

Called June 15th — Mr.
Stein will be attending, but will
be a little late; & will stay for
lunch. Mr. Cagan will be
there at 10:00, but will not be
staying for lunch.

REB



CHAIRMAN OF THE BOARD OF GOVERNORS
FEDERAL RESERVE SYSTEM
WASHINGTON, D. C. 20551

JUN 1970

PM

June 5, 1970

The Honorable Paul W. McCracken
Chairman
Council of Economic Advisers
Washington, D. C.

Dear Paul:

We have set a meeting with the academic consultants for the morning of Friday, June 19, here in our Board Room, with luncheon to follow upstairs. The enclosed sheet lists the men who plan to attend and indicates the scheduled presentations and comments.

We would be delighted if you could join us for all or any part of the program and stay to lunch if you are free to do so. If you can't make it and one of your associates would enjoy coming in your stead, please let me know who he will be.

With best wishes,

Sincerely yours,

A handwritten signature in dark ink, appearing to be "A. F. Burns", is written above the printed name.

Arthur F. Burns

Enclosure

Meeting with Academic Consultants on Friday, June 19, 1970

9:00 - 10:00 a.m.	Briefing by Board's Senior Staff, Room 1202
10:00 - 1:00 p.m.	Meeting with the Board in Board Room
(coffee break at about 11:15)	1) <u>The Compatibility of High Employment and Stable Prices in the Present Environment</u> R. A. Gordon Comment by Gardner Ackley
	2) <u>Current Monetary Policy</u> Milton Friedman Comment by James Tobin
1:00 - 2:00 p.m.	Lunch with Board and Staff, 4th Floor

Academic Consultants Planning to Attend

Professor Gardner Ackley
Department of Economics
University of Michigan
Ann Arbor, Michigan 48104

Professor G. L. Bach
Graduate School of Business
Stanford University
Stanford, California 94305

Professor Milton Friedman
Department of Economics
University of Chicago
Chicago, Illinois 60637

Mr. Nathaniel Goldfinger
AFL-CIO
815 16th Street, N. W.
Washington, D. C. 20006

Professor R. A. Gordon
Department of Economics
University of California
Berkeley, California 94720

Professor Albert Rees
Department of Economics
Princeton University
Princeton, New Jersey 08540

Professor Paul Samuelson
Department of Economics
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

Professor James Tobin
Department of Economics
Yale University
New Haven, Connecticut 06520

Professor Henry Wallich
Department of Economics
Yale University
New Haven, Connecticut 06520

Mr. Nathaniel Weinberg
Special Projects Division
United Auto Workers
8000 East Jefferson Street
Detroit, Michigan 48214

BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM

Office Correspondence

Date June 18, 1970

To Mr. Stein

Subject: Meeting with Academic

From LeRoy Morgan, Room 2045 *L*

Consultants on Friday, June 19

Attached are materials relating to the 10:00 a.m. meeting in the Board Room on Friday, June 19, with the academic consultants.

Lapel tag.

List of consultants, Board members and staff participating.

Seating plans.

Agenda.

Please return lapel tags to LeRoy Morgan, Room 2045, or leave on guard's desk in Oval outside Board Room entrance.

Attachments

Meeting with Academic Consultants on Friday, June 19, 1970

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Professor R. A. Gordon
Department of Economics
University of California
Berkeley, California 94720

Professor Myron Joseph
Department of Economics
Carnegie-Mellon University
Pittsburgh, Pennsylvania 15213

Professor Paul Samuelson
Department of Economics
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

Professor James Tobin
Department of Economics
Yale University
New Haven, Connecticut 06520

Professor Henry Wallich
Department of Economics
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New Haven, Connecticut 06520

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Special Projects Division
United Auto Workers
8000 East Jefferson Street
Detroit, Michigan 48214

MEETING WITH ACADEMIC CONSULTANTS

Friday, June 19, 1970

Expected Attendance in Board Room

* * * * *

Board Members

Chairman Burns
Governor Robertson
Governor Mitchell
Governor Maisel
Governor Brimmer
Governor Sherrill

Board Members' Offices

Mr. Holland
Mr. R. Solomon
Mr. Molony

Treasury Representative

Assistant Secretary Weidenbaum

Budget Bureau Representative

Assistant Director Mann

C.E.A. Representatives

Mr. Stein
Mr. Cagan

Office of the Secretary

Mr. Broida
Mr. Bernard
Mr. Morgan
Miss Peterson

International Finance

Mr. Ghiardi
Mr. Hersey
Mr. Irvine
Mr. Katz
Mr. Norwood
Mr. Wood
Mr. Altmann
Mrs. Junz

Federal Reserve Bank Operations

Mr. White

Research and Statistics

Mr. Partee
Mr. Gramley
Mr. Sigel
Mr. Smith
Mr. Wernick
Mr. Williams
Mr. Keir
Mr. Shull
Mr. Eckert
Mr. Pierce
Mr. Weiner
Mr. Zeisel
Mr. Ettin
Mr. Wendel
Mr. Baker
Mr. Beck
Mrs. Burch
Mr. Burnham
Mr. Fisher
Mr. Fry
Mr. Gehman
Miss Harper
Mr. Kichline
Mr. Manookian
Mr. Melichar
Mr. Peret
Mr. Poole
Mr. Puckett
Miss Stockwell
Mr. Struble
Mr. Thomson
Mr. Tinsley
Mr. Wetzol
Mr. Yeats

BOARD ROOM TABLE SEATING ARRANGEMENT

Conference with Academic Consultants

Friday, June 19, 1970

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E
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E

Mr. Mann (BoB)

Mr. Partee

Professor JOSEPH

Governor Sherrill

Professor GORDON

Professor SAMUELSON

Governor Brimmer

Professor FRIEDMAN

Governor Maisel

Mr. GOLDFINGER

Mr. R. Solomon

Mr. Weidenbaum (Treasury)

Mr. Stein (CEA)

Mr. Holland

Mr. WEINBERG

Governor Mitchell

Professor TOBIN

Professor BACH

Chairman Burns

Professor ACKLEY

Governor Robertson

Professor WALLICH

Mr. Cagan (CEA)

W
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LUNCHEON WITH ACADEMIC CONSULTANTS

1 P.M., Friday, June 19, 1970, 4th Floor

Large Dining Room

Table A

Governor Brimmer

Prof. WALLICH	Mr. GOLDFINGER
Mr. Partee	Prof. BACH
Mr. Pierce	Mr. Katz

Table B

Chairman Burns

Prof. JOSEPH	Prof. GORDON
Mr. Williams	Mr. Hersey
Mr. Irvine	Mr. Smith

Table C

Governor Maisel

Prof. SAMUELSON	Mr. STEIN
Mr. Solomon	Mr. Gramley
Mr. Wernick	Mr. Morgan

Table D

Governor Mitchell

Prof. FRIEDMAN	Mr. WEIDENBAUM
Mr. Holland	Mr. Ghiardi
Mr. Ettin	Mr. Eckert

Blue Room

Governor Robertson

Prof. TOBIN	Mr. WEINBERG
Mr. Keir	Mr. Norwood
Mr. Altmann	Mr. Wendel
Mr. Shull	

Williamsburg Room

Governor Sherrill

Mr. MANN	Prof. ACKLEY
Mr. Sigel	Mr. Molony
Mr. Weiner	Mr. Zeisel
Mrs. Junz	

Mr. Stein

Inflation and Unemployment in 1970

by

R. A. Gordon

University of California, Berkeley

Prepared for a meeting with the Board of
Governors of the Federal Reserve System,
June 19, 1970.

Inflation and Unemployment in 1970

by

R. A. Gordon

The title actually assigned to me for this meeting was "The Compatibility of High Employment and Stable Prices in the Present Environment". If the question implied by this title is to be interpreted narrowly, the answer is simple. Continuously high employment and completely stable prices are not compatible in the present American environment. They have not been for the last 25 years, and they are not likely to be so in the foreseeable future.

Obviously it was intended that I interpret my topic more broadly than I have in the preceding paragraph. In fact, I have taken my assignment to be broad enough to permit me to deal briefly with the following questions:

- (1) Why has inflation thus far remained unchecked in the face of rising unemployment?
- (2) What are the inflationary implications of prolonged periods of high employment?
- (3) What are the policy implications of the suggested answers to these questions?

Inflation with Rising Unemployment

I assume that the major problem that brings us together is the fact that there has not yet been any significant retardation in the rate of increase in prices and wages in the face of declining output and rising unemployment. It seems wise to begin by defining the period during which aggregate demand in real terms has been declining.

The FRB index of industrial production reached a peak last July, but the average for the third quarter was higher than that for the second. Deflated GNP was still rising at an annual rate of better than 2 per cent in III/1969; it declined by a very small amount in IV/1969 and by a

significant amount in I/1970. While unemployment rose moderately between June and September, the figure was back to 3.5 per cent in December. The rapid rise in unemployment began only in January, 1970.

Somewhat but not completely arbitrarily I shall take September (or the third quarter) of 1969 as the end of the expansion in real aggregate demand. Through May, 1970, therefore, we have a lag of 8 months -- only 7 months through April, the last month for which I had reasonably complete data at the time this was written.

