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U.S. MACROECONOMIC POLICY AND PERFORMANCE IN THE 1980s: AN OVERVIEW

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U.S. Macroeconomic Policy and Performance in the 1980s: An Overview

ABSTRACT

This paper provides an overview of U.S. macroeconomic policy and performance in the 1980s by first outlining the behavior of key economic variables and then discussing the policies that have affected these variables. After gaining some insight into the interaction between these policies and macroeconomic performance, it then goes on to examine where macro policy and the U.S. economy may be heading in the next several years.

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I.

Introduction

The United States has the largest economy in the world and developments in the U.S. economy have a wide ranging impact on economic activity in all other countries. Indeed, Otmar Emminger, a past president of the German central bank, has characterized other countries' economic relationship with the U.S. as "being in the same boat with an elephant." [1] Because the elephant's shifts in position grossly (pun intended) affects those who are sitting in the same boat, an understanding of recent macroeconomic policy and performance in the United States is valuable to anyone concerned with international economic relations.

This paper provides an overview of U.S. macroeconomic policy and performance in the 1980s by first outlining the behavior of key economic variables and then discussing the policies that have affected these variables. After gaining some insight into the interaction between these policies and macroeconomic performance, we can then go on to examine where macro policy and the U.S. economy may be heading in the next several years.

II.

U.S. Macroeconomic Performance in the 1980s

Real Economic Activity

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[1] Solomon (1982), page 180.

Figures 1 and 2 provide an outline of developments in real economic activity from 1980 to 1985. In this period, the economy experienced two recessions leading to real GNP growth averaging 2.3% at an annual rate, substantially less than the postwar average of 3.4%.[2] The 1980s began with the unemployment rate at 6.3%, not far from the natural rate (full employment) level which most economists feel resides between five and six percent. The recession which started in January 1980 and ended in July 1980 was short but was also sharp. Real GNP declined at a 9% annual rate for only one quarter, 1980-II, when credit controls which restricted business and consumer loans were imposed on the economy. The result was that the unemployment rate climbed to 7.8%. The expansion following the trough in July 1980 after the credit controls were abandoned was the shortest in the postwar period, lasting only twelve months. A second recession began in July 1981 with output falling for four straight quarters, and the unemployment rate was driven to double-digit levels, peaking at 10.7%. The subsequent recovery starting in November 1982 has been in line with other postwar recoveries: real GNP growth has averaged 4.0% and unemployment declined to near the 7% level by early 1986.

Prices

The lackluster real GNP performance in the 1980s stemming from the two recessions is, however, associated with the most striking development in this period, a substantial improvement on the inflation front. At the start of the 1980s, the inflation rate (the percentage change in

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[2] By "postwar", I mean after World War II.

the consumer price index over the previous twelve months) exceeded 11%.[3] The high inflation rate was the result of a high core inflation rate due to high money growth in the 1970s and an upward impulse to the price level from the sharp increase of oil prices in the late 1970s associated with the fall of the Shah of Iran.[4] With the 1980 recession, the inflation rate began to fall, and during the 1981-82 recession the decline in inflation accelerated, leaving the inflation rate below the five percent level for the first time in ten years. In February and March of 1986, the CPI has actually declined for two months running, a feat last repeated over twenty years ago.

Financial Markets

Figure 4 depicts developments in the bond market. The 1980-82 period experienced not only high interest rates on short and long-term bonds, but also great volatility in these interest rates. In March 1980, interest rates on three-month U.S. Treasury bills peaked at over 15%, while those on 20-year U.S. Treasury bonds exceeded 12%. An extremely rapid fall in these rates then occurred, with three-month bill rates

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[3] The CPI series for the period before January 1983 used here is not the CPI-U index reported by the Bureau of Labor Statistics (BLS). Before 1983, the BLS's CPI-U index has serious distortions because of its treatment of housing prices. Specifically, it overstates the inflation rate when mortgage rates are rising as in 1980 (see Blinder (1980)). This problem led the BLS to convert the CPI index to a rental equivalence basis in its treatment of housing starting in January 1983. The CPI series used for the calculations of inflation in Figure 3 puts the index on a rental equivalence basis before 1983 in order to provide a more accurate account of inflation in the early 1980s. This series was obtained from the Congressional Budget Office and is described in Huizinga and Mishkin (1984).

[4] For a further discussion of the course of the inflationary process in the United States from 1960 to 1980, see Mishkin (1986), Chapter 25.

falling by half to 7% by June of 1980 while long-term rates fell below 10%. The rapid fall from March to June was then followed by an equally rapid climb in rates, leading to levels of both short and long-term interest rates above 15% in 1981. The period from 1980 to 1981 suffered not only from the highest interest rates on Treasury securities in all of U.S. history, but also from the most volatile rates as well. With the decline in inflation in 1982, interest rates finally began their fall from their unprecedentedly high levels. Currently, the Treasury bill rate is around the 6% level, while long-term government bonds are yielding less than 8%.

Although nominal interest rates have fallen to levels found in the 1970s, real interest rates -- that is interest rates adjusted for expected changes in the price level -- have not. Figure 5 plots estimates of the real interest rate on three-month Treasury bills from 1970 to the beginning of 1986.[5] Despite the high level of nominal interest rates in the late 1970s, real interest rates were very low and were even negative for most of the 1970s. In the 1980s, we have quite a different story. Real interest rates climbed to levels that are unprecedented in the postwar period, reaching a peak of over 8% in 1981. By the mid 1980s, although nominal interest rates have fallen below levels found in the late 1970s, real interest rates have remained higher than at any time in

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[5] These estimates were obtained using procedures outlined in Mishkin (1981) which make use of the rational expectations assumption. Specifically, the real rates in Figure 5 are fitted values from regressions of the ex-post real rates on the three-month bill rate, the three-month inflation rate and a supply shock variable measured as the relative price of energy in the PPI, all of which are known at the beginning of the period. (See Huizinga and Mishkin (1986) for an explanation of the choice of explanatory variables.) Because of evidence in Huizinga and Mishkin (1986) that the stochastic process of real rates shifted in October 1979 and October 1982, three separate regressions are run for the period January 1953-October 1979, November 1979-October 1982, and November 1982-January 1986.

the postwar period prior to 1979, continuing to exceed 4%. These high real interest rates have been of great concern to policymakers throughout the world, and explaining their unusual behavior is a puzzle that we will return to later.

The performance of equity markets in the 1980s has become a bright spot in the economy. As is seen in Figure 6, by the beginning of 1980, the real value of common stocks (as measured by the Standard and Poor's 500 index, deflated by the CPI) was substantially below the peak value reached in the beginning of 1973. Despite a relatively flat performance in nominal terms from 1980 to 1982, the increasing price level led to stock prices hitting a trough in real terms by mid 1982; their real value was less than half that at the peak in 1973. Subsequently one of the great postwar bull markets began. In real terms, stock prices nearly doubled, leaving their current real value only slightly less than that reached at their peak. Just in the first three months of this year, 1986, stock prices have increased by over 10%. This strength in the value of American equities has been matched by equally strong performance in the equity markets throughout the world.

The Foreign Exchange Market and the Current Account

The developments in the foreign exchange market are illustrated by Figure 7 which shows the effective exchange rate index for the U.S. dollar -- that is, the value of the dollar in terms of a trade-weighted basket of foreign currencies. By the beginning of 1980, the dollar had declined 25% from its value during the fixed exchange rate period before 1971. The subsequent rise in the dollar was both prolonged and substantial: the U.S. dollar reached record highs by early 1985, appreciating

by over 80% relative to foreign currencies. The strong dollar in this period has been the subject of much concern both by American and foreign policymakers. One reason has been its effect on the balance of trade in goods and services between the U.S. and the rest of the world. The effect of the exchange rate on trade has long lags. Thus, the strengthening dollar which led to a weakening of U.S. competitiveness did not lead to substantial current account deficits (Figure 8) until 1983, when the current account deficit reached $40 billion. Since 1983, the current account deficit has been on the order of $100 billion and the U.S. has been driven from being a net creditor vis a vis the rest of the world to being a net debtor. Since early 1985, the U.S. dollar has declined sharply in value, giving up over half the gains achieved over the previous five years. The lower value of the dollar has increased American competitiveness and should lead to a decline in the current account deficit. But because this takes time, we see no improvement in the current account balance through the end of 1985.

Now that we have examined some of the main economic developments in the United States during the 1980s, we now need to turn to the conduct of macroeconomic policy in order to understand why these developments have occurred.

III.

Macroeconomic Policy

Probably the most important feature of economic performance in the 1980s has been a significant decline in the rate of price level in-

creases. To first understand this phenomenon we must first look at how monetary policy was used to quell the inflationary fires in the early 1980s.

