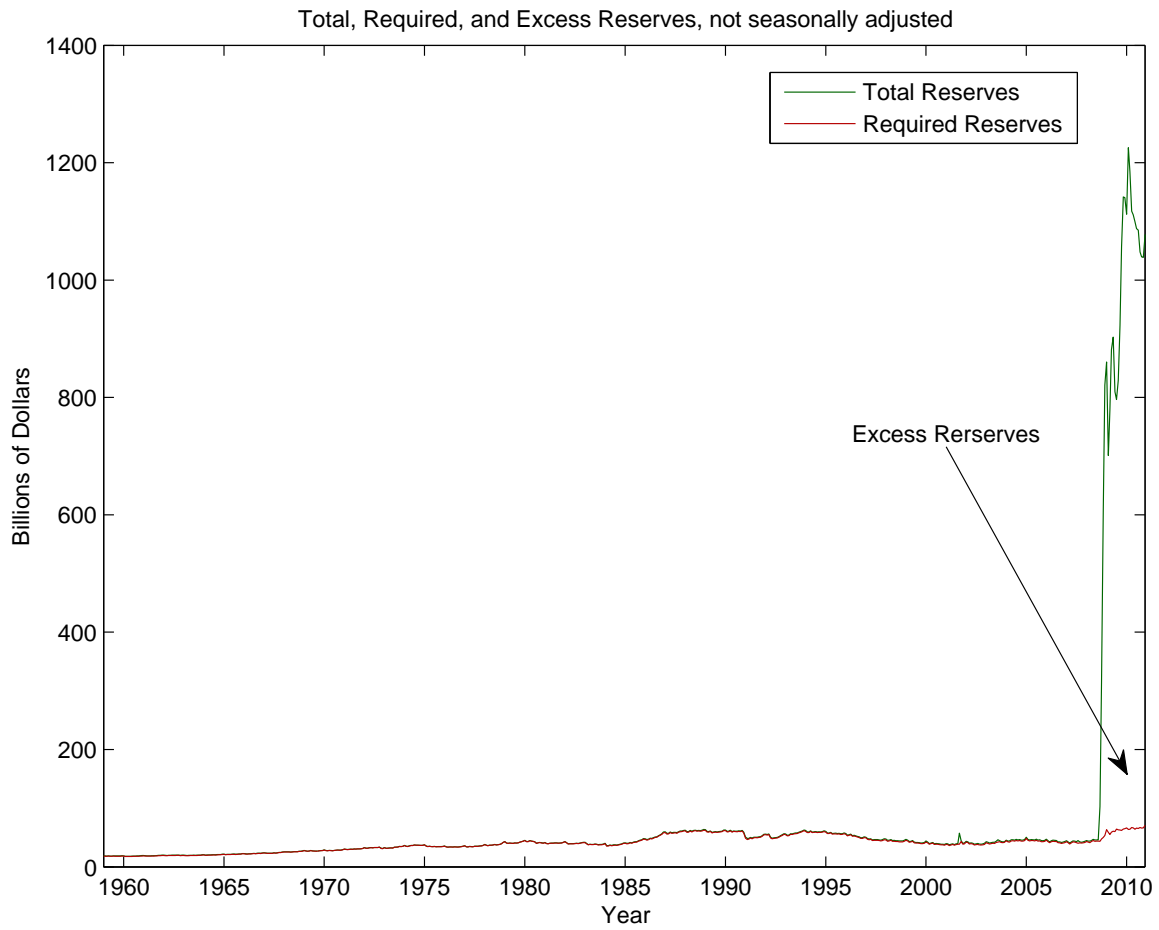
B   Reserves

Figure 15: Total, Required, and Excess Reserves By Depository Institutions. Excess reserves increased from $1.88 Billion prior to the crises to $1,161.85 at the height of the crises, to $1,007.17 today.