The big questions, then, are why the rise in prices has remained unchecked in the face of 7 or 8 months of sagging aggregate demand, and why wages have been rising, and are likely to continue rising, so rapidly after unemployment began to increase last January.

For this audience, I need not review the recent behavior of prices and wages in any detail. If we take percentage changes for successive four-quarter differences, the rate of increase in the CPI has been accelerating steadily since the third quarter of 1967. If we measure from quarter to quarter, the percentage increase in the CPI was greater in I/1970 than in any preceding quarter (except II/1969) since I/1951. And the change in April yields a still greater quarterly rate -- even greater than in II/1969.

The Wholesale Price Index also shows a more rapid rise in I/1970 than in the two preceding quarters, although less than in II/1969. Somewhat similar results are obtained if we confine ourselves to wholesale industrial commodities. We get similar results if we look at the implicit price deflator for GNP, either total or nonfarm. It is true that the rise in the WPI slowed down in March and that there was no increase in April, but this was primarily due to the behavior of the prices of farm products and foods.

How does the recent behavior of prices compare with that in earlier periods of declining output? Perhaps the first point to make is that 1948-49 was our last business recession in which either the CPI or the WPI showed an absolute decline of any significance. In 1953, the CPI began to move horizontally about 3 months after the National Bureau's reference peak. The index for commodities less food showed some decline, and without lag.

Lags were longer in the next two recessions. In 1957-58, the CPI continued to rise with little retardation until March, 1958, which gives us a lag of about 8 months. The retardation came earlier and was more marked for commodities less food. The total index moved more or less horizontally between mid-58 and mid-59. In 1960-61 the rise in the CPI (which was quite moderate during the preceding upswing) did not show significant retardation until about November, 1960, a lag of 6 months. Here again food prices made a difference. The index for non-food commodities (excluding services) began to move horizontally several months before the reference peak in 1960.

Finally the rapid rise in the CPI in 1966 was brought promptly to an almost complete halt in the first quarter of 1967, but the rise accelerated again even before the 1967 minirecession had ended around the middle of the year.

One of the striking features of the present inflation is the accelerating rise in the price of services. Between December, 1969 and April 1970, the index for services less rent rose at an annual rate of nearly 12 per cent. With rent the annual rate of increase was almost 11 per cent. There was some retardation in the rise of service prices in 1953-54 but little or none in 1957-58 or 1960-61.

A few words about the cyclical behavior of the WPI. Between the early months of 1951 and 1965, the only significant rise in the WPI was in 1956-57. In this case the WPI continued to expand with little retardation until a month before the trough in April, 1958. This was largely due to the behavior of farm products and foods. The rise in the index for manufactured goods had begun to slow down some months before the reference peak in 1957 and the rise was further retarded during the recession.

This quick historical sketch poses more questions than answers. On the whole I am inclined, on the basis of this and other evidence, toward the tentative conclusions that : (1) prices have been becoming more inflexible downward; (2) there may have been some lengthening of the lag between cyclical decline in output and the response of the price level, although the tendency (if it exists) is obscured by the erratic behavior of farm prices; and (3) given past experience and in view of the duration

and strength of the inflationary pressures during 1966-69, the failure of prices to respond more sensitively to the modest decline in real aggregate demand that has thus far occurred is not too surprising.

The Behavior of Wages

The rate of increase in wages accelerated significantly around the beginning of 1966, when the national unemployment rate began to move below 4 per cent. But the rate of acceleration since then has been by no means steady. According to the two available series on hourly compensation for the private nonfarm sector and the series on hourly earnings in manufacturing, for example, wages increased less rapidly in 1969 than they did in 1968.

In terms of four-quarter differences, increases in average hourly compensation in the private nonfarm economy during the last two years averaged about 7 per cent.¹ Wage increases during this recent period have been of the same order of magnitude as in 1956, but less than in the first few quarters of the Korean War or in the immediate postwar period.

From the side of costs, what accelerated the rate of price inflation in 1969 was not an accelerated rise in wages but the virtual cessation in the rate of increase in productivity. As a result, unit labor costs increased sharply in 1969 -- by 6.4 percent in the private nonfarm sector in contrast to an increase of only 3.9 per cent from 1967 to 1968. (These figures are based on annual averages.) The situation deteriorated further in the first quarter of 1970, when a serious decline in labor productivity helped to push up unit labor costs over those of the preceding quarter at an annual rate of 8.4 per cent.

Two big questions for the remainder of 1970, then, are (1) what are the prospects for further wage increases and (2) what is likely to happen to labor productivity.

¹This is for all employees. For production and nonsupervisory workers only, the increase has been slightly less.

With respect to wages, I think the prospects are for a rate of increase as high as or higher than in 1969. It is true that rising unemployment and falling profits should retard the rise in wages. But I think the offsetting factors are equally or even more important, assuming that the unemployment rate does not rise much above 5 per cent. These are at least three in number, the first two of which are interrelated.

The first two have to do with the length of the period during which (1) prices have been rising at an unusually rapid and accelerating rate and (2) the unemployment rate has been at 4 per cent or below. In the usual sort of regression analysis which starts from the Phillips curve, no allowance is made for cumulative effects. Each period's unemployment rate and price and wage changes are taken as independent observations, unrelated to what has gone on in the past -- although a short lag may be introduced between, for example, the change in wages and the change in prices.²

Workers are still trying to catch up with the rise in prices during the last 2 years, and recent experience has undoubtedly affected expectations as to probable price changes during the year ahead. There has been little increase in real wages in the last year and a half. Indeed, in manufacturing there was a significant decline in I/1970 and a small net decline over the preceding year. The "price-push" effect on wages has grown stronger in part as a function of the length of the period prices have been rising rapidly. I am inclined to believe that this cumulative price-push effect on wages will largely offset the influence of higher unemployment for some significant period -- at least if the unemployment rate does not rise much above 5 per cent.

My second point is related to the preceding one. Unemployment fell to 4 per cent in December, 1965; and with the exception of one month (October, 1967, with a rate of 4.1 per cent) the rate stayed below 4 per cent from February, 1966, through January, 1970. In short, we went

²One study which does bring in the effect of past price changes over a three year period, using an Almon distributed lag, is Robert J. Gordon, "The Recent Acceleration of Inflation and Its Lessons for the Future", in Brookings Papers on Economic Activity, Vol I, (The Brookings Institution, 1970.)

through four successive years with unemployment below 4 per cent. I am of course, talking here about the official unemployment rate, which on a quarterly basis ranged between 3.3 and 3.9 per cent during 1966-69. (If, following Simler and Tella, we add in "disguised unemployment", such ~~as~~ an adjusted unemployment rate declined by some 40 per cent during these years. See Gordon, op. cit.) If we can trust the available figures, this is the longest period in this century in which unemployment has remained below 4 per cent without being associated with wage and price controls. Annual average unemployment remained below 4 per cent during 1943-48; but we had not only price and wage controls but also rationing during 1943-45, and the release of pent-up demands pushed prices up during 1946-48 at a much faster rate than during 1967-70.

I am not at all clear as to how the mechanism works (if it does at all), but I suggest that prolonged periods of very low unemployment tend to cause money wages eventually to rise faster than can be explained by unemployment in the current period and the rate of price increase in the very recent past. Here again there is what, for lack of a better term, can be called a "momentum effect". (I am not necessarily taking an "accelerationist" position in saying this. Long periods of low unemployment may generate a steady state in which wages and prices rise faster than regressions based on past American experience would lead us to expect -- but without any further acceleration in the rate of wage and price increases.) Wage increases in 1970, I suspect, will be affected not only by the actual unemployment rate in 1970 but also by the long period of low unemployment that came before. Obviously as far as lagged effects on wages are concerned, my preceding point regarding the effect of accelerating price increases over the past several years is related to the second point regarding the effect of an unusually long period of relatively low unemployment. I am not sure that the two effects can be disentangled. I have tried a number of regressions in an effort to detect the effect of the length of the period during which unemployment remains below some given low figure, but so far without success. It may be that the length of the period of consecutively low unemployment operates to determine the lag with which wage changes respond to rising unemployment in a subsequent period.

Now to my third reason for believing that wage increases this year will not respond readily to a moderate rise in unemployment. A number of observers (most recently in the May issue of the Survey of Current Business) have drawn attention to the fact that the number of workers covered by contracts that will be up for renegotiation this year is much larger than that last year. In 1969 approximately 25 per cent of the workers receiving wage increases under bargaining agreements were covered by new contracts; the remainder received deferred increases under old contracts. In 1970 the percentage receiving increases under new contracts will jump to about 50 per cent -- roughly the same percentage as in 1968, when hourly compensation in the nonfarm private sector and in manufacturing increased by a somewhat larger percentage than in 1969.

Given the "front loading" that generally exists in multi-year contracts, the first-year increases in the new 1970 contracts will be much larger than (perhaps double) the deferred increases carried over from old contracts. In addition, the first-year increase is virtually certain to continue the strong upward trend of recent years. In the first quarter of this year the median first-year increase is estimated to have been 8.8 per cent. Deferred increases under old contracts will be much less. But some 50 per cent of workers under contract will be receiving the high first-year increase, compared to a little over 25 per cent last year. As a result, the weighted average increase for workers under both old and new contracts will be considerably higher than last year.