Monetary Policy in the early 1980s and the Fight Against Inflation

Our discussion of monetary policy in the early 1980s must first begin with the appointment of Paul Volcker as the Chairman of the Board of Governors of the Federal Reserve System in August 1979. Before Volcker's ascension to his post as Chairman, monetary policy had proved to be highly expansionary and inflationary. Thus when Volcker embarked on his new job, he was faced with a Federal Reserve that had little credibility as an agent of price stability and yet the inflation rate was climbing into double-digit territory and the U.S. dollar was weakening. To turn this situation around, Volcker embarked on a bold strategy to rid the American economy of inflation and strengthen the dollar by first announcing on October 6, 1979 a dramatic change in the operating procedures of the Fed.

Before the change in operating procedures, the Fed paid lip service to targeting monetary aggregates, but in actuality pursued a strategy of smoothing interest rate fluctuations by giving precedence to targets on the federal funds rate (the overnight, interbank loan rate) which were only allowed to move within a fairly tight band. The announced change in the Fed's operating procedures suggested that the Fed would now more aggressively pursue the targeting of monetary aggregates by abandonment of federal funds rate targets. (Specifically, the target range for the federal funds rate was widened by more than a factor of five, while the

primary operating target became nonborrowed reserves.) Although a stated goal of the new operating procedures was more accurate control of money supply growth, a monetarist experiment of a gradual reduction in money supply growth was not carried out because the Fed was not very successful in stabilizing monetary growth. Figure 9 which shows the growth rate of the M1 monetary aggregate (the percentage increase from one year earlier) indicates that after October 1979, the fluctuations in money supply growth increased rather than decreased as might have been expected from the Fed's statements. What went wrong?

There are several possible answers to this question. The first is that the economy was exposed to several shocks after October 1979 that made monetary control more difficult. Among these shocks was the acceleration of financial deregulation which added new categories of deposits such as NOW accounts to the measures of monetary aggregates. In addition, in March 1980 President Jimmy Carter, as part of his new anti-inflation program, authorized the Fed under the Credit Control Act to impose credit controls which restricted the growth of consumer and business loans. Money supply growth fell sharply immediately after these controls were imposed and then rose sharply again after the controls were abandoned in July 1980.

A second possible explanation is that effective monetary control was not possible using nonborrowed reserves targets under the then existing system of lagged reserve requirements in which required reserves for a given week were calculated on the basis of the level of deposits two weeks earlier.[6]

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[6] Mishkin (1986), Chapter 19 has a more extensive discussion of Fed operating procedures during this period and how these procedures might have led to unstable money growth.

My preferred explanation for the failure of the Fed to accurately control money growth after October 1979, was that this was never really the intent of Volcker's policy shift. A view that has been confirmed by discussions with some former Fed officials is that despite Volcker's statements about the need to target monetary aggregates, he was not committed to these targets. Rather he was far more concerned with using interest rate movements to wring inflation out of the economy. Volcker's primary reason for changing the Fed's operating procedure was to free his hand to manipulate interest rates in order to fight inflation. Abandoning interest rate targets was necessary if he were to be able to raise interest rates sharply when a slowdown in the economy was required to dampen inflation. This view of Volcker's strategy suggests that the Fed's announced attachment to monetary aggregate targets may have been a smokescreen to keep the Fed from being blamed for the high interest rates that would result from the new policy.

A story consistent with this interpretation of Fed strategy can be gleaned from the interest rate movements shown in Figure 4. After the October 6 announcement, short-term interest rates were raised by nearly five hundred basis points (five percentage points) until in March 1980 they exceeded 15%. With the imposition of credit controls in March 1980 and the rapid decline in real GNP in the second quarter of 1980, the Fed eased up on its policy and allowed interest rates to decline sharply. With the recovery starting in July 1980, inflation remained persistent, still exceeding a 10% rate (see Figure 3). Since the inflation fight was not yet won, the Fed tightened the screws again, sending short-term interest rates above the 15% level for a second time. Finally, with the 1981-82 recession that led to a large loss of output and high unemployment, inflation began to come down. With the inflationary psychology

apparently broken, interest rates were now allowed to fall.

With the scenario outlined above, large fluctuations in money supply growth after October 1979 should not be particularly surprising. Many monetarists have criticized the Fed for the erratic money growth rates during this period, but there are good arguments supporting the view that the Fed was correct to pay little attention to monetary aggregate targets in the early 1980s. Market forces, new computer technology and financial deregulation as a result of major bank legislation in 1980 and 1982 were making monetary aggregates less reliable as an indicator of monetary policy. For example the spread of NOW accounts after the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) of 1980 and the increase of money market mutual fund assets made interpretation of the monetary aggregates extremely difficult after October 1979. Indeed, the Fed embarked on several redefinitions of the monetary aggregates in the early 1980s in an effort to obtain a more economically relevant definition of the money supply.

Another piece of evidence suggesting that monetary targeting was not appropriate during this period is the behavior of M1 velocity depicted in Figure 10. Beginning in the 1980s, M1 velocity began to undergo more substantial fluctuations as well as large deviations from the trend rate of growth established before October 1979. Particularly striking is the sharp decline in velocity that starts at the end of 1981 and ends in the first quarter of 1983. This decline is then followed by another large swing up and down in velocity from 1983 to 1985. Looking at the velocity numbers in the 1980s does not increase one's confidence in the efficacy of a constant money growth rate rule during this period. Volcker's pragmatism and reluctance to adhere to monetarist prescriptions may thus have been called for in the unusual environment of the

early 1980s.

Fiscal Policy: Were the Reagan Budget Deficits the Source of High Real Interest Rates?

The other major development in macroeconomic policy in the 1980s was the tremendous growth in the federal budget deficit resulting from the fiscal policies of the Reagan administration. Despite the supply-siders predictions that tax cuts would generate sufficient revenue to leave the federal budget in balance even if there was no shrinkage in government spending, the 1981 Reagan tax cut along with continuing growth in the government sector (mostly stemming from the military buildup) led to budget deficits in the $200 billion range. As is evident in Figure 11, the official budget deficit on a national income accounts basis jumped from around 2% of GNP in 1980 and 1981 to around 5% of GNP from 1982-85.

The shift in the behavior of budget deficits is even more striking if we are a more careful in defining what an appropriate concept of a budget deficit should be. An economically relevant measure of a budget deficit should tell us whether the government is becoming more or less indebted in real terms, that is, in terms of real goods and services. Even if the federal government is increasing the nominal amount of its debt by running a deficit on an official basis, its real indebtedness can be falling if increases in the price level sufficiently shrink the real value of the debt that has been issued previously. An economically relevant measure of the budget deficit must thus be corrected for the effect of price level changes on the real value of previously issued

debt (particularly during high inflation periods) and also on changes in the market value of the debt arising from changes in interest rates. Figure 11 shows an adjusted budget deficit measure as a percent of GNP which is based on corrections calculated by Robert Eisner.[7]

The adjusted budget numbers in Figure 11 indicate that the recent deficit experience is even more unusual than the official numbers suggest. In every year from 1970 to 1985, the official budget numbers indicate that the federal government was in deficit. However, the picture is quite different with the adjusted budget numbers: from 1970 to 1980, the budget was nearly as likely to be in surplus as in deficit. After the Reagan tax cuts, a sharp break in the behavior of the adjusted deficit occurs; from a level of only .6% of GNP in 1981, the deficit jumps to nearly 6% of GNP in 1982.

The jump in the budget deficits that we see particularly after 1981 in Figure 11 is often pointed to as the source of the current high real interest rates found in Figure 5. These high real interest rates are often cited as the cause of the strong dollar from 1981-84,[8] which, in turn, stimulated the huge current account deficits from 1983 to 1985. Should the blame for the high real interest rates and the deterioration of the U.S. balance of trade be placed onto the budget deficit?

Recent research that I have conducted with John Huizinga sheds some light on this question.[9] Modern monetary theory suggests that regime changes have an important impact on the stochastic process of many

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[7] The adjusted budget deficit numbers are obtained from Eisner (1986b). See Eisner (1986a) for a more extensive discussion of how budget deficit numbers should be interpreted.

[8] See Frankel (1985)

[9] Huizinga and Mishkin (1986).

economic variables. As we have seen, with the change in operating procedures in October 1979, the Fed changed the method of conducting monetary policy in order to reverse the inflationary monetary policy of the 70s. Is this monetary regime change associated with a shift in the stochastic process of real interest rates which resulted in the high real interest rates in the 1980s?

The answer appears to be yes. When the Fed alters its behavior in October 1979, there is a statistically significant shift in the stochastic process of real interest rates. In addition, if one asks when the shift in the stochastic process of real rate actually occurs, statistical evidence indicates that it corresponds to the October 1979 change in the monetary policy regime. These results point the finger at Volcker's change in monetary policy regime as a major factor causing the current high level of real interest rates.