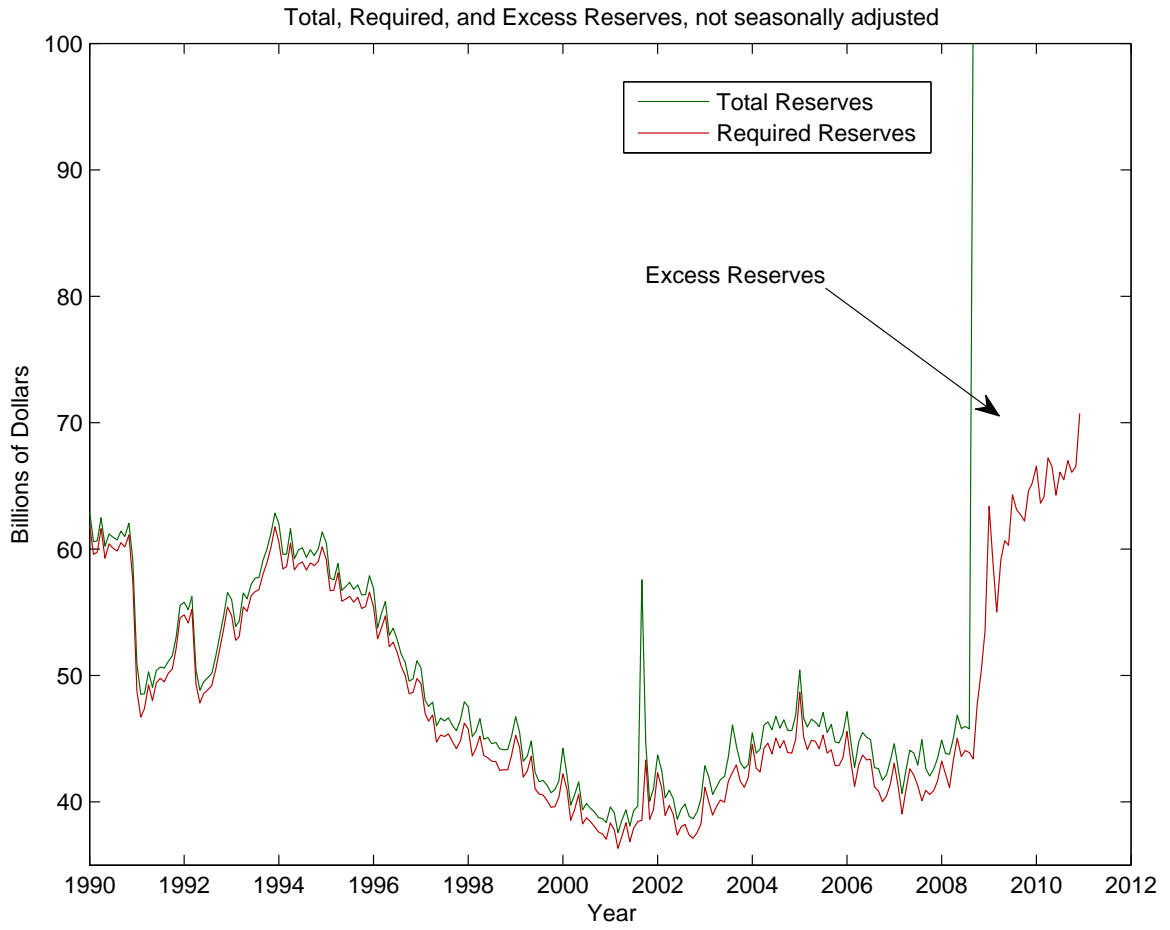
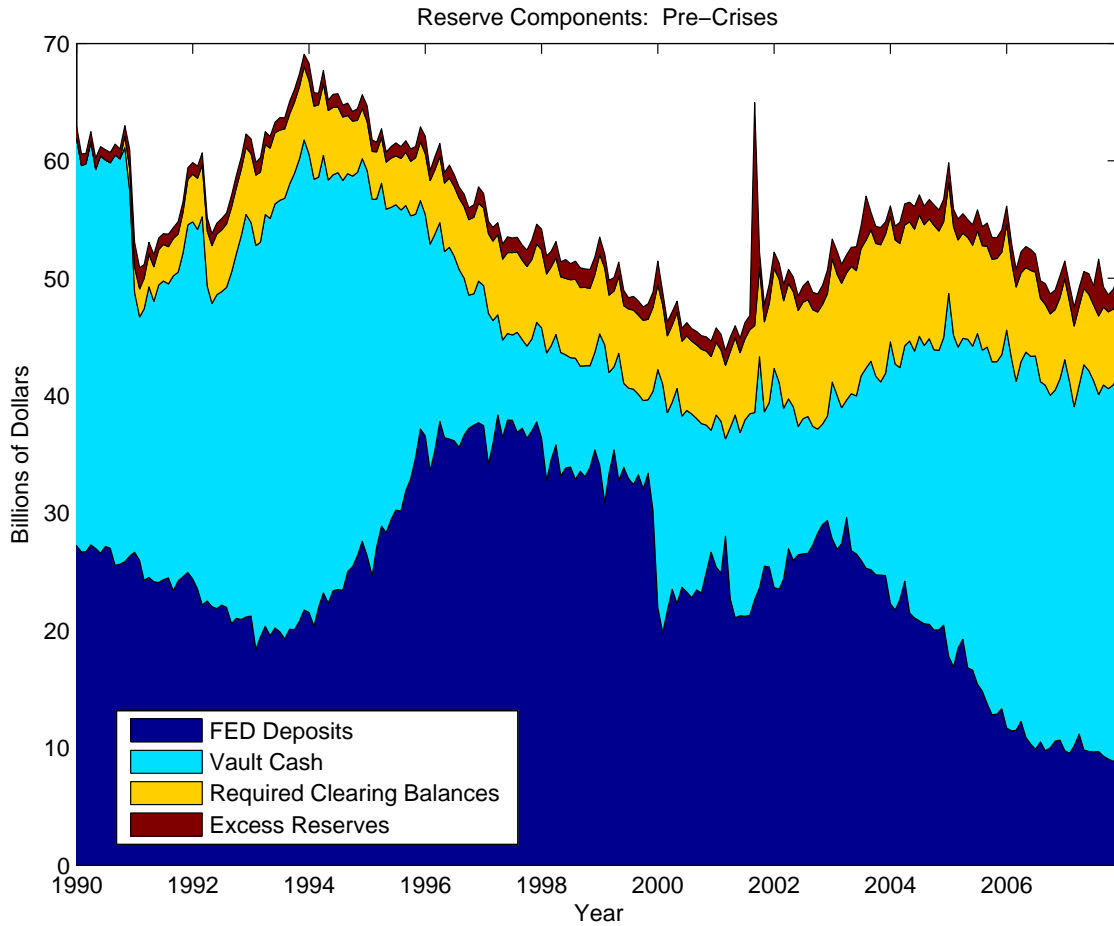Figure 16: Total, Required, and Excess Reserves since 1990.