Prospects for 1970-71

I do not propose to offer an independent forecast of the GNP and its components for the next year or more. I tend to agree, on the basis of somewhat impressionistic evidence, with those who predict that the current decline in real GNP will not become much worse and that some recovery will be under way by the fourth quarter, if not the third. (A big question mark at the moment is how far plans for capital spending will be revised downward.) On the other hand, I do not think that the unemployment rate will fall below 4.5 percent by the end of the year, and I believe that it is likely to rise further before it begins to decline. As already indicated, I take a pessimistic view as to the rate at which wages will continue to increase.

Given the prospective behavior of wages, it is obviously important that labor productivity begin to rise again at the rate to which we were accustomed before 1969. This is not likely to happen until total output begins to increase again. We are all familiar with the typical cyclical pattern which shows the largest increases in labor productivity coming at the end of a recession and in the early stages of the subsequent upswing.

In this connection, it is important to remember that increase in productivity, as well as growth of the labor force, requires a minimum rate of growth in output if unemployment is not to increase. The closer output per manhour during the next year approaches its past trend rate of increase, the greater must be the rate of increase in output if the unemployment rate is to decline. If a major concern of the Administration is not only to

prevent the unemployment rate from rising further but to bring it down closer to 4 (or 3.8) percent, it is not enough for real GNP to stabilize and then begin expanding slowly at a rate of 2 or 3 percent a year. If productivity begins to rise again at its old rate, we shall presumably need an expansion in GNP at something like 4 per cent to prevent unemployment from rising. If the rise in productivity does not accelerate, we shall need to worry less about unemployment -- but even more about inflation.

Thus there are two arguments (at least) in favor of an expansionary monetary and fiscal policy during the rest of this year and, depending on the circumstances, into 1971. One is to reduce unemployment; the other is to create the conditions favorable for an accelerated increase in labor productivity.

Monetary policy has already moved in an expansionary direction, although it remains to be seen how expansionary policy will be in the months ahead. Fiscal policy seems to be moving, to some degree unintentionally, in the same direction. In addition to what has already occurred, we have the removal of the remainder of the tax surcharge at midyear and the virtual certainty of a considerably larger budgetary deficit in fiscal 1971 than was originally planned.

But if we move toward a moderately expansionary policy, what does it mean in terms of continued inflation? It means, of course, that prices will continue to rise at an uncomfortably high rate, although I should anticipate that the lagged effects of the recessionary tendencies during the last 8 or 9 months would have some retarding effect on the rate of increase in prices in the second half of the year. But I should be surprised if the

rate of increase in the GNP deflator were as low as 4 percent by the end of the year (which probably means a somewhat higher figure for the CPI) unless we move into a more serious recession than we have experienced thus far -- or unless special measures are taken.

One type of measure which might have some slight effect is the removal of the variety of restrictions that tend to hold up particular prices, from formal and informal quotas on imports to our farm program. It is obvious, however, that political considerations make it impossible to expect any help from this direction. Indeed, I suspect, this situation will get worse before it gets any better. This leaves us with the proposal which is now being warmly debated outside and inside the Administration -- that we adopt some variant of an incomes policy short of compulsory wage and price controls. I strongly favor doing so.

It is to be regretted that a significant part of the opposition to some variant of an incomes policy in the United States seems to rest on, to borrow a word from Paul McCracken, theological grounds. My set of value judgments and my own evaluation of the way "free market forces" operate in today's markets for goods and services as well as labor do not make the notion of guideposts and "jawboning" abhorrent to me. What concerns me is whether some version of an incomes policy will give us a little better trade-off between unemployment and inflation in the present American setting without significantly impairing the efficiency of the economy -- and, if so, what is the best version to use.

I believe that adoption of an incomes policy tailored to the present situation in the United States could have some restraining influence on

prices and wages. It is obviously impossible to say how much; but, if skillfully done, the policy should have a discernible effect. It is neither necessary nor desirable to return to the guideposts of the Kennedy-Johnson years, particularly as they were originally formulated in 1962. Very tentatively, I suggest something along the following lines:

1. The President should make a strong public statement, with maximum publicity, urging (even demanding) wage and price restraint from labor and business.

2. Although this will obviously not be accepted by organized labor, the Administration, again with maximum publicity, should urge that wage increases during the next year be held to the rise in the cost of living during the past year -- say, 6 percent. If this were done and productivity were again to increase at something close to its past long-term rate, this would permit a rise in real wages.

3. This being a Republican Administration, it should be possible to combine suasion and pressure on business both to hold back on price increases and to stiffen resistance to wage demands. A separate office might be set up in the Executive Office of the President, in close contact with the Council of Economic Advisers, to carry out this function. Given the reluctance of the Administration to move in this direction, both the White House and business might find this proposal more palatable if the pressure and suasion were exercised with little publicity. I would favor considerable publicity.

4. It might also be desirable, following a recent suggestion in The New York Times, that the President "appoint a high-level Price, Wage and

Productivity Board, which should certainly call attention to irresponsible wage and price behavior, but whose role should go beyond that. The board should also seek to attack highly inflationary situations in such fields as medical and hospital services, building construction, and other key trouble spots. And it should propose means of creating incentives for spurring productivity gains -- without which any wage increases tend to be inflationary".

5. One thing that bothers me about these proposals is that they do not provide for a direct channel to organized labor. I gather that the official position of the AFL-CIO is "all or nothing", and "all" only for a limited emergency period. Nonetheless, I would suggest establishing some sort of formal liaison with organized labor, both for educational purposes and to bring to bear such informal pressure as the Administration can muster.

I make no great claim for these suggestions, which certainly are not new. I think they will do some good, but some other variant of an informal incomes policy might do better. But I think the effort should be made. And I think that the primary pressure, in the present environment, needs to be on business, both as seller and employer -- although maximum unfavorable publicity should be given to wage demands that much exceed whatever guidepost is established.

The Inflationary Implications of Continuing High Employment

There is one aspect of the unemployment-inflation relationship to which American economists need to give more attention, and I have already referred to it. The inflationary implications of long periods of continuously high employment cannot be judged from a past experience in which short periods of moderately high employment were regularly interrupted by recessions in which the unemployment rate rose to 6 percent or higher. Between the end of the postwar inflation in 1948 and 1966, we had only one period in which unemployment remained below 4 percent for more than 2 or 3 months. This was during the Korean War, when unemployment was less than 4 percent for one month short of 3 years. While prices stabilized in 1952-53, we used a range of direct controls during the Korean War that we are not prepared to adopt now or, short of a greater emergency than that now facing us, in the foreseeable future. Even so, the CPI in 1953 averaged 11.2 percent higher than in 1950.

The annual average unemployment rate ranged between 4.1 and 4.4 percent during the boom of 1955-57, which was followed by the worst recession of the postwar period. And, as we remember all too well, unemployment remained above 5 percent between 1958 and 1964.

We can turn to Western Europe for some notion of what rate of price increase is associated with long periods of high employment. For the decade of the 1960's, the average annual rate of increase in the CPI for France, the Netherlands, Italy, Sweden, and the United Kingdom ranged in a very narrow band around 4 percent. It was less than 3 percent in Germany

and well over 5 percent in Japan. It might also be noted that European experience, aided by occasional doses of restrictive monetary and fiscal policy and a range of variants of incomes policy, does not reveal a steady trend toward acceleration in the rate of inflation.

The German price and wage experience remains something of a Wirtschaftswunder, and we could hardly hope to match it if we were to move into a new prolonged period of rapid growth and very low unemployment. The experience of the other Western European countries, even granted the differences in economic structure, suggests that long periods of low unemployment in the United States might be associated with an average rate of increase in the CPI of around 4 percent. I am as suspicious of drawing parallels of this sort as the next person; but, in judging what degree of inflation is likely to be associated with long periods of low unemployment and rapid growth, I think this parallel offers a more useful guide than anything we can draw from postwar American economic history before 1968.*

* Interestingly, R.J. Gordon's study previously cited, on the assumption the economy returns to its previous trend rate of increase in productivity, apparently projects a steady state rate of inflation in the CPI of around 4 percent -- somewhat less for the GNP deflator.

Memorandum for Federal Reserve
Consultants Meeting, June 19, 1970

Current Monetary Policy

Milton Friedman
University of Chicago

"If this interpretation has any validity, it leads to the somewhat paradoxical conclusion that confidence in the efficacy of monetary policy in the 1950's was inversely related to monetary stability. As that confidence has grown, it has produced a growing instability in the stock of money. Hopefully, the process is not explosive but self-limiting."

M. Friedman and A. J. Schwartz,
A Monetary History (1963), p. 638.

I happened to come across this statement recently as I was looking through our Monetary History for another quotation, and was taken aback by its appositeness to our present situation. Unfortunately, neither the '60's nor the first few months of the '70's have yet justified the optimism of the final sentence. The basic challenge facing current monetary policy is to do so.

The following table summarizes the behavior of three monetary aggregates since January, 1967:

Period	Annual rate of change in		
	M ₁	M ₂	M ₃
Jan. 1967 to Dec. 1968	7.0	9.8	9.3
Four-week periods ending at indicated dates			
12/18/68 to 6/25/69	3.8	0.4	4.5
6/25/69 to 12/24/69	- 0.2	- 3.6	-1.3
12/24/69 to 2/25/70	2.6	- 2.1	-1.1
2/25/70 to 5/27/70	9.4	12.4	10.2
	6.6		6.5
			5.6

Notes: Rates of change assume continuous compounding.