The research strategy in my work with Huizinga is one in which we look for a clearly definable historical event such as the October 1979 change in Fed operating procedures, and then see if there is a significant change in the behavior of a particular economic variable immediately afterwards. Suppose that we know the first event is <u>exogenous</u>, that is, it occurs as a result of an independent action that could not possibly be caused by the other economic variable. Then when a significant change in the economic variable follows the exogenous event, we have strong evidence that the first event is <u>causing</u> the change in behavior of the economic variable. In a sense then, we are treating the October 1979 change in the Fed operating procedures as a exogenous event -- in other words, a controlled experiment -- and when we see the shift in the behavior of the real interest rate, we are ascribing causation from the monetary regime shift to the change in real rate behavior.

One danger of such a historical-econometric analysis is that it runs the danger of fitting one historical episode with one tailor-made theory. Truly convincing evidence that the Fed's monetary policy regime change led to high real interest rates must involve examination of similar "controlled experiments" in other time periods. We thus focused on another episode of a monetary regime shift that has many similarities to the October 1979 shift. At the beginning of 1920, the pursuit of a real bills doctrine by the Fed led to rapid monetary growth, a sustained high level of inflation similar to that of the late 1970s and a weak dollar. In January and June of 1920, the Fed decided to reverse its inflationary monetary policy by raising the discount rate sharply -- by 1 1/4% in January and 1% in June. In the early years of the Fed, changing the discount rate was the main tool of monetary policy tool, and it was particularly potent at this time because the total amount of member bank borrowing from the Fed exceeded the amount of nonborrowed reserves. The result of this policy was a rapid disinflation (in fact, a deflation). This disinflation is similar to what we have seen in recent years and thus we might expect to find parallels between the two periods.

The analysis of the period surrounding 1920 reveals a significant shift in the stochastic process of real interest rates which has many similarities to the recent experience. For example, the 1920 monetary regime change and the subsequent disinflation is associated with a weakening of the correlation of expected inflation with nominal interest rate movements and a shift to a sustained higher level of real interest rates. The striking correspondence between the impact of the monetary regime shifts on real interest rates in 1920 and 1979 provides strong support for the view that the recent shift in real rate behavior is a

monetary phenomenon. Particularly important in this regard is that high budget deficits were not a feature of the 1920s,[10] thus suggesting that monetary factors are more important than budget deficits to the recent behavior of real interest rates.[11]

Monetary Policy After October 1982

On October 5, the Fed announced that it was deemphasizing monetary aggregate targets, and, as is clear in Figure 5, the Fed was returning to its policy of smoothing short-term interest rates. In order to keep interest rates from rising in 1983, the Fed accommodated a bulge in money demand by allowing the money supply to grow at rates in excess of 10% (see Figure 9). The fact that the more rapid growth in the money supply in 1983 did not lead to a rise in inflationary expectations can be attributed to Volcker's success with his anti-inflation program and his hard won credibility as a serious inflation fighter who would not allow the inflationary fires to reignite.

By early 1985, the strength of the dollar and the current account deficits in excess of $100 billion were leading to increasing protectionist pressure in the U.S. Congress. Statements from Federal Reserve

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[10] Although the federal government ran substantial budget deficits in the years 1917-1919 as a result of World War I, there were budget surpluses in every year from 1920 to 1929.

[11] Other research analyzing the link between budget deficits and real interest rates does not tend to support a strong connection between them. See, for example, Blanchard and Summers (1984) and Evans (1985). Note that financial deregulation, investment tax credits and oil price shocks were also not present in the 1920s. Thus, the correspondence between the 1920s and the 1980s of real interest rate behavior also weakens the case that these were important factors affecting recent real interest rate behavior.

officials indicated that they felt that the dollar was too high and fear of growing protectionism was probably a factor in stimulating the Fed to pursue a more expansionary monetary policy to bring the value of the dollar down. The result has been growth rates of the money supply again in excess of 10% and a sharp fall in the dollar.

IV.

Where Are We Heading?

It is always difficult to predict the future, but the overview of past macro policy and performance may provide some clues as to where we are heading.

In recent months, there has been some debate over whether the sluggish economic growth over the past year requires the pursuit of a more expansionary monetary policy. This debate has been particularly acute at the Federal Reserve where it erupted over a decision to cut the discount rate, with the outcome that, at first, Chairman Volcker, who opposed the cut, was overruled by a vote of the Board of Governors, an extremely unusual occurrence.

There are several factors that will affect the economy's performance and the choice of macro policies. As we have seen, developments in the foreign exchange market can affect the Federal Reserve's decisions about monetary policy. The overly strong dollar in early 1985 may have prompted the Fed to a more expansionary policy. The dramatic fall in the dollar since then may work in the opposite direction now. There currently seems to be a consensus at the Federal Reserve as well as at other central banks that the slide in the dollar has proceeded far

enough. Indeed, one reason for Volcker's recent opposition to the discount rate cut is that he felt it would weaken the dollar if it came before similar cuts by other central banks. Given that Volcker was eventually upheld by the Board and that his chief adversary, Preston Miller, the vice-chairman, resigned, it seems reasonable to expect a less expansionary monetary policy in the coming year.

The most dramatic economic development in 1986 has been OPEC's inability to prop up crude oil prices with the result that they have fallen by over 50%. Despite, slow growth in real GNP in 1985, we should recognize that the drop in oil prices is a very favorable supply shock that should greatly stimulate the economy.

We can put the analysis of the impact of the favorable supply shock into a standard textbook, aggregate demand and supply framework. A direct effect of the oil price shock is a decline in the price level since gasoline and other forms of energy are an important element of consumer expenditures. Indeed, the consumer price index fell in both February and March 1986, while the producer price index started falling in January. In addition, there are indirect effects on the price level because energy, which is a basic cost of production, has now become cheaper. One result of the favorable supply shock is then a fall in the aggregate supply curve, which leads to an expansionary effect on real output through traditional mechanisms such as a fall in interest rates.

We must also not forget that the favorable supply shock also has potential effects on the aggregate demand curve. Because the U.S. is a net importer of energy, a drop in the price of oil increases the wealth of Americans. Indeed, since the beginning of 1986, stock prices have increased by over 10%, increasing the value of equities by over $300 billion. This sizable increase in wealth will stimulate increased con-

sumer spending and so will shift the aggregate demand curve out to the right.[12] This too will lead to increased real output.

The current outlook for the economy is thus a good one. In the near future, the inflation rate should be low as a result of the oil price decline, while the economy should undergo further expansion. Does this mean that we should end our worries about a resurgence of inflation? Overconfidence on this score is unwarranted. We must remember that a halving of the price of oil produces a once-and-for-all lowering of the price level. However, the resulting, permanently lower price level does not imply that the inflation rate will be permanently reduced. If monetary policy continues to be expansionary, then the decline in oil prices will produce only a temporary decline in inflation. Once the oil price shock has worked its way through the system, the inflation rate will begin to reflect the underlying monetary expansion. The rapid rates of money growth that we have been experiencing in the last year, if not reversed, thus present a potential danger to the economy which could lead to the undoing of the Fed's successful fight against inflation.

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[12] Modigliani (1971) and Mishkin (1977) for a discussion of how increases in stock prices affect consumer spending.

APPENDIX

Sources of Data for Figures 1-11

Figure 1: annualized rate of change of GNP in 1972$ from the previous quarter; obtained from the Citibase data bank with updates from the Survey of Current Business.

Figure 2: civilian unemployment rate from the Citibase data bank with updates from the Survey of Current Business.

Figure 3: % change in CPI from the 12 months earlier; CPI series is on a rental equivalence basis and is described in Huizinga and Mishkin (1984).

Figure 4: 3-month Treasury bill rate and the 20-year Treasury bond rate are obtained from the Citibase data bank with updates from the Federal Reserve Bulletin.

Figure 5: calculated with procedure described in footnote 5.

Figure 6: Standard and Poor's 500 index deflated by the CPI series used in Figure 3.

Figure 7: effective exchange rate index obtained from Citibase data bank with updates from the Federal Reserve Bulletin.

Figure 8: U.S. current account balance obtained from Citibase data bank with updates from the Survey of Current Business.

Figure 9: % increase in quarterly average M1 from one year earlier: M1 obtained from Citibase data bank with updates from the Federal Reserve Bulletin.

Figure 10: nominal GNP obtained from Citibase data bank divided by the M1 series used in Figure 9.

Figure 11: official and adjusted federal budget deficit obtained from Eisner (1986b), divided by the nominal GNP series used in Figure 10.