Figure 17: How banks manage reserves in normal times. Since the mid-1990s, applied vault cash has increased due to the advent of ATMs. Required clearing balances to cover clearing of interstate checks and other FED functions provided for a fee has also increased. Excess reserves averaged less than $1 billion. Most of the post-crises increase in excess reserves is held as deposits at the FED.
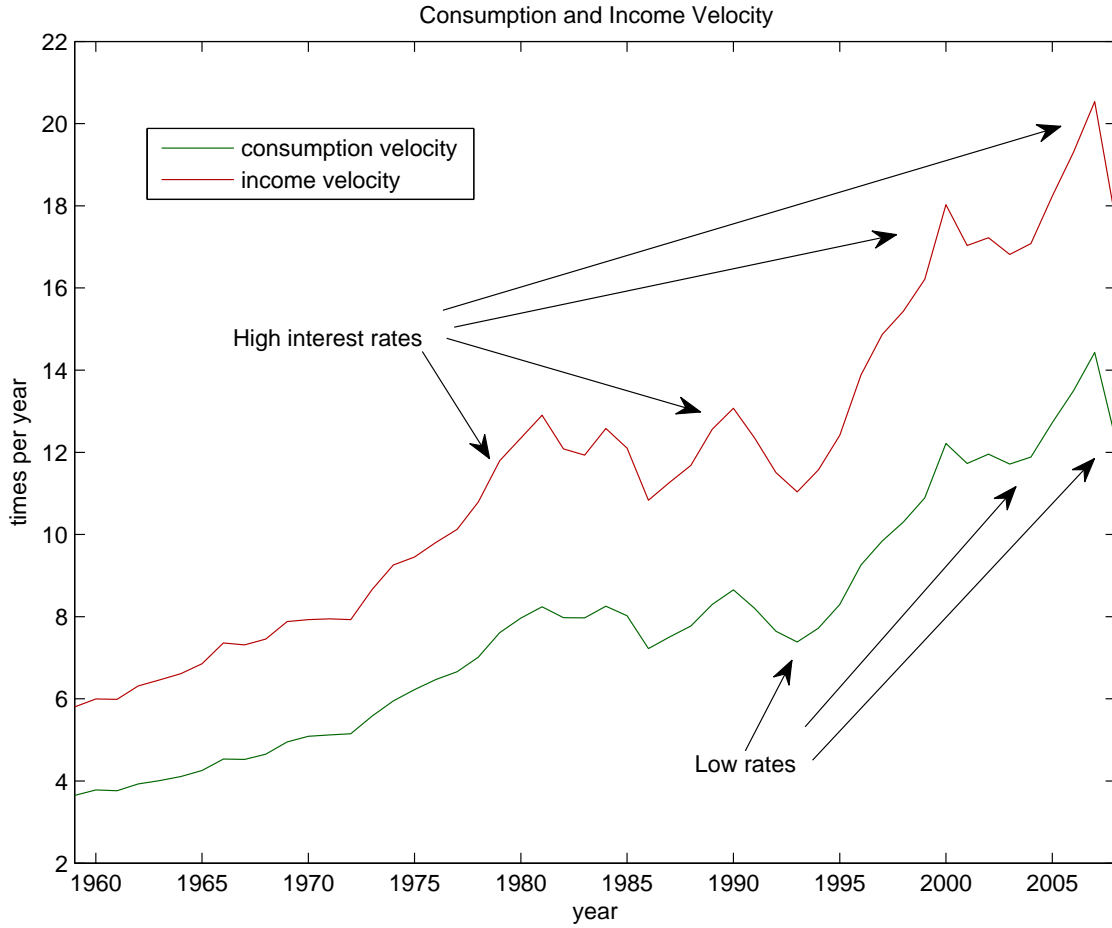
Figure 18: Consumption and income velocity are roughly proportional, indicating government and firms respond in similar ways to consumers with respect to the effect of interest rates on money holdings. Velocity tends to increase with interest rates. Velocity has also been trending upward over time, probably due to technological advances that allow consumers easy access to savings.