M₁ = currency outside banks plus adjusted demand deposits.

M₂ = M₁ plus time deposits in commercial banks.

M₃ = M₂ minus large CD's.

It will come as no surprise to anyone that I regard this record as a sorry one and believe the nation would have been better served if there had been steady monetary growth throughout the period at about the rate of the first half of 1969, or perhaps a bit higher. With respect to the more recent period, the rate of growth from December, 1969, to May, 1970, as a whole is not too bad, though it is a bit high. However, for the three months from February to May, the rate is frighteningly high, in the sense that continuation of such a rate would condemn us to a further acceleration of inflation. Judgement of the past five months, therefore, depends critically on whether the recent rapid growth is interpreted as the kind of over-reaction

of which the Fed has been guilty so often in the past or as an attempt to get on a sustainable and rather moderate growth path starting from December. The right policy--again, it will surprise no one--seems to me to be to try to get on a steady path of about 4 to 5 per cent monetary growth starting in December and stay there. To succeed in doing so will require not only that the FOMC so specify, but also/that the operating procedures in New York be modified, and the statistical data improved.

These conclusions are based on the whole of the work on monetary phenomena that I have done. Yet any such conclusions must always be tentative and subject to modification in the light of new evidence. Accordingly, In Section 1, I examine how the response of various magnitudes to the recent monetary changes conforms to past experience, in Section 2, the three respects in which there is a significant deviation from past experience, and, in Section 3, a possible reason for the recent rapid monetary growth. / I then turn, in Section 4, to what we may expect for the near future, and in Section 5, to a further look at current monetary policy.

In Sections 1 and 2, I neglect the monetary changes since February 1970. The reason is that there has not yet been time for the recent acceleration in monetary growth to have a significant effect on the economy.

The earlier experience involves three steps: rapid expansion in 1967 and 1968; a moderate deceleration in the first half of 1969, and a further deceleration in the second half of 1970. The two decelerations combined involve the largest shift in the rate of monetary growth in the past two decades.

1. Response of Economic Magnitudes

Most broad economic magnitudes have responded to this deceleration in a manner that is well within the range of past experience.

Cycle Peak. Over the period 1870 to 1961, a peak in the rate of monetary change has on the average been followed 17 months later (with a standard deviation of 8 months) by an NBER reference cycle peak. We shall probably date the peak rate of monetary change as November, 1968. The Bureau has not yet dated a reference peak, but present evidence suggests November, 1969, or December 1969, as the most likely date--a lag of 12 or 13 months, somewhat shorter than the average but not drastically so.

Nominal Income. Past experience suggests that a decided shift in the rate of change of monetary growth is followed some six to nine months later by a decided shift in the rate of growth of income in current dollars (nominal income). On a quarterly basis, the shift in the rate of monetary growth occurred from the fourth quarter 1968 to the first quarter 1969; the shift in the rate of growth of income occurred from the third quarter 1969 to the fourth quarter 1969, or about nine months later. On a monthly basis, the shift in monetary growth occurred in December 1968, in personal income in July 1969 or 7 months later.

Prices. Past experience suggests that monetary deceleration affects first output and only later the rate of price change. We have not analyzed the timing evidence here as fully as we have for either reference cycles or rates of growth in nominal income. But roughly, the evidence suggests

that the rate of change of prices lags about 6 to 9 months behind the rate of change of nominal (and real) income. On that basis, the total lag of price change behind monetary change would be about 12 to 18 months, so no significant effect could have been expected until the first quarter of this year. As yet, there is no sign of such an effect. The most one can say with confidence about the rate of price rise is that it has stopped accelerating, as it was during 1968 and the early part of 1969. However, there are some fragmentary indications, in seasonally adjusted consumer prices and in wholesale prices, that a decline in the rate of price rise may be getting under way. If these are confirmed, the lag in the reaction of prices, while somewhat on the long side of the average will not be appreciably out of line with past experience.¹

¹The recent book by George Stigler and James Kindahl, The Behavior of Industrial Prices (NBER), has an interesting finding that is relevant here. They find that quoted prices lag actual prices more when actual prices are declining than when actual prices are rising. They attribute this asymmetry to the desire of enterprises to avoid having to raise prices later if the price cuts prove temporary as well as to a desire to maintain a favorable base in case price control is instituted.

Interest Rates. Two related items of experience are relevant for interest rates. First, monetary deceleration initially tends to raise interest rates, but this initial liquidity effect tends to be followed some six to 12

months later by an effect in the opposite direction. Second, in all post-World War II cycles, prior to the present one, both long and short term interest rates moved synchronously with the cycle.

Short term interest rates have behaved in this episode as in past episodes. They went up sharply in the first six months of 1969, following the monetary deceleration in December, 1968; went up further but more moderately in the six months following the second monetary deceleration in June 1969; and peaked in December 1969, or January 1970, within a month or two of my conjectured reference peak. They have bounced around since then, but are now decidedly lower than they were in December or January.

Long term rates, on the other hand, have behaved very differently than in the earlier post-World War II episodes. Though they stabilized somewhat in the early months of 1970, they then rose sharply and are now decidedly higher than in December or January. And this despite the acceleration in monetary growth beginning in December 1969 or February 1970, which might have been expected to produce initial downward pressure in interest rates.

For a precedent, one must go back to pre-World War I experience, when long term interest rates tended to reach their peak about 8 months on the average after the reference cycle peak.

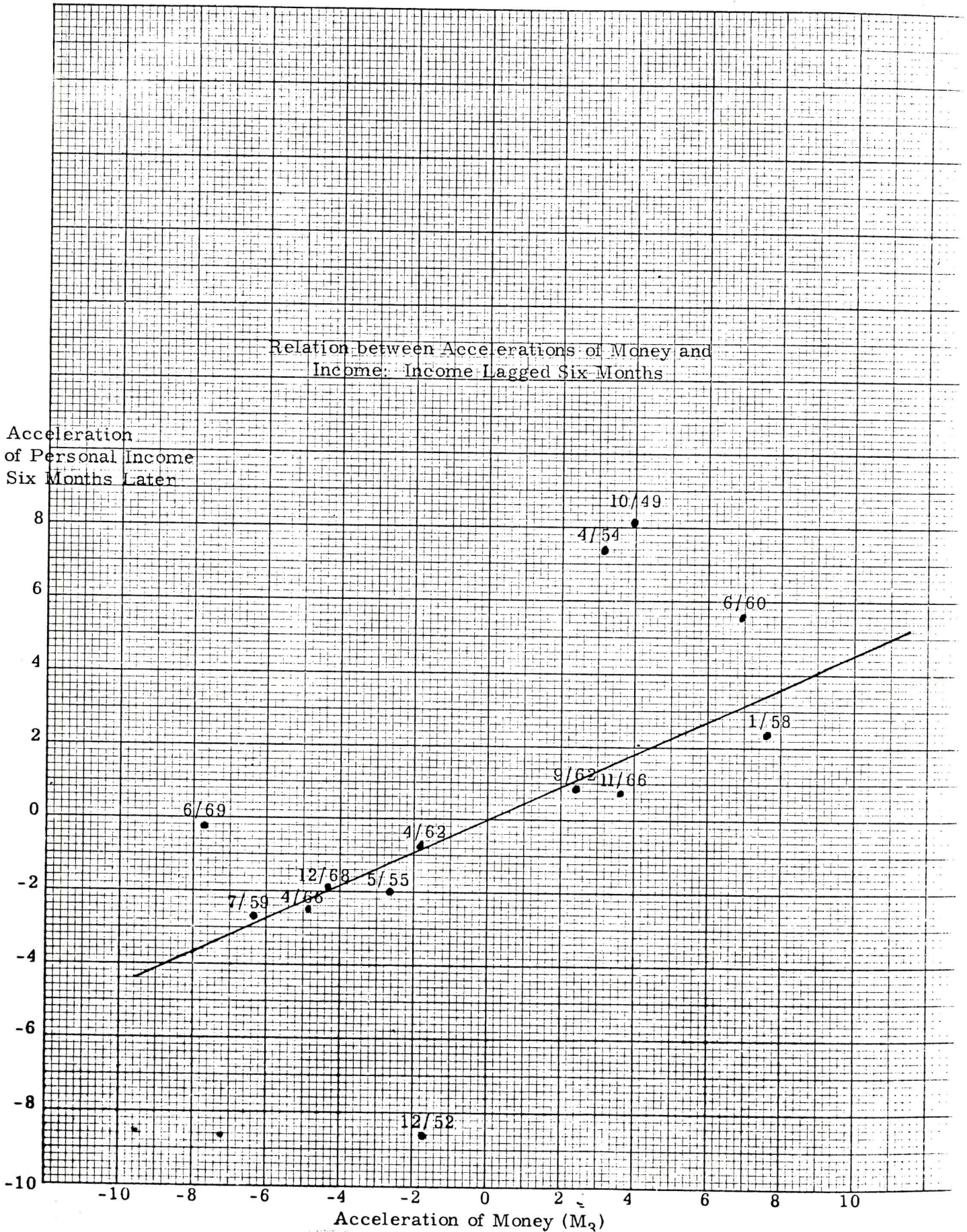
Magnitude of Income Response. These are all qualitative judgements about timing and direction. A more basic question is whether the size of the response to the monetary change in of the magnitude to be expected

from past experience. Chart 1 is designed to help answer this question.