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Figure 1

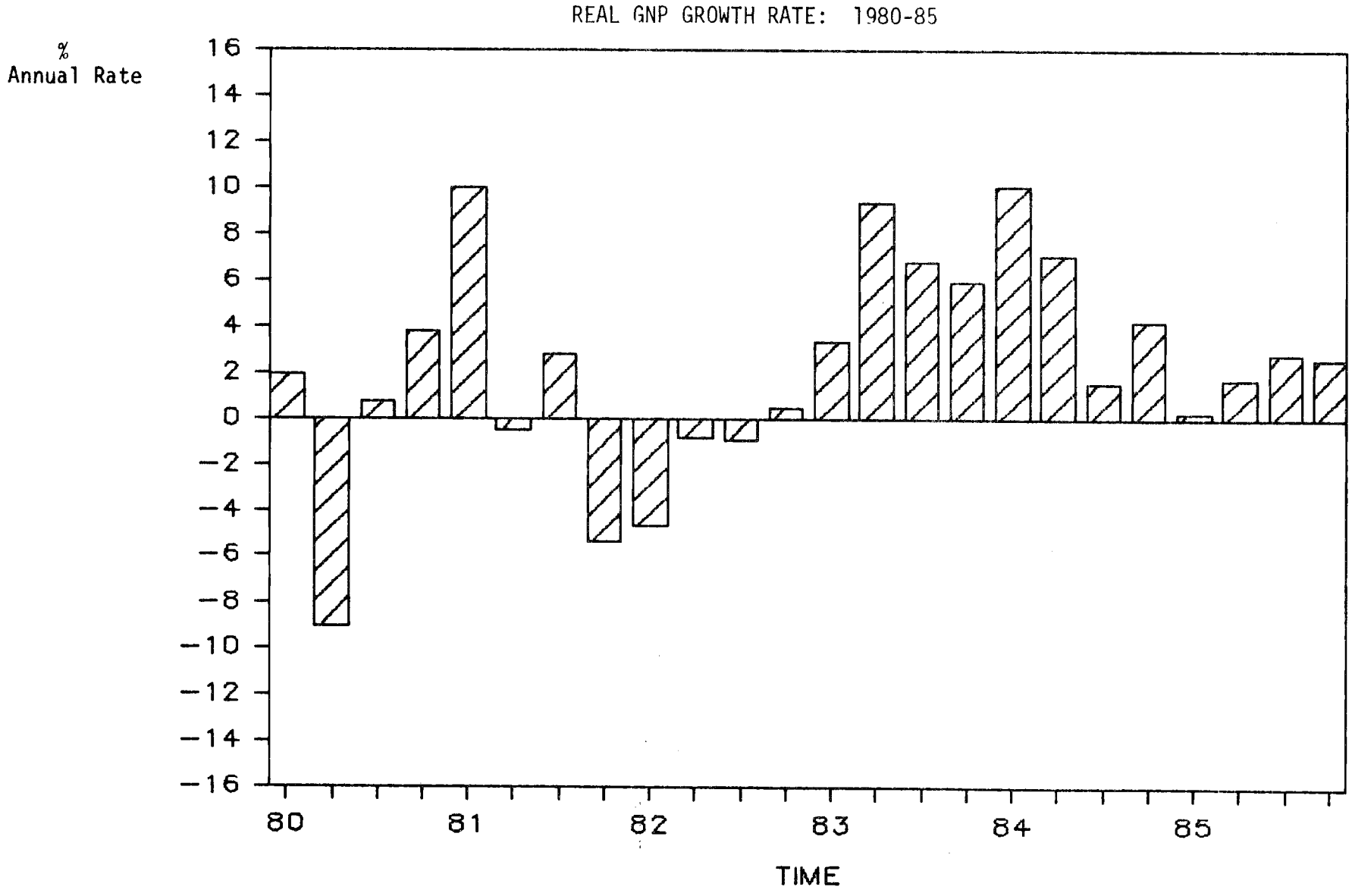

REAL GNP GROWTH RATE: 1980-85
% Annual Rate
16
14
12
10
8
6
4
2
0
−2
−4
−6
−8
−10
−12
−14
−16
80
81
82
83
84
85
TIME