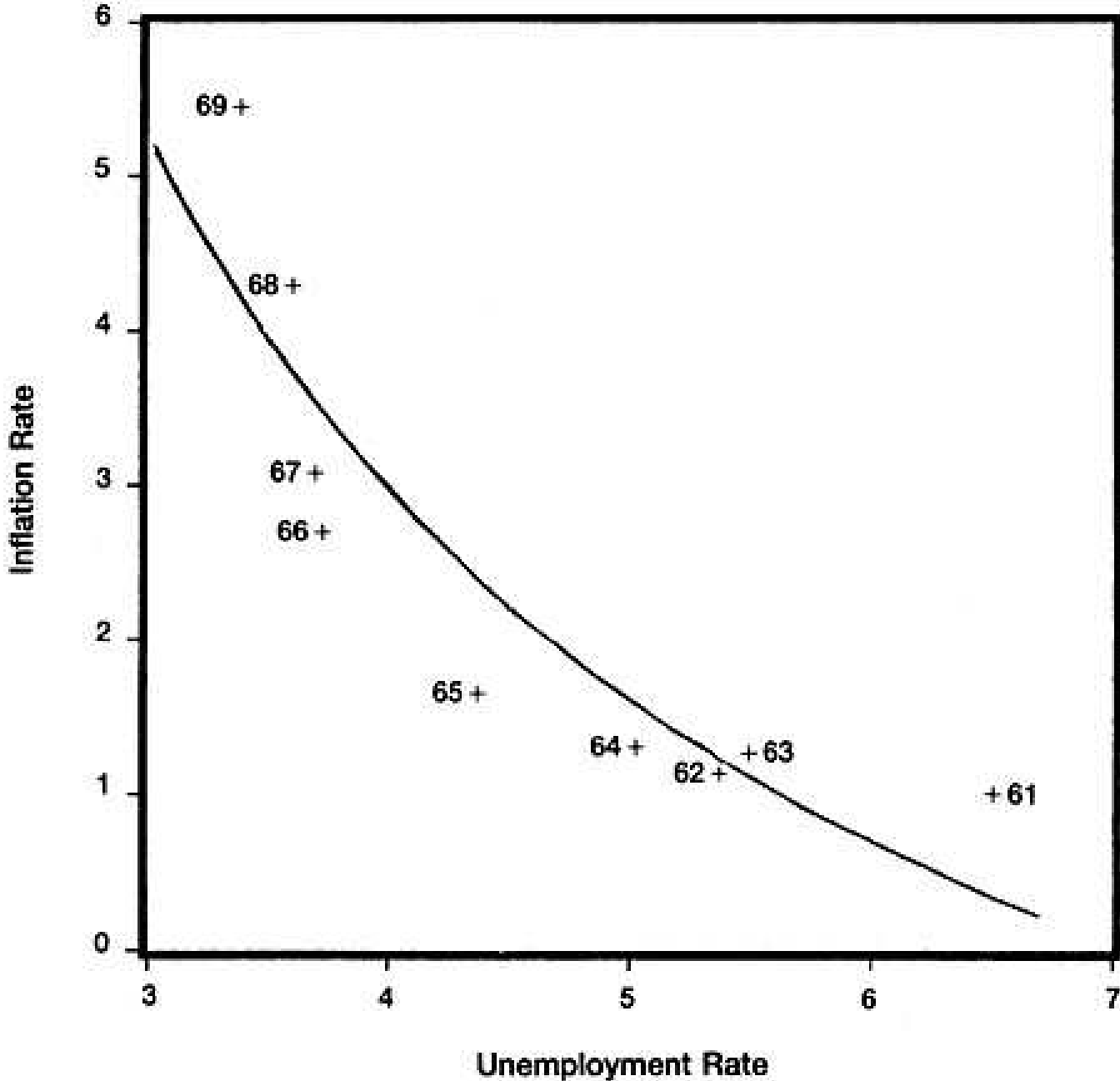
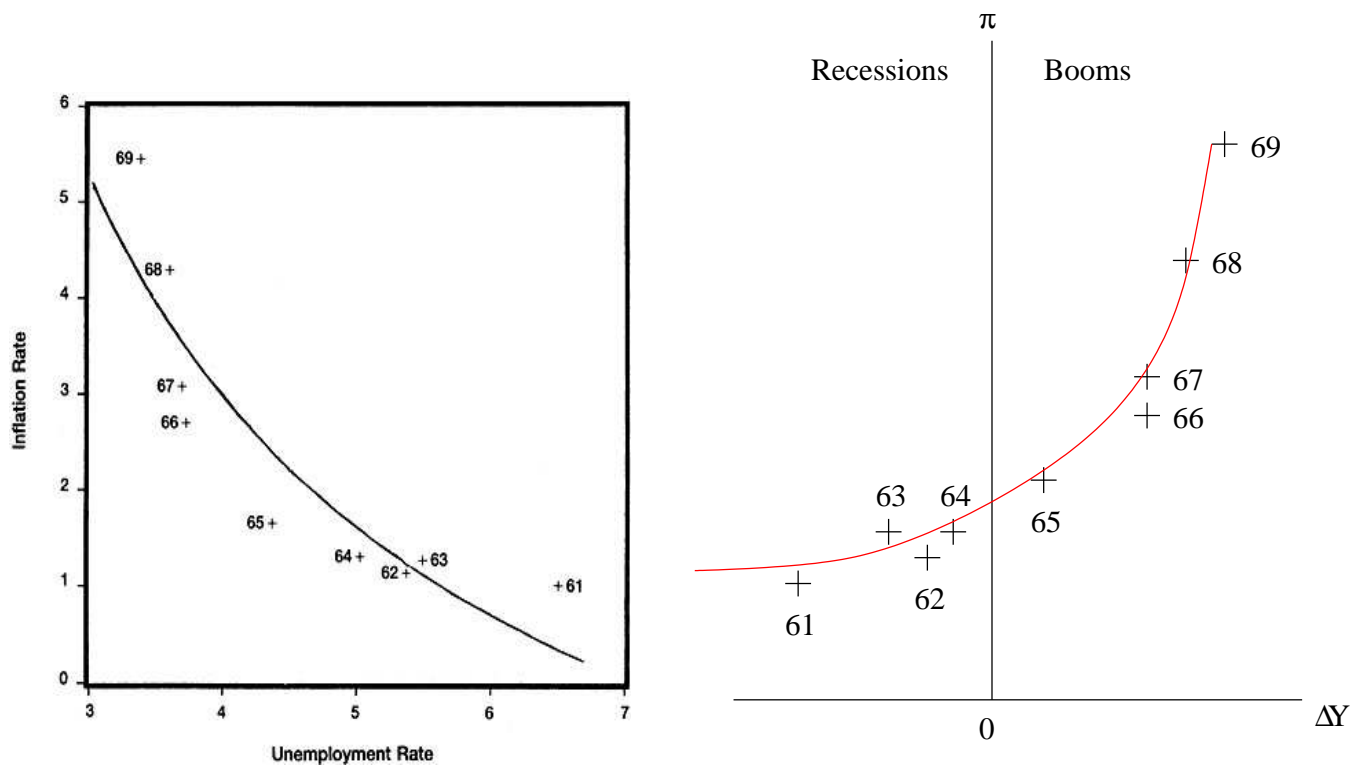