To concentrate on the effect of changes in the rate of monetary growth on changes in the rate of growth of income, I have plotted on the chart accelerations in both money and income for periods dated by shifts in the rate of monetary growth--what Mrs. Schwartz and I have called "step dates." To illustrate, consider the point labeled 12/68. December 1968 is a step peak in the rate of monetary growth--we interpret monetary growth as having shifted at that date from a high rate to a lower rate. To measure the acceleration in monetary growth in a way that averages out brief erratic movements, we take the annual rate of change in money during the six months following the step peak and subtract the annual rate of change during the twelve months preceding the step peak.² For this date, the result was -4.4, i. e., a

²The reason for the asymmetry is that I wanted to be able to judge recent changes without too long a delay, so hesitated to use a whole year following a step date. No such problem arises for the period prior to the step date.

deceleration of 4.4 percentage points in the rate of monetary growth (from 8.6 to 4.2). We made the same calculation for personal income but for a period six months later; i. e., the rate of growth from June 1969 to December 1969 (6.5) minus the rate of growth from June 1968 to June 1969 (8.4), or -1.9, again a deceleration. For money, I have used M_3 (M_2 minus CD's);



for income, seasonally adjusted personal income, in order to have monthly data.³

³For the most recent period, following the monetary step peak of 6/69, we have data for only five months for personal income after 12/69. In addition, instead of reported personal income in May of \$801.1 billion, I used \$789.1 billion, subtracting out the federal salary increase and social security increase concentrated in that month.

The chart shows a fairly close relation for most of the points but with a disturbingly large number of substantial deviations. For three of these (those dated 12/52, 4/54, and 10/49) there are plausible special explanations.⁴

⁴Examination of the rates of change for the separate periods used in computing accelerations indicates that the deviations for 12/52 and 4/54 both reflect the same phenomenon: an abnormally low rate of growth of personal income in late 1953 and early 1954. This makes the 12/52 point abnormally low; the 4/54 point abnormally high--so these two deviations are really only one. My explanation is that in March 1953, the Open Market Committee formally and explicitly abandoned the bond-support program and followed a policy that led to much greater fluctuations in interest rates on such securities. The result was to complete the process of demonetization of government securities set in motion by the 1951 Treasury-Federal Reserve

Accord. With government securities less liquid, there was an upward shift in the demand for money which made the growth of personal income abnormally small relative to the growth of money. For this explanation to be satisfactory with respect to the magnitude as well as direction of the shift requires something like a 4 per cent increase in the demand for money (i. e., shift in demand schedule). This seems not implausible, given that the total money supply (M_3) at the time was about \$175 billion, and total outstanding Federal government debt held by private investors, excluding U. S. Savings Bonds, totalled around \$150 billion, about half in issues with maturities over a year.

The deviation for 10/49 reflects an abnormally rapid rise in personal income from 4/50 to 10/50. That seems clearly to reflect the increase in velocity produced by the outbreak of the Korean War.

through the rest of the points
I have drawn a free-hand regression line/. This line gives a basis for
judging whether the response to the recent monetary changes is of the same
magnitude as the average response.

For the first monetary deceleration in December 1968, the answer is clearly "yes." The point dated 12/68 lies close to the line through the other points. Both in magnitude and direction there is nothing special about the economic response to this deceleration.

For the second monetary deceleration in June, 1969, the situation is different. This might have been expected to produce a much sharper

deceleration in personal income than occurred. We estimate the annual rate of growth of personal income from December 1969 to May 1970 to have been 7.0 per cent per year--or roughly the same as from June 1969 to December 1969. If the point had been on the regression line, the corresponding rate of growth would have been 3.7 per cent per year. Thus personal income grew at an annual rate of 3 percentage points greater during this five months period than would have been anticipated from the monetary changes alone.

To some extent, this deviation may reflect problems with the personal income series. For GNP in current dollars, available only quarterly, the annual rate of growth was 8.6 per cent from second quarter 1967 to second quarter 1969; 6.0 per cent from second quarter 1969 to fourth quarter 1969; and 3.1 per cent from fourth quarter 1969 to first quarter 1970. So this series, unlike personal income, does show a distinct further deceleration in response to the second step of monetary deceleration. Unemployment statistics are even more dramatic. They show at most a mild rise in the last half of 1969 in response to the first monetary deceleration, then a very rapid rise in the first five months of 1970 in response to the second monetary deceleration. This presumably means that the abnormality in the behavior of personal income is concentrated in the price, not output, component.

To check further whether the results reflect simply the deficiencies of personal income, I prepared similar charts for GNP. Chart II dates the

GNP movements two quarters later than the monetary turn, which means a lag of 5, 6, or 7 months depending on the precise month in which the monetary turn comes. Chart III dates the GNP movements three quarters later, which means a lag of 8, 9, or 10 months. Both show very much the same pattern as Chart I. However, Chart III gives perhaps the closest relation of any, indicating that three quarters is a better single lag than two quarters. Chart II shows the reaction to both the first and second monetary deceleration as milder than average; Chart III has only a single observation for this episode and it is about on target. I conclude that part of the discrepancy for personal income may be spurious and reflect simply a slightly longer lag than six months in the reaction of income.

Summary. We are left with general conformity between this episode and earlier experience with three significant discrepancies:

CHART II

Relation between Accelerations of Money and Income
GNP Lagged Two Quarters

Acceleration of GNP
Two Quarters Later

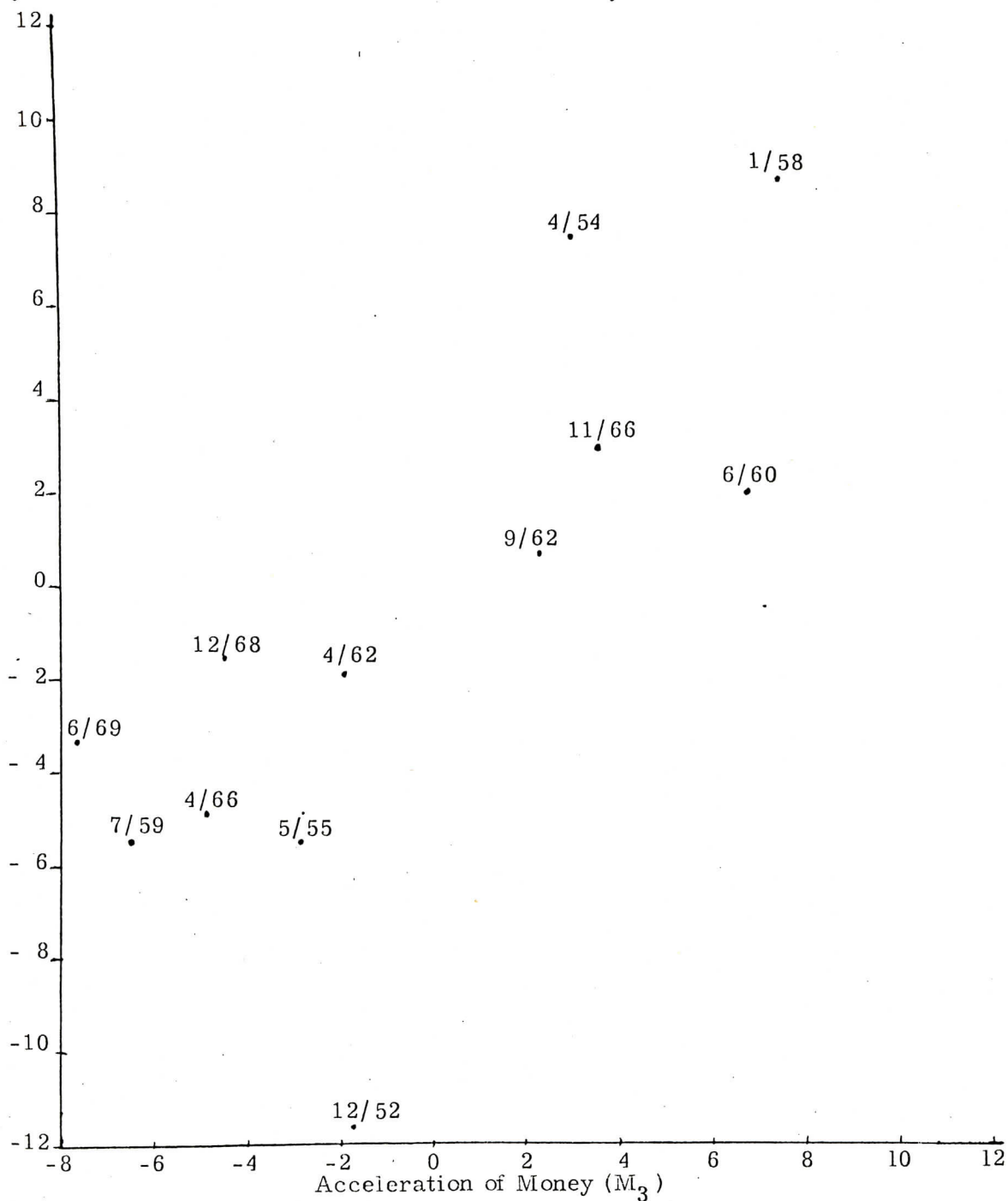
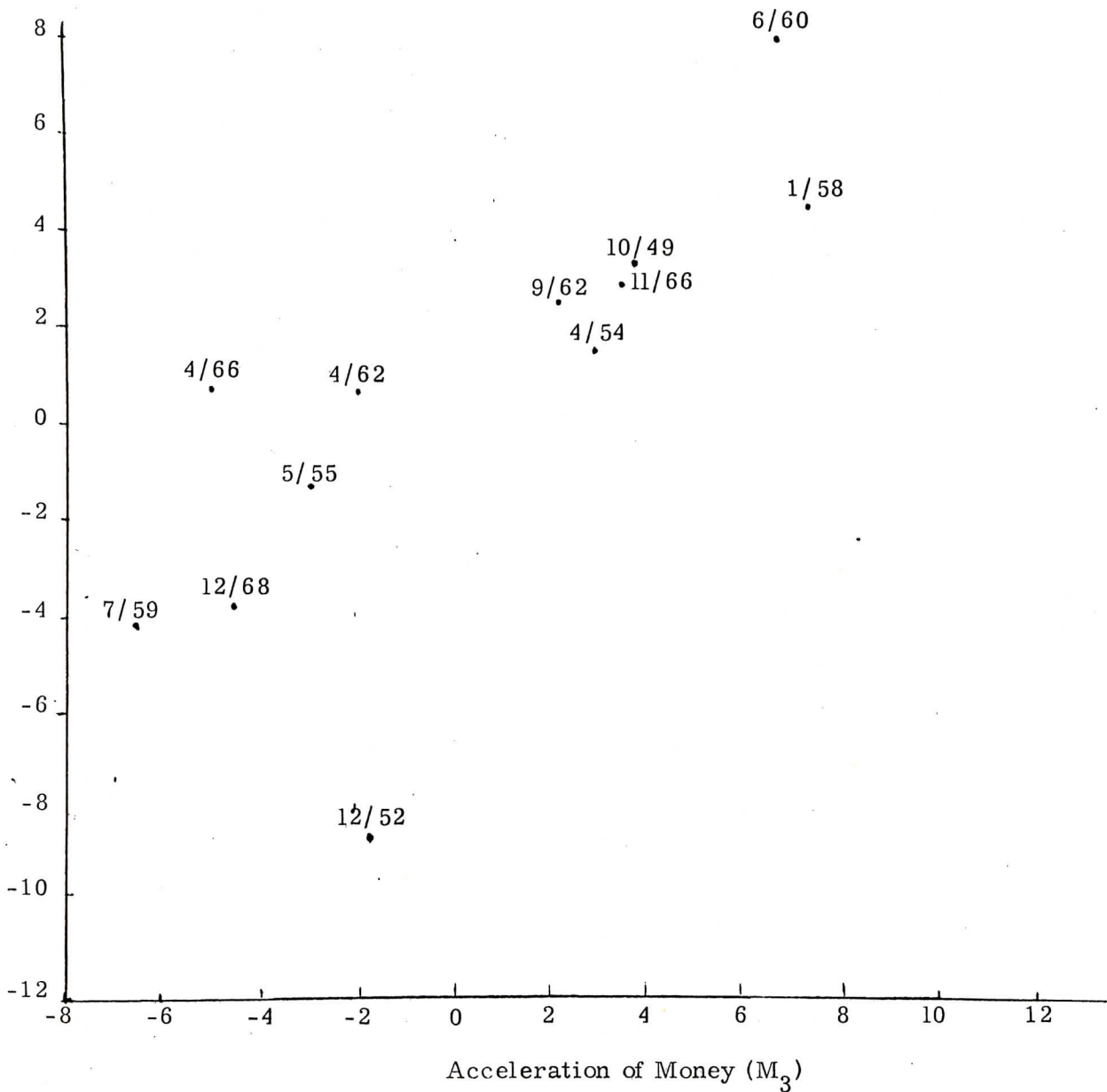


CHART III

Relations between Accelerations of Money and Income
GNP Lagged Three Quarters

Acceleration of GNP
Three Quarters Later



(1) An abnormally mild response of personal income to the second monetary deceleration in 1969, apparently explained mostly by the failure of prices rather than output to respond.

(2) An abnormally late response of the rate of price rise to the monetary deceleration.

(3) An abnormally long rise in long-term interest rates.

2. How Explain the Discrepancies?

The three discrepancies are clearly closely related. For one thing, all refer to the same period: December 1969 to May 1970. For another, the first two may be only different faces of the same phenomenon.

I believe that the behavior of interest rates is the key to understanding the discrepancies. It can explain the failure of personal income to decelerate more rapidly; and the same factors that explain the high interest rates may explain the slow reaction of prices. Furthermore--to run ahead of the story--the same factors may explain the abnormally rapid recent rate of monetary growth (see Section 3).

If interest rates had behaved as they usually do, they would have been declining since December 1969. The decline in interest rates would have made the cost of holding money lower and raised the quantity of money demanded. This would have been reinforced by a decline in measured income relative to permanent income. The two together would have produced a decline in the velocity of money, relative to its trend, reinforcing the prior decline in the rate of monetary growth.

But interest rates not only failed to decline, long term rates actually rose. This tended to lower the quantity of money demanded and by itself made for a rise in velocity to offset the prior decline in the rate of monetary growth.

Why did long term interest rates fail to decline, despite the recession which could have been expected to dampen the demand for loanable funds, and despite the acceleration of monetary growth, which might have been expected, through initial liquidity effect, to add to the supply of loanable funds?

On a superficial level, one answer is the strong demand for funds by businesses for capital spending. Here we come to another abnormality of this period that my earlier concentration on aggregates hid from sight. Ordinarily, capital spending and particularly plans for capital spending respond fairly promptly to an economic slowdown. This time they did not. Until very recently, industry seemed determined to proceed with long term capital improvements, almost regardless of the cost of capital or the state of current aggregate demand.⁵

⁵This feature of the present episode is reminiscent of a similar feature of pre-World War I recessions in which long term interest rates also lagged. Railroads were then a major demander of long-term capital. Extensions of rights of way had a long construction time and were nearly useless until completed. Hence there was enormous pressure to complete them once started and this served to keep up the demand for capital long after the cyclical peak.

But this only pushes the question one stage back. Why the stubbornness of enterprises with respect to capital spending? And, given this stubbornness, but also the other factors mentioned, why weren't lenders willing to provide the capital at lower rates?

The obvious answer--which in turn raises the next question--is because of a rise in the level of inflation expected by both lenders and borrowers. This is the crux of the issue. A rise in the amount of inflation expected can explain the stubbornness of capital plans, the unwillingness of lenders to trim rates, and simultaneously, the resistance of the rate of price rise to the softening of aggregate demand. Note that it is not enough for there to be strongly held expectations of a constant rate of inflation. To offset the other forces working to lower interest rates, the amount of inflation expected must have been increasing.

The final question, therefore, is why the inflationary expectations have been so much stronger this time than earlier, so strong that they have so far more than offset the effect of monetary acceleration and softness in aggregate demand.

Recent work by Yohe and Karnosky (Federal Reserve of St. Louis Bulletin, December 1969) suggests one answer. Following Irving Fisher, they argue that expectations of inflation are based on past experience with inflation, and can be estimated from a weighted average of past rates of inflation. However, they argue, whereas all earlier studies find a very long lag between past experience and current expectations, there has been

a structural change since 1960. The lag today is very much shorter, of the order of two years or less rather than seven to ten years. Hence expected inflation rose much more rapidly in response to actual inflation than earlier, and, on their analysis, has continued to rise in recent months even though actual inflation has not, because the low rates of inflation two years and more ago are being given less and less weight.

Their results are fascinating, yet I find them hard to accept. They suggest that institutional change in financial markets may explain the shortening of the time lag. But these institutional changes are almost entirely on the lending side and do not explain a shortening of the time lag in the formation of expectations by borrowers. If their explanation were right, the high interest rates would be accompanied by a sharp reduction in the amount of lending, which I have the impression has not occurred.

I should emphasize that the evidence for the shortening of the time lag, while clear, is not strong. It consists essentially of one observation: the simultaneous acceleration of inflation and interest rates from 1965 to 1969. I would like much more evidence before I would accept the conclusion that there has been a drastic change in the way people form expectations from past experience of price change alone.

A related explanation that seems to me more reasonable, and yet for which I cannot at the moment offer strong evidence, is that people always form expectations on the basis not only of the past history of the phenomenon in question but also on the basis of other information. Currently, this

relevant other information, I conjecture, consists of beliefs about the pressures on the government and its likely reaction to those pressures. To put the point too dogmatically, the amount of inflation people expect for the future has been growing partly because actual inflation accelerated in the past few years but even more because they believe that the political pressures to increase government spending on the one hand and to avoid unemployment on the other will be so strong that no Administration will be able to persist in a policy of monetary and fiscal restraint for long enough to stem inflation.⁶

⁶This was essentially the basis for my own long run prediction, made in 1954, that "The prospect is therefore a period of recurrent bouts of inflation produced by overreaction to the temporary recessions that punctuate the period," Dollars and Deficits, p. 90.