Figure 2

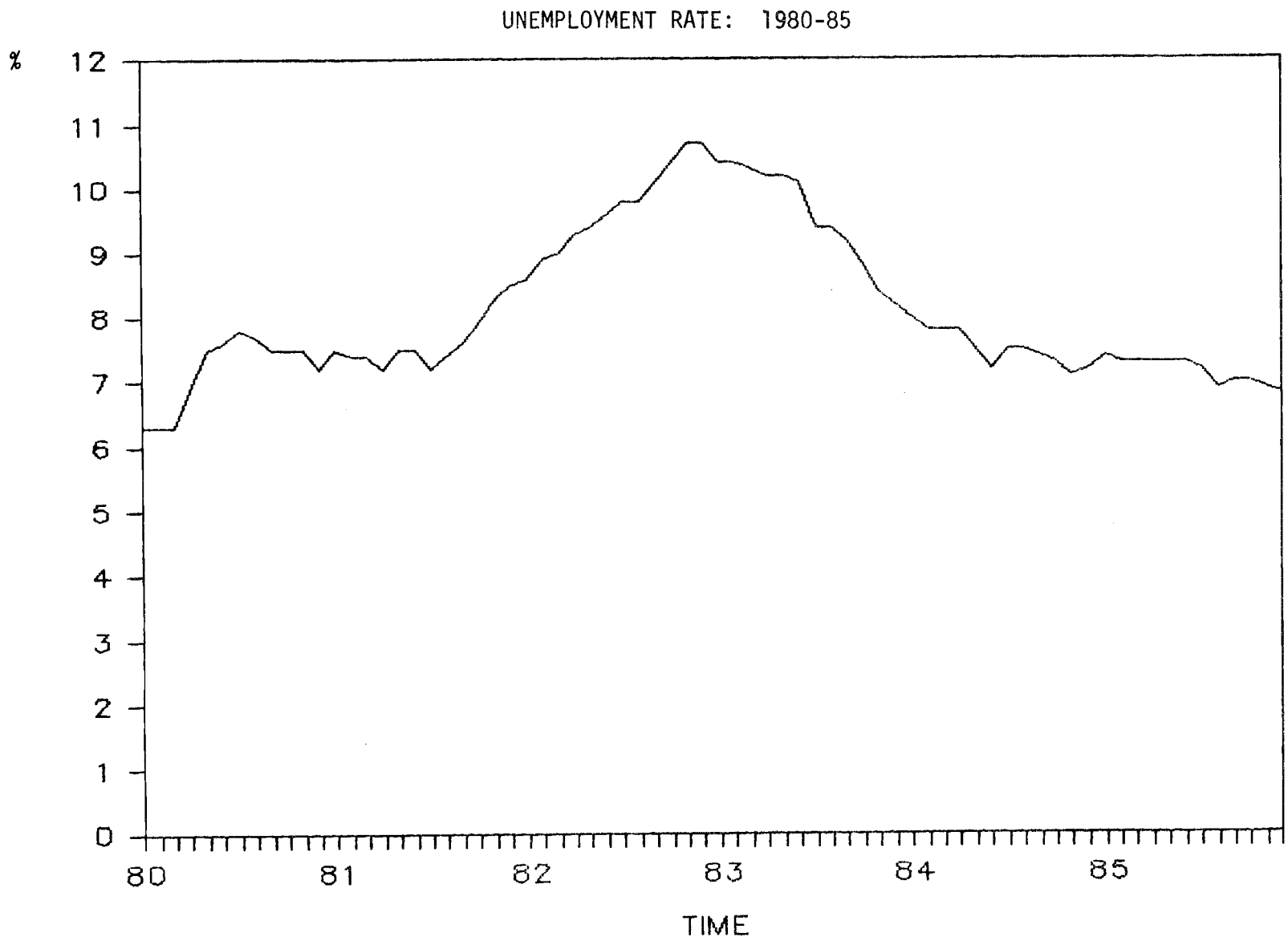

UNEMPLOYMENT RATE: 1980-85
%
12
11
10
9
8
7
6
5
4
3
2
1
0
80
81
82
83
84
85
TIME

Figure 3

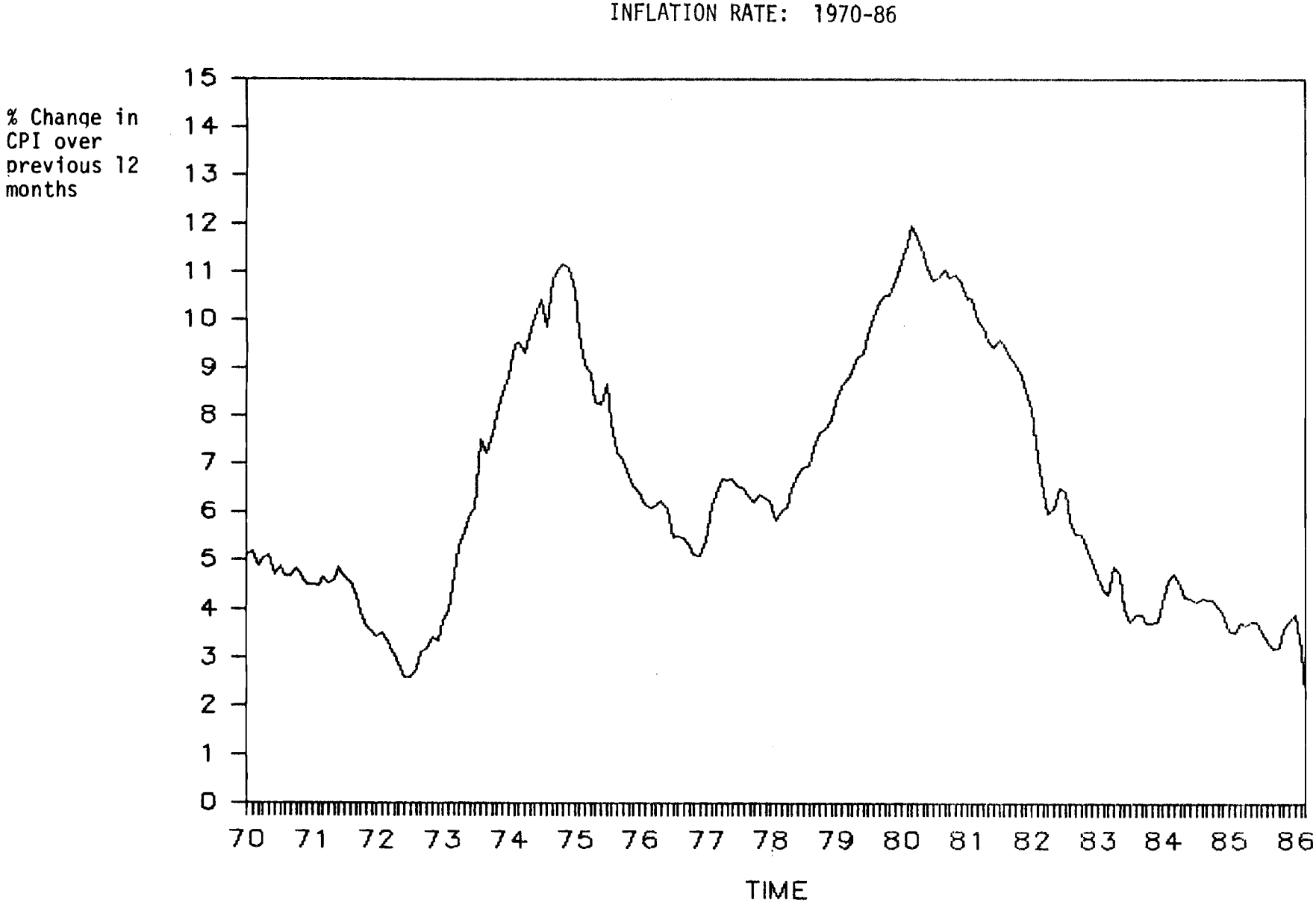

INFLATION RATE: 1970-86
% Change in CPI over previous 12 months
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86
TIME

Figure 4

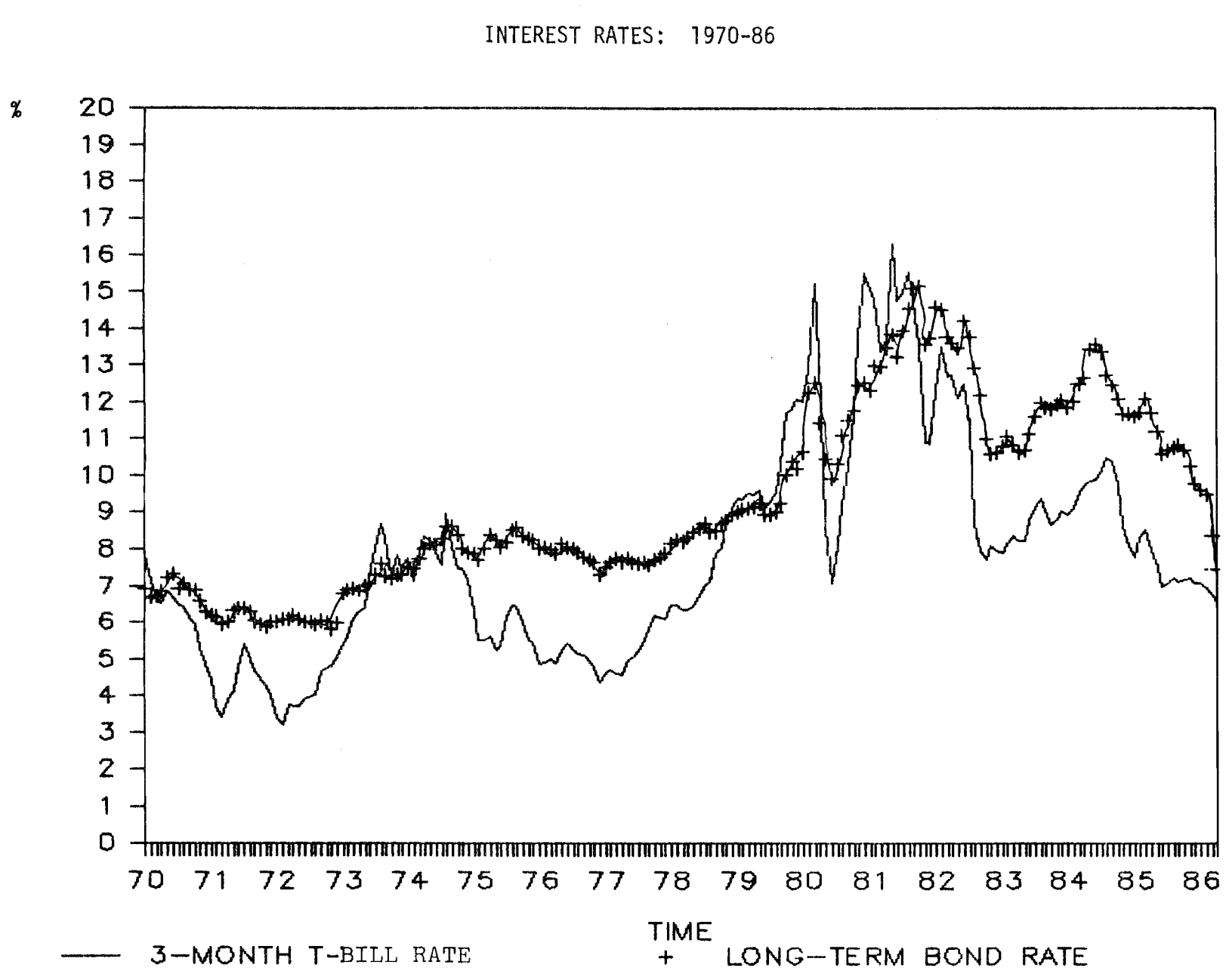

INTEREST RATES: 1970-86
%
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86
TIME
3-MONTH T-BILL RATE
LONG-TERM BOND RATE