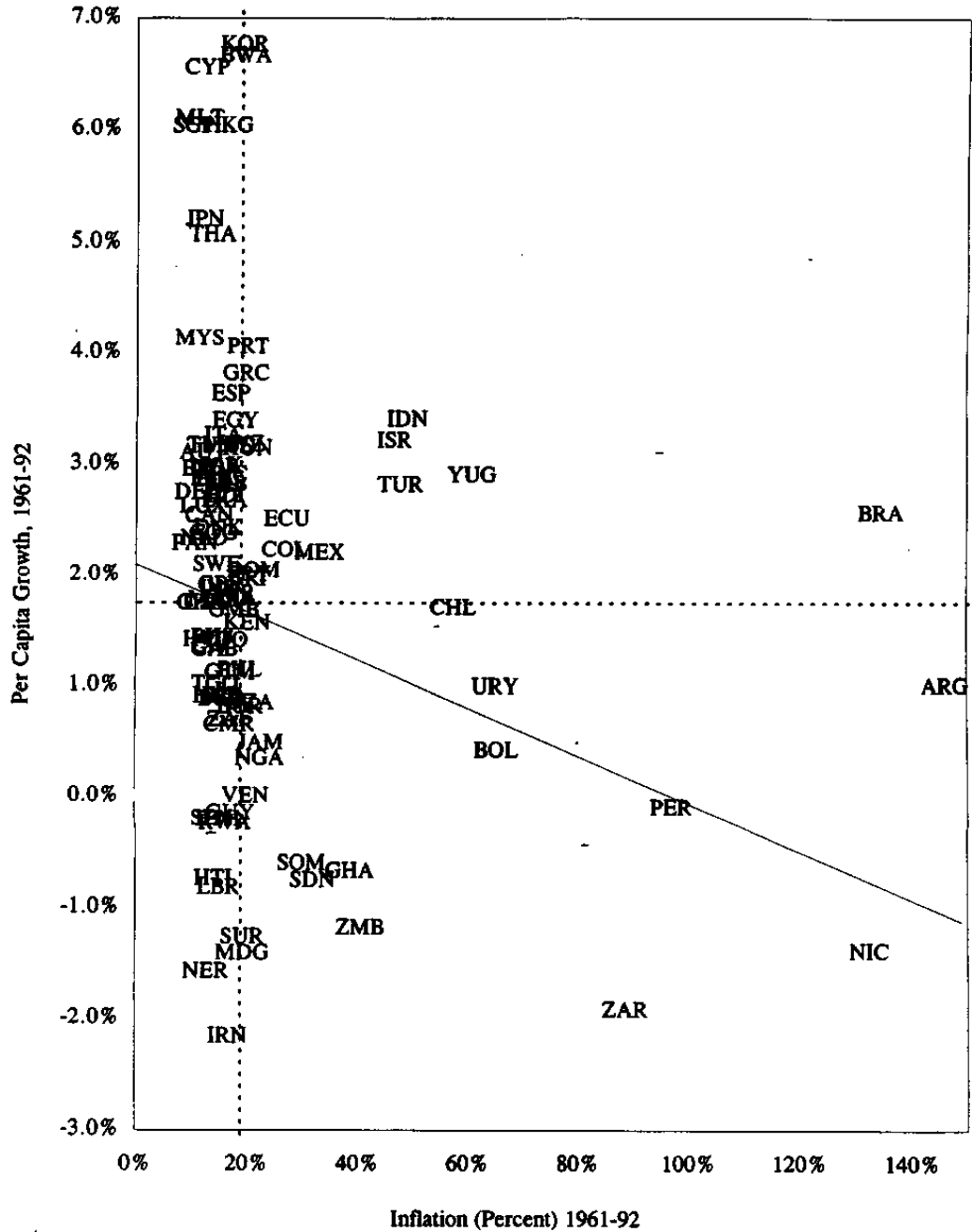# III   Phillips Curve

Figure 19: Original Phillips Curve.