On this view, the amount of inflation expected may be taken from the immediate past, but the expectation that this or a higher rate, and not the average rate over a much longer past period, will prevail in the future is based on exogenous information about the operation of the political system. In an earlier day, inflation was, or was believed to be, a product of forces outside a given national system--gold discoveries, changes in international trade, and so on--so the best one could do was to extrapolate to the future on the basis of average behavior over a considerable period. Today,

inflation is, or is believed to be, made in Washington and so we have relevant information in addition to past experience of price changes--information including the behavior of budgets and of the quantity of money.

I may seem to be drawing a distinction without a difference, but I believe not. The two interpretations have very different predictive implications. On the Yohe-Karnosky interpretation, if the actual rate of inflation declines, the expected rate will quickly follow suit, and long term interest rates will come down promptly and substantially. On the alternative interpretation, what occurs depends not only on what happens to the actual rate of inflation but on what happens to beliefs about government policy.

To sum up, I believe that the proximate explanation of the three discrepancies is a rise in the rate of inflation expected for the future. This overcame other forces making for lower long term interest rates by encouraging capital expenditures, and discouraging lenders; and it produced an unusual delay in the reaction of prices and wages to the growing gap between actual and potential output. The rising interest rates tended to reduce the quantity of money demanded and so offset to some extent the sharp earlier deceleration in monetary growth.

The explanation for a higher expected rate of inflation is partly experience but partly--and perhaps mostly--the widely held belief that political forces will make impossible the continuance of monetary and fiscal restraint until inflation is brought to heel.

3. Why the Rapid Monetary Growth?

The continued rise of interest rates has been accompanied by a frighteningly rapid rate of monetary growth in the past three months. So far, I have referred to the monetary acceleration as a factor that might have been expected to exert downward pressure on interest rates. But may it not have been that the rapid monetary growth was also a consequence of the upward pressure on interest rates?

This suggestion is based on two conjectures: First, that the rate of monetary growth aimed at by the FOMC was decidedly lower than the 9.4 per cent in M_1 , 12.4 per cent in M_2 , and 10.2 per cent in M_3 ; second, that New York is still using the operating procedures that were developed in the years when interest rates and not monetary aggregates were the primary criterion of policy.

These operating procedures have time and again in the past produced perverse movements in monetary aggregates. Whenever independent forces are tending to lower interest rates (as in late 1959), the New York desk tends to "lean against" this tendency. It can do so only by absorbing high-powered money and so producing downward pressure on the quantity of money. That is why in 1959-60 the Fed kept protesting that it had not "intended" to produce 'as sharp a monetary deceleration as it did. When other forces are tending to raise interest rates (as in 1967 and 1968), the New York desk tends to "lean against" this tendency by supplying high-powered money. That is why in 1967 and 1968 it kept raising the money supply more rapidly than it desired.

These effects of a "money markets condition" operating procedure explains why the use of interest rate targets can produce such perverse effects: initial monetary expansion to lower interest rates sets off inflation which tends to raise interest rates which sets off, via this mechanism, a tendency to expand still more rapidly the quantity of money.

I do not know whether the operating procedures at the N. Y. desk have changed in the past year. If they have not, that would explain why monetary growth has been so much larger than was apparently desired. The desk could understandably have anticipated a weakening of both short and long term interest rates along with the economy (as I did). They would then understandably have estimated the interest rate targets consistent with the desired monetary growth rate as appreciably lower than those prevailing in late 1969 or early 1970 (as I would have done). Using these targets as a proximate goal they would have been led to lean against the actual tendency for short-term interest rates to fall only modestly and for long-term rates to rise and in the process would have produced much too rapid a rate of monetary growth.

If this conjecture is right, the most important single task for the Fed, given the use of monetary aggregates as a primary criterion of policy, is to change the operating procedures in New York. A year ago, I suggested to Chairman Martin setting up a project to operate on paper alongside the existing operations in New York which would develop and design procedures to predict the effect of the operations actually engaged in on monetary

aggregates, and thereby develop procedures for controlling with a small margin of error the aggregates themselves. Mr. Martin replied that such a project was unnecessary because the Desk knew how to control the monetary aggregates already and could do so if instructed to. The past three months raise real doubts in my mind whether this is so.

The rapid rates of monetary growth of the past three months are being widely interpreted as meaning that the Fed cannot control the money supply. That is an invalid conclusion. What is true is that it cannot control the money supply accurately by using operating procedures designed to control interest rates. That is like trying to steer a car by stepping alternately on the gas and the brakes. If money supply or some other monetary aggregate is to be a major criterion of policy, the Fed must be prepared to let interest rates find their own level over short and long periods. This does not, to avoid misunderstanding, preclude the Fed's acting as lender of last resort to prevent a panic.

The Fed can control the money supply or other monetary aggregate within a narrow margin and over a brief interval. But to do so it must use operating procedures designed to that end. I have said for years that I shall believe that there has been a real change in the Fed's effective criterion when I learn that the first thing Alan Holmes does when he comes into his office in the morning is something other than phoning the government bond dealers. I have not inquired for some time about the Desk's procedures, so perhaps that day has arrived and the conjectures in this section are wide of the mark.

But I have watched the money supply figures with growing horror week after week as I have seen a pattern develop that I have so often observed in the past under precisely the same circumstances.

One further point. Given the widespread publicity and acceptance that monetarism has had, the high monetary growth is itself raising the rate of inflation expected and in the process raising interest rates. So even the short term liquidity effect may be being undermined by the effect of the knowledge of rapid monetary growth on expectations.

4. Where Do We Go From Here ?

Two questions about the future are left open by this analysis. First, the second monetary deceleration has still not had its full effect. What may we still expect from it? Second, what is likely to be the consequence of the mild monetary acceleration from December 1969, to February, 1970, and of the very sharp acceleration from February, 1970, to May, 1970?

Further Recession. The answer for the near future depends in some measure on the issues about long-term interest rates just discussed. My own judgement is that the continued signs of recession, and particularly the stock market panic, have finally put an end to one abnormality--the strength of capital expenditure -- so that we shall be seeing an appreciable decrease in capital spending. In addition, while they have not eliminated the expectation of inflation, they are likely at least to prevent the expected rate of inflation from rising further. For these reasons, I believe long term rates have passed their peak, at least for the time being, and, in response to the monetary acceleration plus the growing gap between actual and potential output, will start to decline. However, in line with my analysis of the role of and the significance that will be attached to rapid monetary growth, expectations about political factors,/the decline is likely to be milder than in earlier recessions.

Another critical recent factor has been the great instability in the country that followed Cambodia and Kent State. This turmoil doubtless played a part in the stock market decline. In addition, it reinforced and reflected a widening

concern about the stability of our political and social system. Uncertainty about the future always tends to raise the demand for money for the same reason that it tends to depress stock prices.

If these judgements are right, then the forces that have so far been keeping the second monetary deceleration from having its full effect will no longer operate. Velocity will start to decline and reinforce the earlier monetary restraint. Personal income would then decelerate further for a time. The point for 6/69 in our chart will come down somewhat closer to the regression line. Moreover, in this further deceleration, a larger part than heretofore would be played by a tapering off of price rises and a smaller part by output declines.

How far forward should we project this development? That depends partly on how the period from December, 1969, to February, 1970, is treated. If, as the numbers in my initial table recommend, these months are treated as part of the second step in deceleration, and the real easing of money is regarded as beginning in February 1970, then no significant reversal of the tide should be expected before August at the earliest. On the other hand, if the monetary change is dated as beginning in December, the turn of the tide could come as early as June. I am inclined toward a later date myself, partly on the evidence of the monetary figures, partly because of my belief that uncertainty about the future will continue and will produce a continued downward pressure on velocity.

On this interpretation, the current recession will continue to deepen,

the rate of price rise will decline, long term interest rates will fall modestly, and the turn will not come until about August at the earliest and possibly later.

Looked at differently, we shall probably date the lowest rate of change of money as coming in August, 1969. For the period 1870-1961, a trough in the rate of monetary change has been followed by a reference trough on the average 13 months later (with a standard deviation of 6 months). On this basis, the best estimate of the trough would be September, 1970, or very much the same as on the first interpretation.

As the standard deviation I have cited indicates, this is far from a precise prediction in which great confidence can be placed.

How far will the decline go? One possibly extreme estimate would be to suppose that the point in Chart 1 for 6/69 were to be moved to the regression line, and this rate were to be continued to August, 1970. This would require that personal income in August be a trifle below its absolute level in May (adjusted for the special effects of the government pay raise and social security). A more moderate assumption is that personal income from May on will behave according to the regression. This would mean a rise in personal income from May to August at the rate of about 3 to 4 per cent per year. The first extreme assumption would mean a fairly sharp rise in unemployment; the second a rather more moderate rise.

Expansion. Once the turn has come, what does the present or recent rate of monetary expansion imply? If we suppose that the rate of monetary

expansion over the three months from May to August continues at the same rates as for the past 3 months (10.2 per cent), and if we make the more extreme assumption of the preceding paragraph, the regression line in Chart 1 would imply about a 9 per cent rate of growth in personal income from August 1970 to February 1971. On the less extreme assumption of the preceding paragraph, the rate of growth in personal income would be about 10-1/2 per cent. Either would mean the beginning of a new spurt of excess demand. Accelerated inflation, at least after an interval, would become a near-certainty.