Figure 5

REAL INTEREST RATE ON 3 MONTH T-BILL: 1970-86

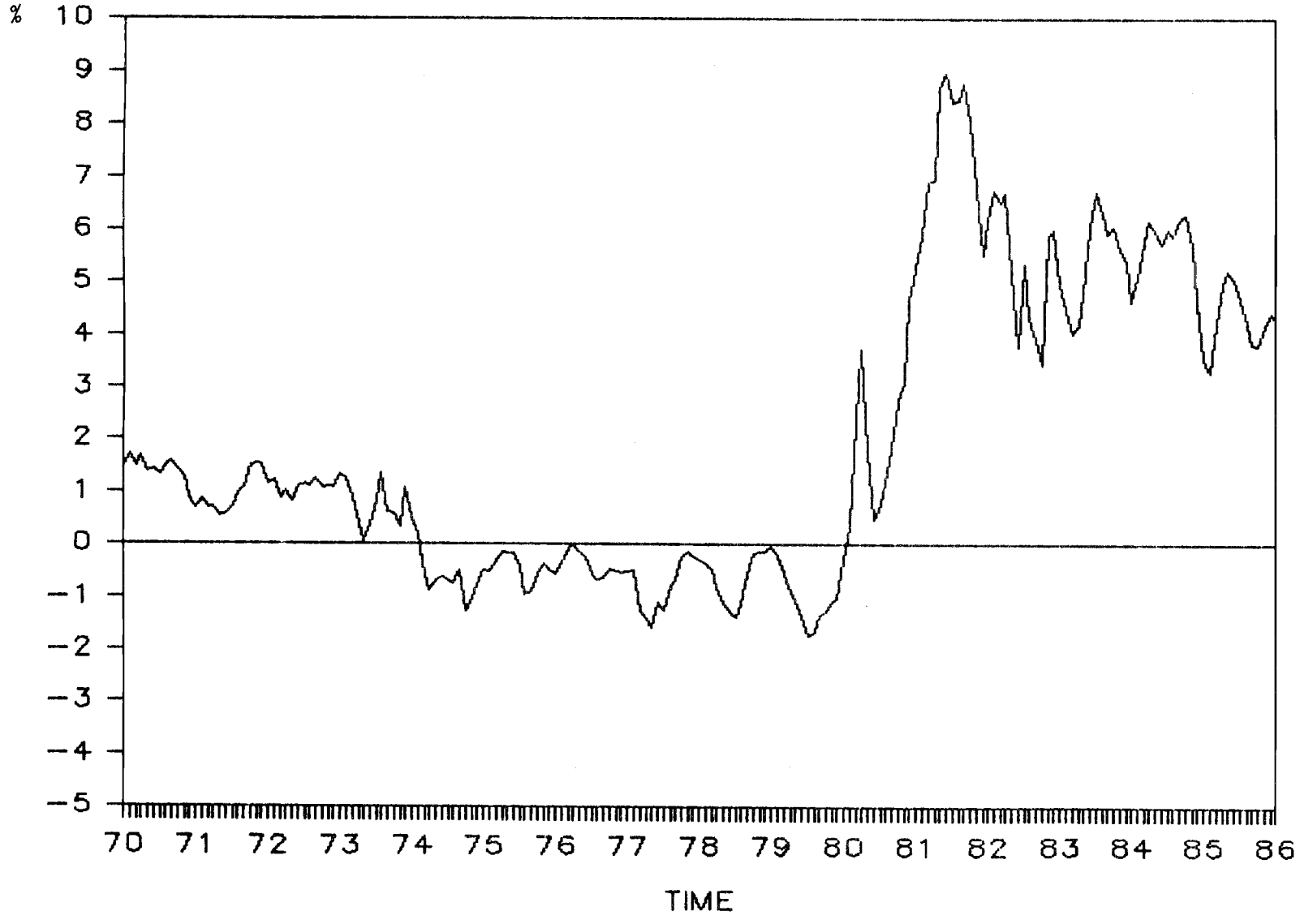


Figure 6

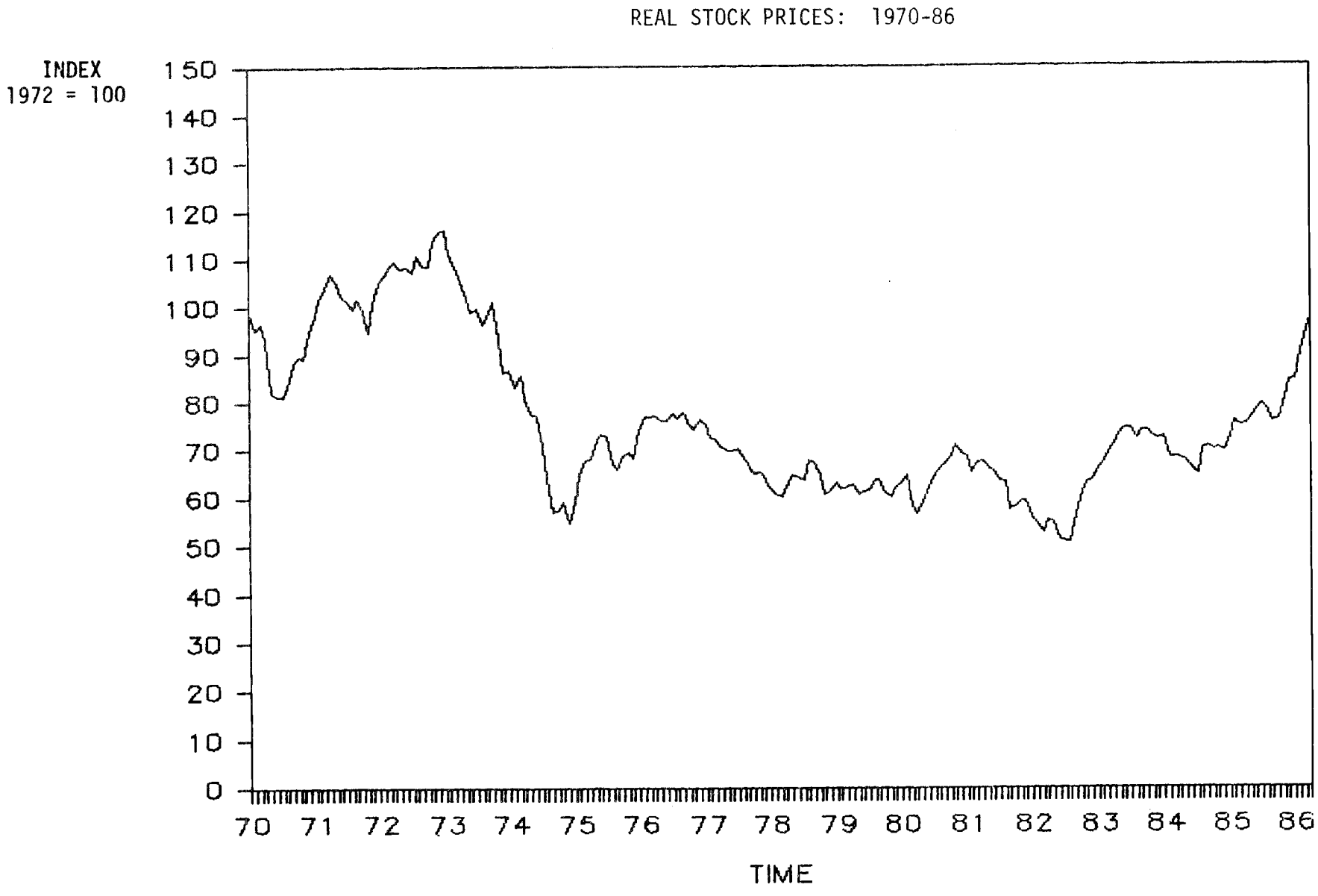

REAL STOCK PRICES: 1970-86
INDEX
1972 = 100
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86
TIME