Figure 20: Original Phillips Curve using GDP.

Figure 1: Cross-section Averages for Growth and Inflation, 1961-92

GPICROS2.XLS

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Figure 21: Inflation and long run growth. Graph is Figure (1) from Bruno, M. and William Easterly "Inflation Crises and Long Run Growth," *Journal of Monetary Economics*, vol. 41 (February 1998): pp. 3-26.
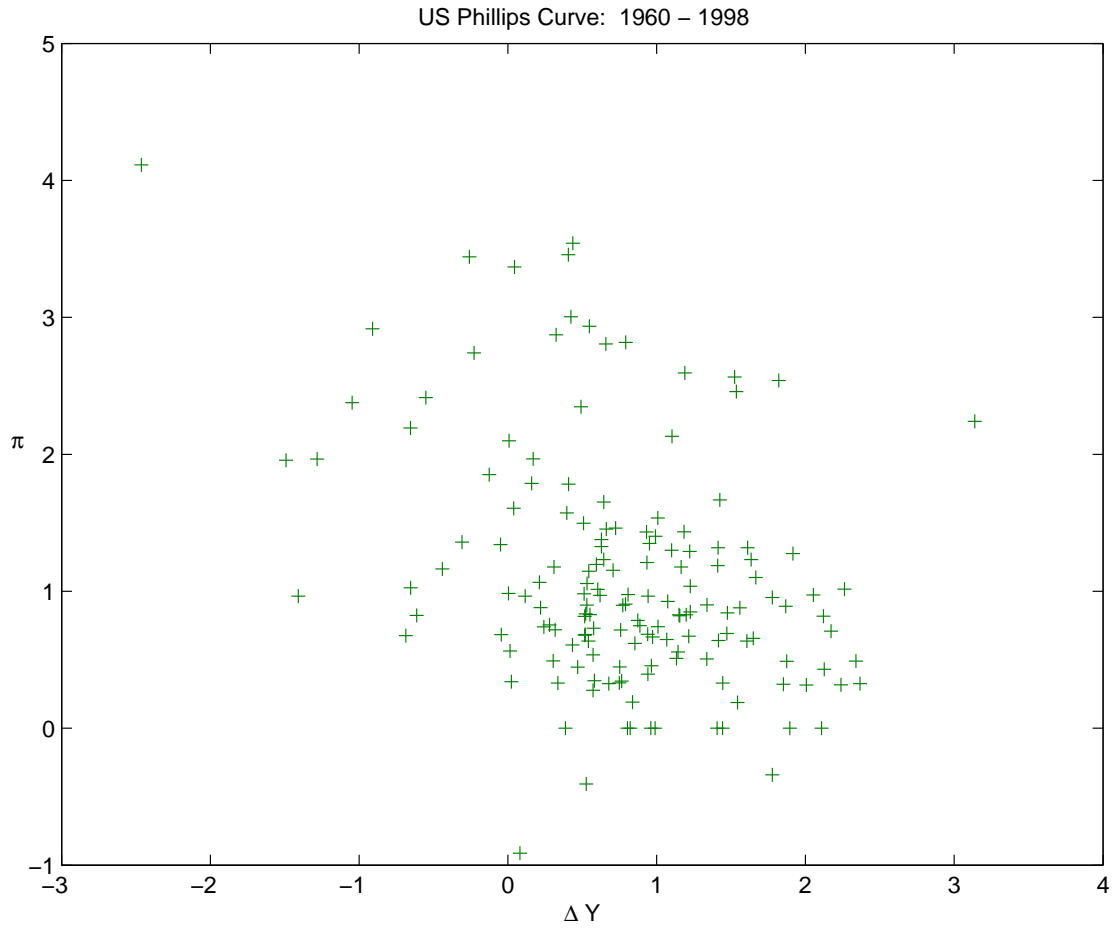
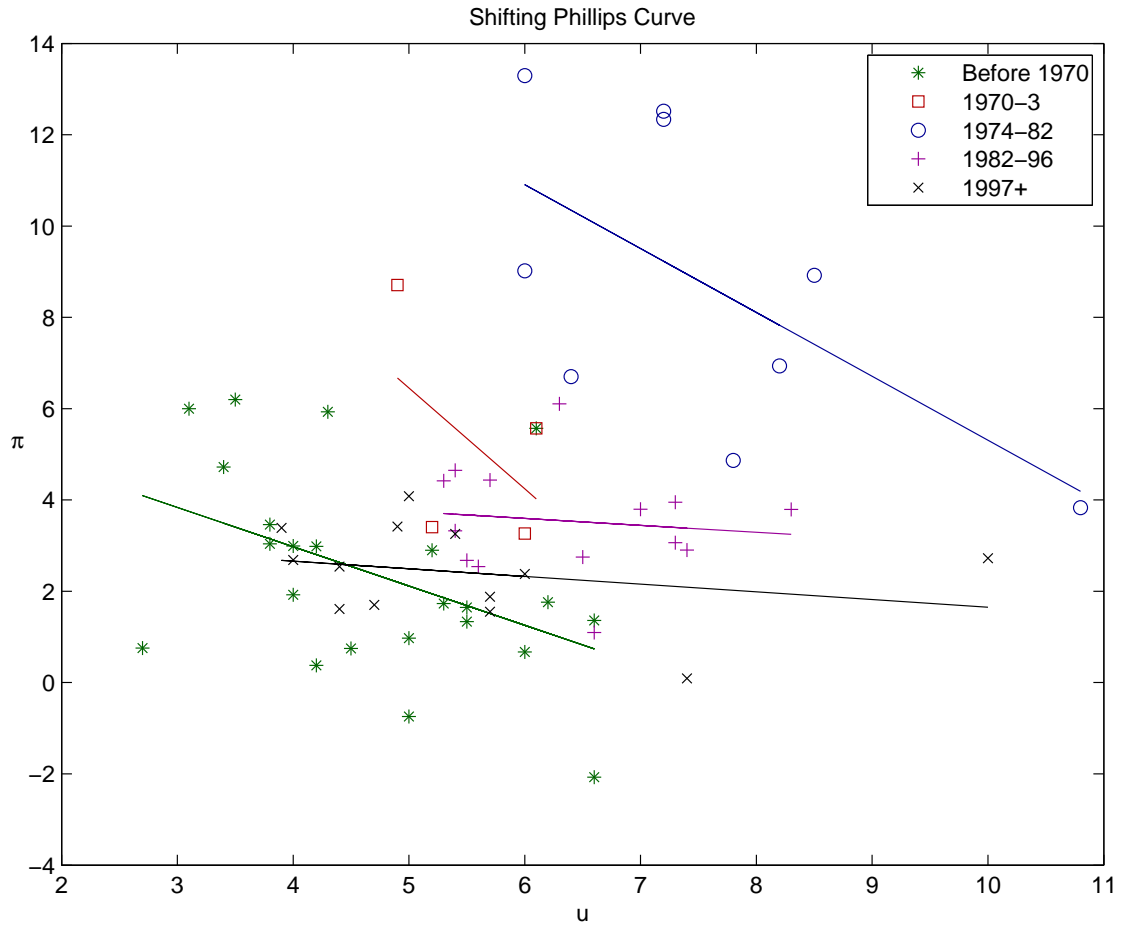Figure 22: US Phillips Curve: more time periods.
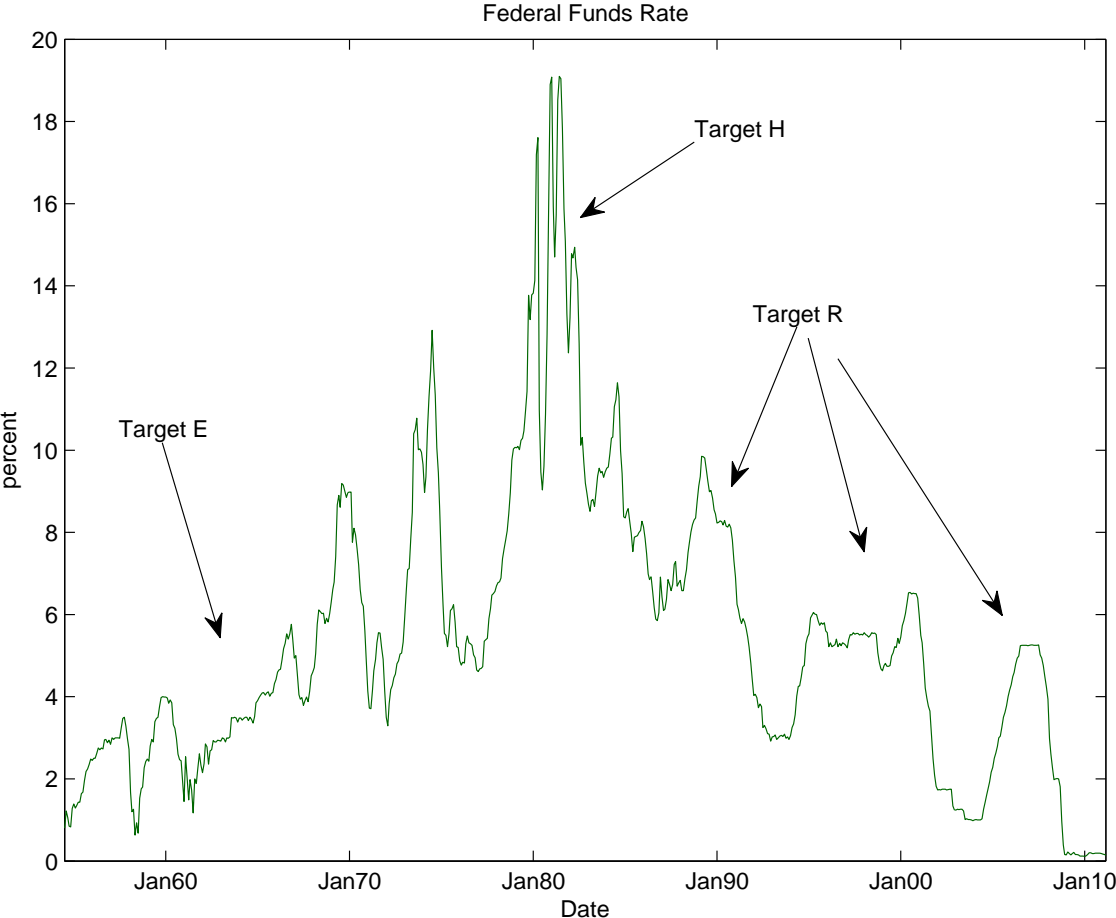
Figure 23: US Phillips Curve.