Figure 7

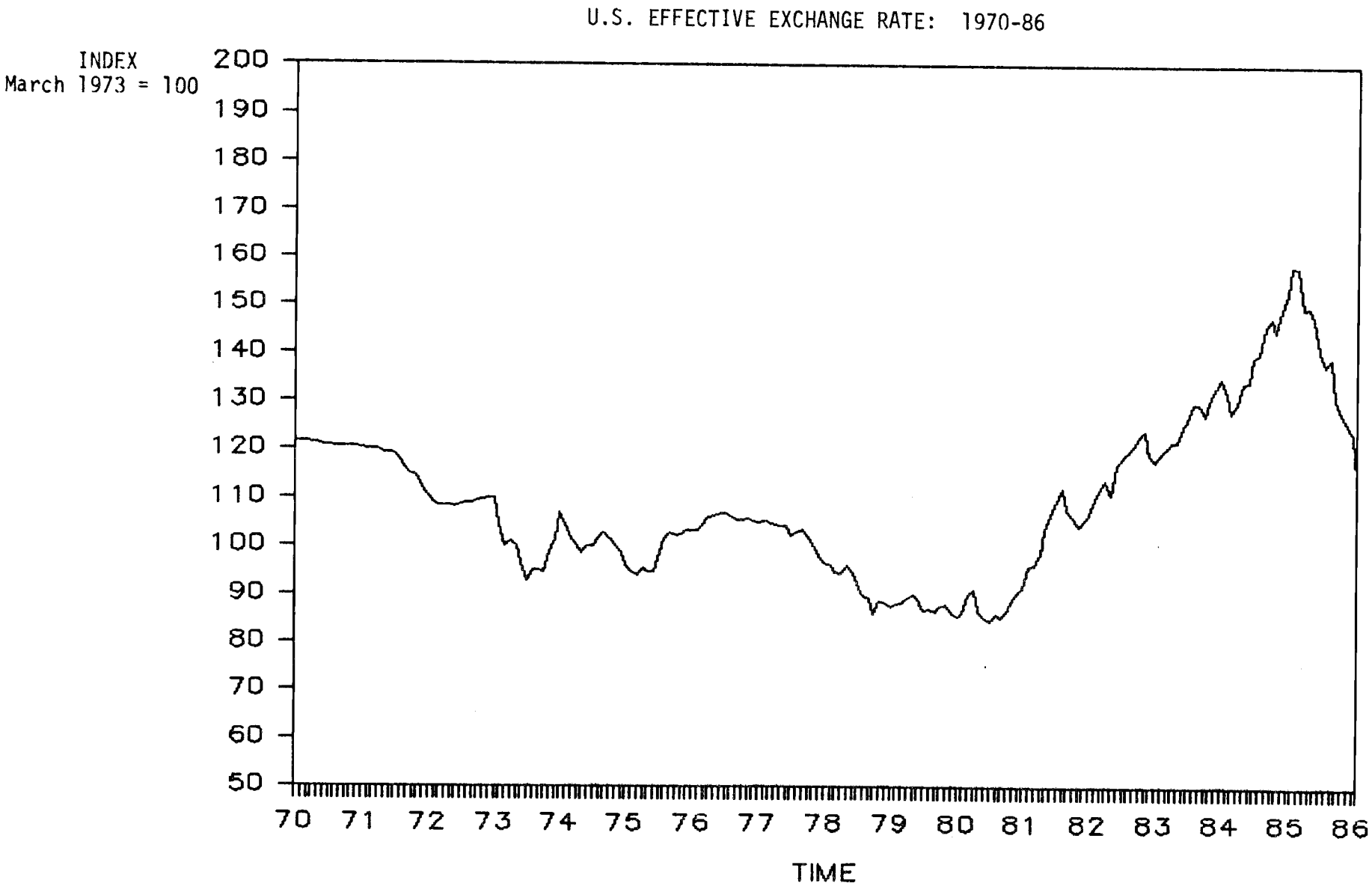

U.S. EFFECTIVE EXCHANGE RATE: 1970-86
INDEX
March 1973 = 100
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86
TIME

Figure 8

U.S. CURRENT ACCOUNT: 1970-85

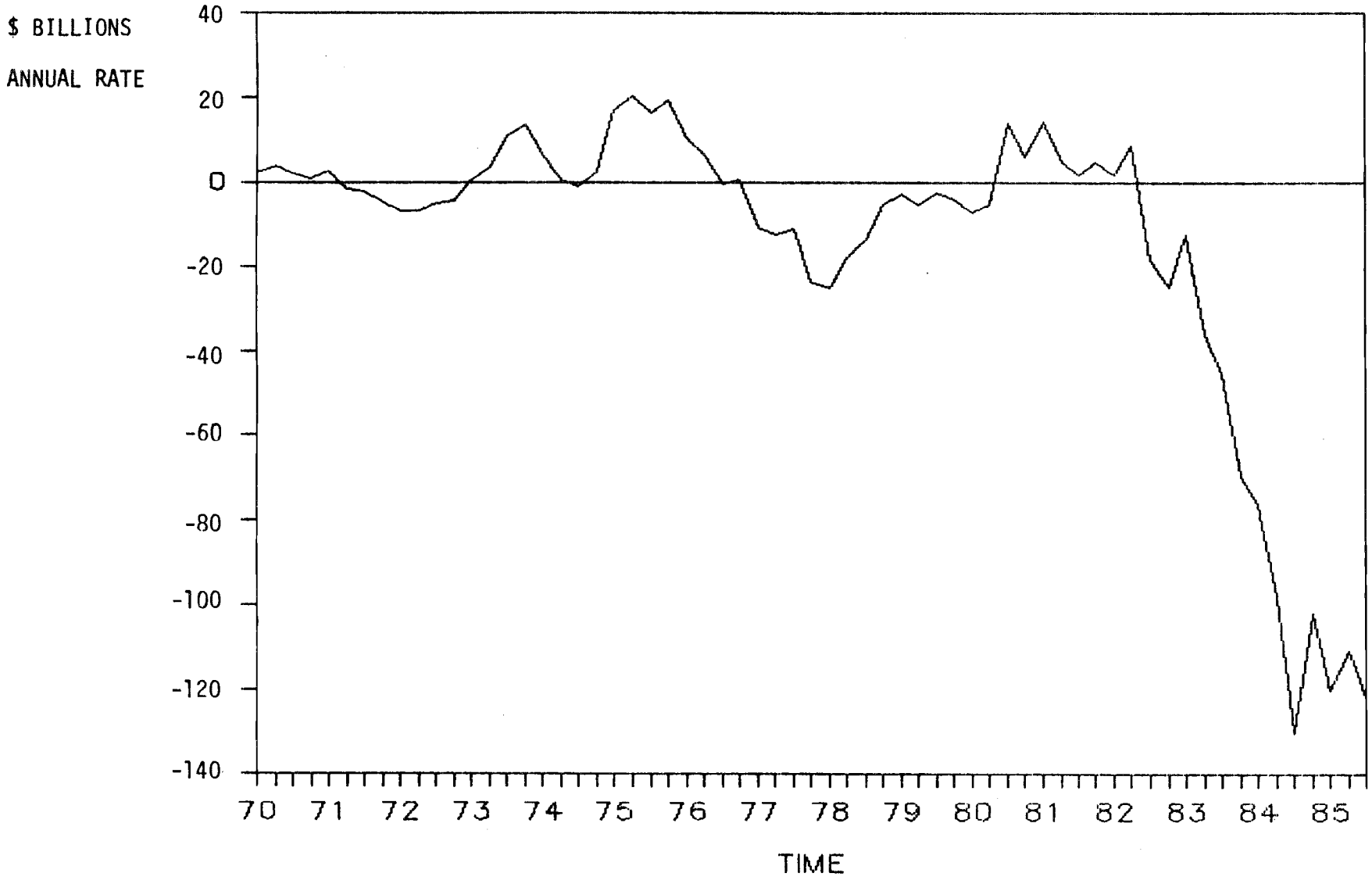


Figure 9

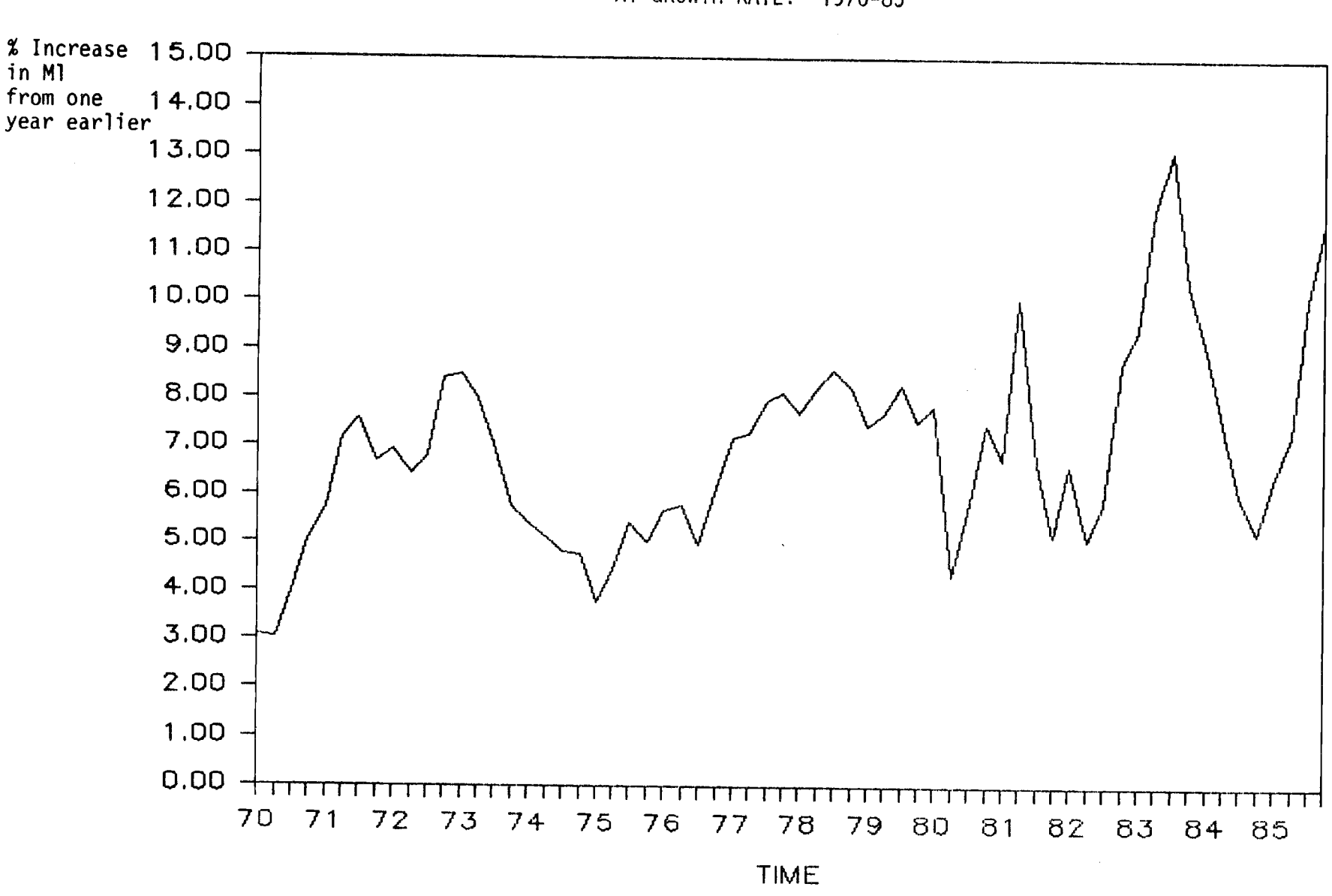

M1 GROWTH RATE: 1970-85
% Increase in M1 from one year earlier
15.00
14.00
13.00
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85
TIME

Figure 10

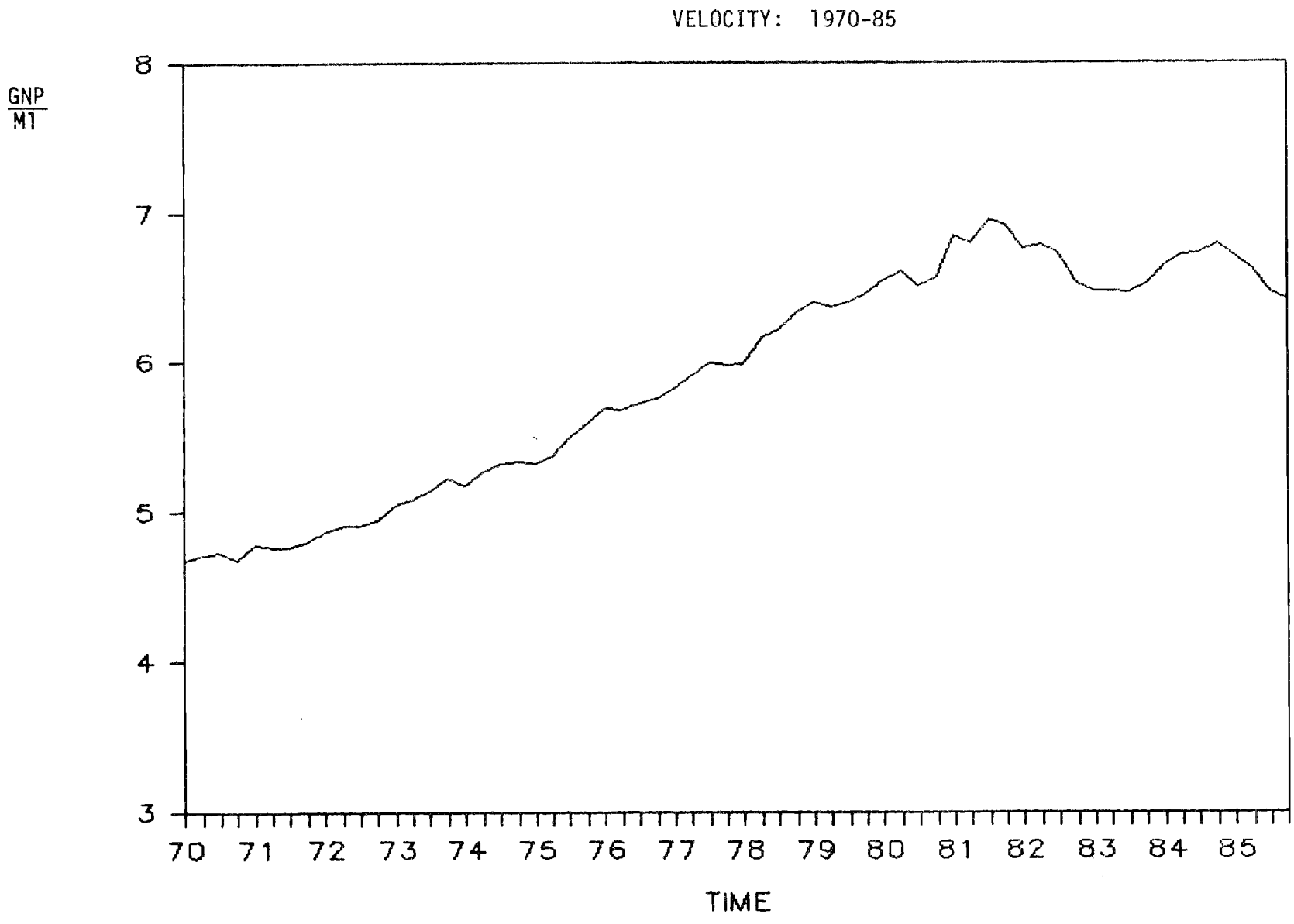
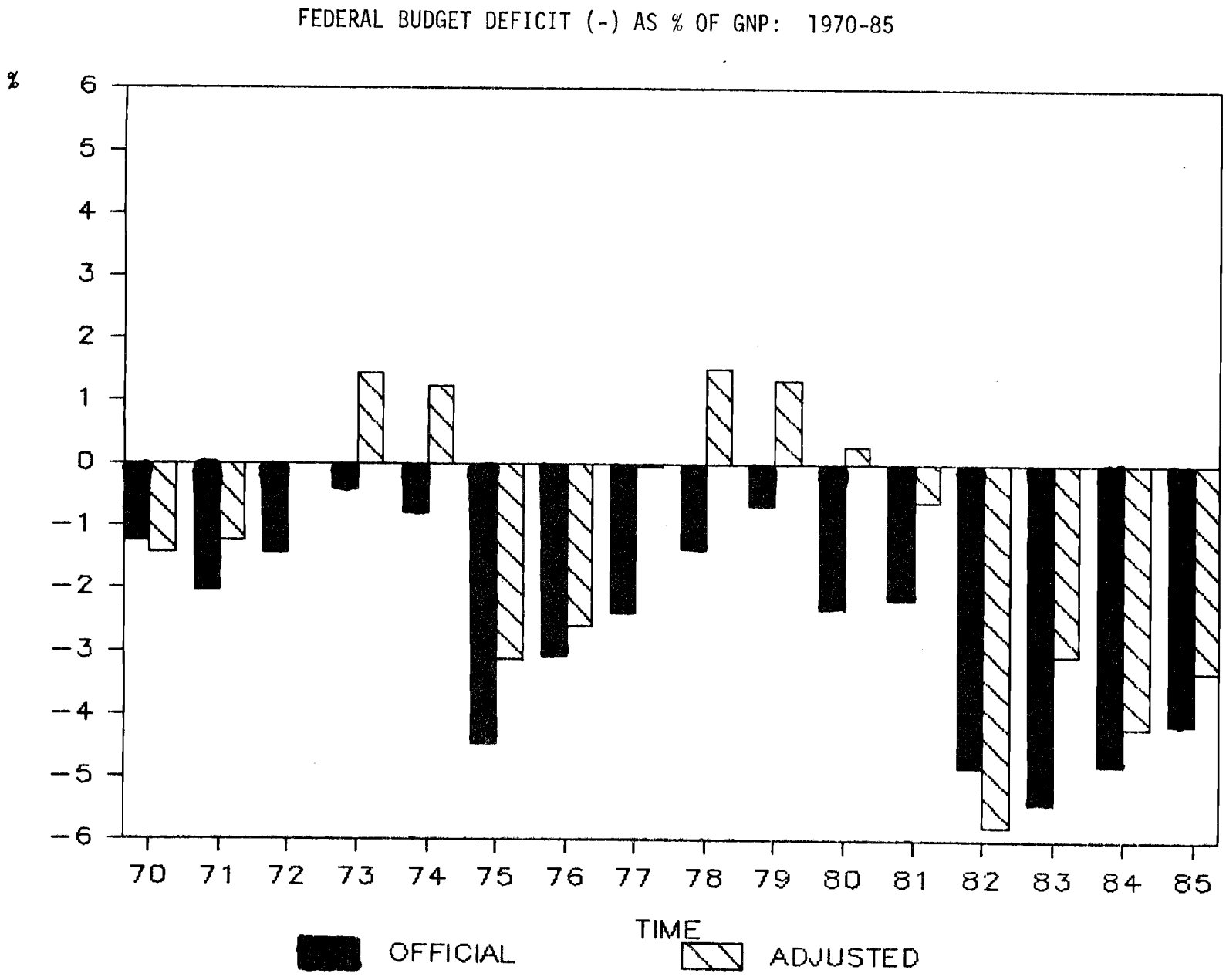

VELOCITY: 1970-85
GNP
M1
8
7
6
5
4
3
70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85
TIME

Figure 11


FEDERAL BUDGET DEFICIT (-) AS % OF GNP: 1970-85
%
6
5
4
3
2
1
0
−1
−2
−3
−4
−5
−6
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
TIME
OFFICIAL
ADJUSTED