IV   Implementation

Figure 24: Federal Funds Rate. When the FED targets H, volatility in R increases. When the FED targets the FED funds rate, volatility in R reduces. Remaining volatility in the FED funds rate is due to frequent adjustments of the target.
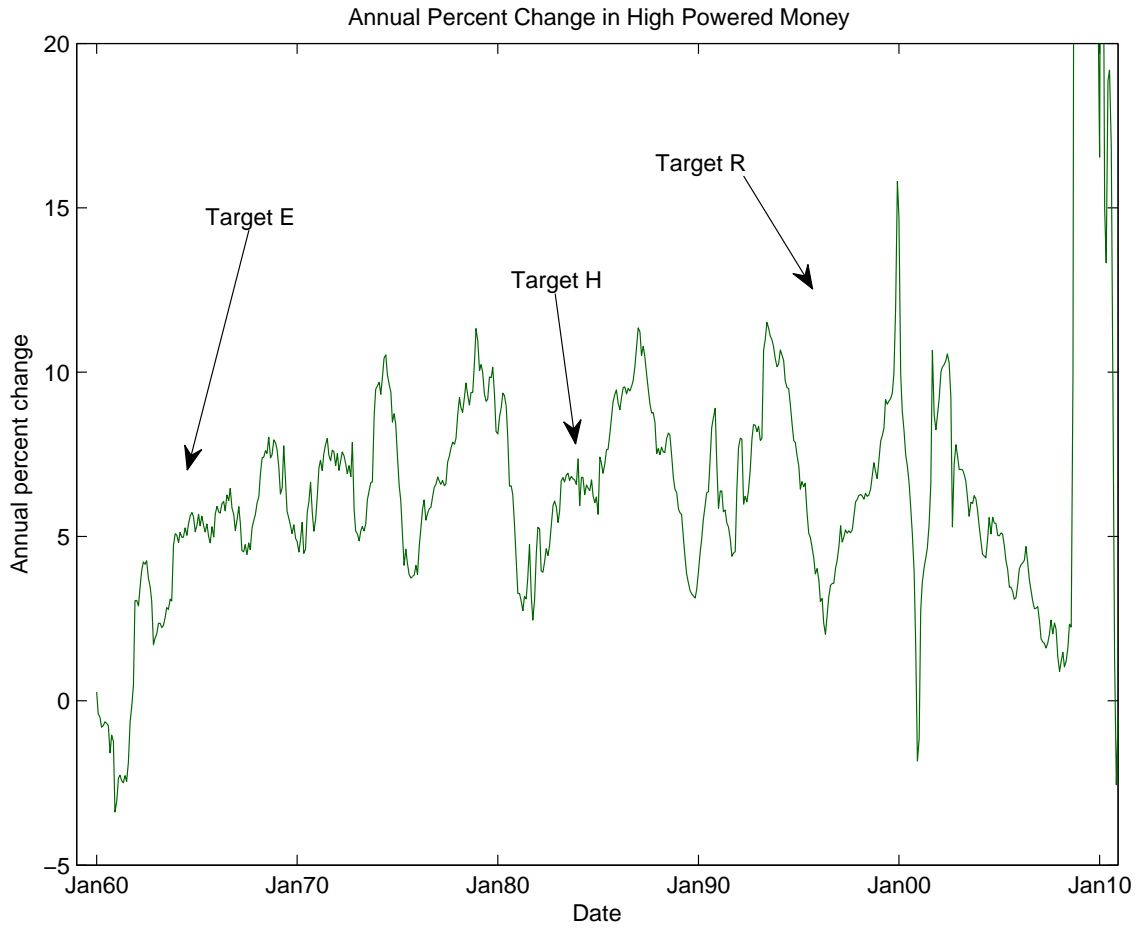
Figure 25: Annual change in the high powered money stock. Volatility in H was lower during the period when it was targeted by the FED. Volatility in H is higher when the FED targeted R.