On the other hand, suppose M_3 grows over the three months from May to August at a rate that makes the average rate from February to August equal to 6.0 per cent (this implies a rate of growth of about 2 per cent from May to August and of about 4 to 4-1/2 per cent from December to August). Then, according to the regression, personal income would grow at something like 7 to 8-1/2 per cent per year from August 1970 to February 1971--only moderately higher than in the prior six months. However, with inflation tapering off, this would mean a more substantial rise in the growth rate of real income.

5. Recommendations for Monetary Policy

5.1 Rate of Monetary Growth. The first recommendation follows directly from the preceding: cut back the rate of monetary growth sharply from the abnormally high level of the three months from February to May. Aim for a rate of rise averaging around 6 per cent for the six months February

to August or about 4 to 5 per cent since December. Once this has been realized, continue at a growth rate of about 4 to 5 per cent. These recommendations are stated in terms of M_3 but would not be significantly different if stated in terms of M_1 . If interest rates behave as I have assumed they will, M_1 , M_2 , and M_3 should not show widely disparate movements.

5. 2 Stability of Monetary Growth. Aside from the average level, the experience of the past few years shows that there is a real problem in achieving stability of monetary growth over short periods. There are two main directions in which I believe real improvement is possible: (1) statistical, and (2) administrative.

5. 2(1). On the statistical side, the published figures on the money stock are wrong in concept and erratic in movement. The major conceptual difficulties of which I am aware are (a) treatment of dollar holdings of foreigners in the U. S. and dollar holdings of U. S. residents abroad (mainly Eurodollars); (b) subtraction of both interbank deposits and all items in process of collection, whereas if interbank deposits are subtracted, interbank items in process of collection should not be subtracted; and (c) treatment of seasonal movements.

Both items (b) and (c) are also sources of erratic statistical movements. No doubt there are others of which I am not aware.

With respect to (a), I do not know what is feasible. I have myself used M_3 , subtracting CD's, as a crude device to correct for the most egregious of the errors on this score.

With respect to (b), there are two possibilities. One is to get a breakdown of items in process of collection between debits to deposits of banks and other debits and subtract only the latter. A more radical alternative is to investigate whether inclusion of items in process of collection might not give both a statistically more reliable measure and a conceptually more appealing measure. One of our students is now working on a doctoral dissertation on this question.

With respect to (c), there has been a disturbing tendency for a systematic quarterly movement to be present year after year in the initially published "seasonally adjusted" figures. For reasons I have spelled out elsewhere (in my Program for Monetary Stability), the statistical difficulty arises because, if the Fed uses money supply as its guide to policy, the seasonal movement in money supply is what it puts in, hence there is no external evidence on seasonality. The best solution, I have long been persuaded, is to shift gradually, over a series of years, to a steady rate of growth in seasonally unadjusted money supply, letting market interest rates move seasonally instead, as they did before 1914 and in the 1930's. This would, of course, still permit a seasonal in the ratio of currency to deposits.

5.2(2). On the administrative side, the major requirement has already been suggested in Section 3, namely, modernization of the operating procedures on the N. Y. desk. In addition, it would be desirable to change the method of handling reserves.

The introduction in 1968 of the two-week lag in calculating reserve requirements introduced an important erratic element in week-to-week

changes in monetary magnitudes. Some preliminary calculations by a student of ours writing a Ph.D. thesis on this general subject indicate that the lagged reserve requirement roughly doubled the week-to-week variation in such magnitudes as excess reserves, free reserves, borrowings etc.

A good solution in my opinion would be (a) to calculate reserve requirements on a working day basis, so eliminating the present triple-counting of Friday; (b) require that required and actual reserves be calculated for current reserve period; (c) keep a week as the reserve period; (d) stagger the end-date of the reserve period, so one-fifth of the banks have a reserve period ending Monday, one-fifth, Tuesday, etc.

SECURITIES MARKETS AND CORPORATE INVESTMENT

A Comment for Federal Reserve Consultant's Meeting June 19, 1970

James Tobin

The attached chart shows the severe decline that has occurred since September 1968 in the valuation of nonfinancial corporations in the securities markets relative to the replacement cost of their plant and equipment. This ratio is denoted $\frac{V}{pK}$, where V is an estimate of the security markets' capitalization of the net interest and dividend payments of these corporations, and pK is an estimate of the current value in commodity markets of the same corporations' stock of real property and equipment. When this ratio was 1.36, at the end of 1968, a representative corporation could raise the money to increase its capital stock by 1% by selling paper which entitled the purchasers to .74% of its interest and dividend disbursements. When the ratio was .96, as it is now, the corporation could finance the same expansion only by selling 1.04% of itself. This is a measure of the increase in the cost of capital that has occurred in the past year and a half, much of it this year.

I hope that no one believes that the real rate of interest has remained unchanged and that the observed increases in market rates are simply premiums for inflation. They may be premiums for inflation but not for an inflation that is expected to increase proportionately the dollar earnings and dividends of corporations. If that were the expectation, then V/pK would not have declined. Its decline indicates that the cost of capital has risen relative to expected earnings from real investment. That is the important sense in which money has become very much tighter -- and has con-

tinued to become tighter this year whatever the rate of growth of any monetary aggregate.

The other curves in the chart are four quarter prospective moving sums of gross investment by nonfinancial corporations, expressed as a percentage of pK . The sum for t includes investment for t and for the next three quarters. One curve is actual realized investment; the other is the 2-quarter expectation. I note that investment anticipations for 1970 would have taken the rate of investment to unprecedented heights, and I express considerable doubt that such expectations will be realized in the face of the collapse of V/pK .

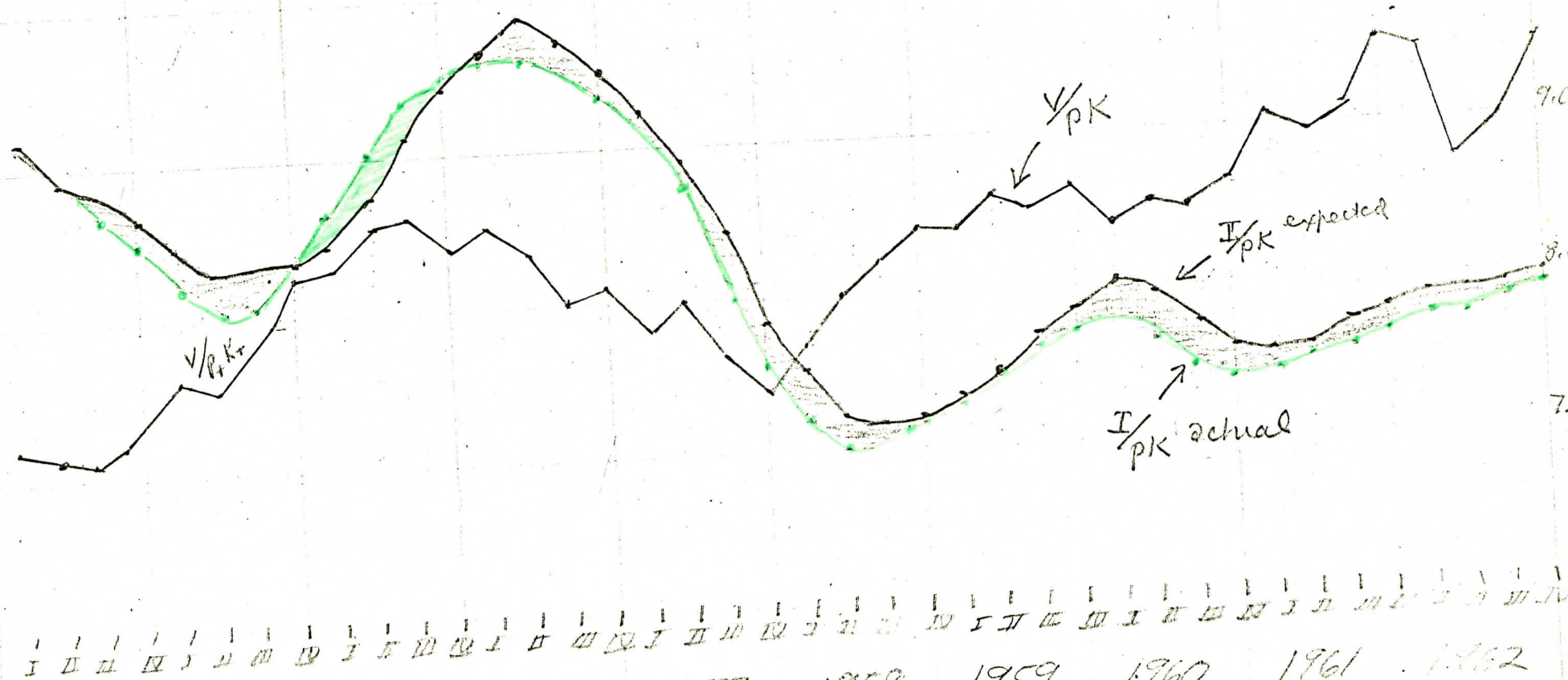
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5

$$\frac{V}{P_t K_t}$$

$$\frac{x_t}{P_t K_t}$$

$$\frac{\Sigma I_t}{P_t K_t}$$

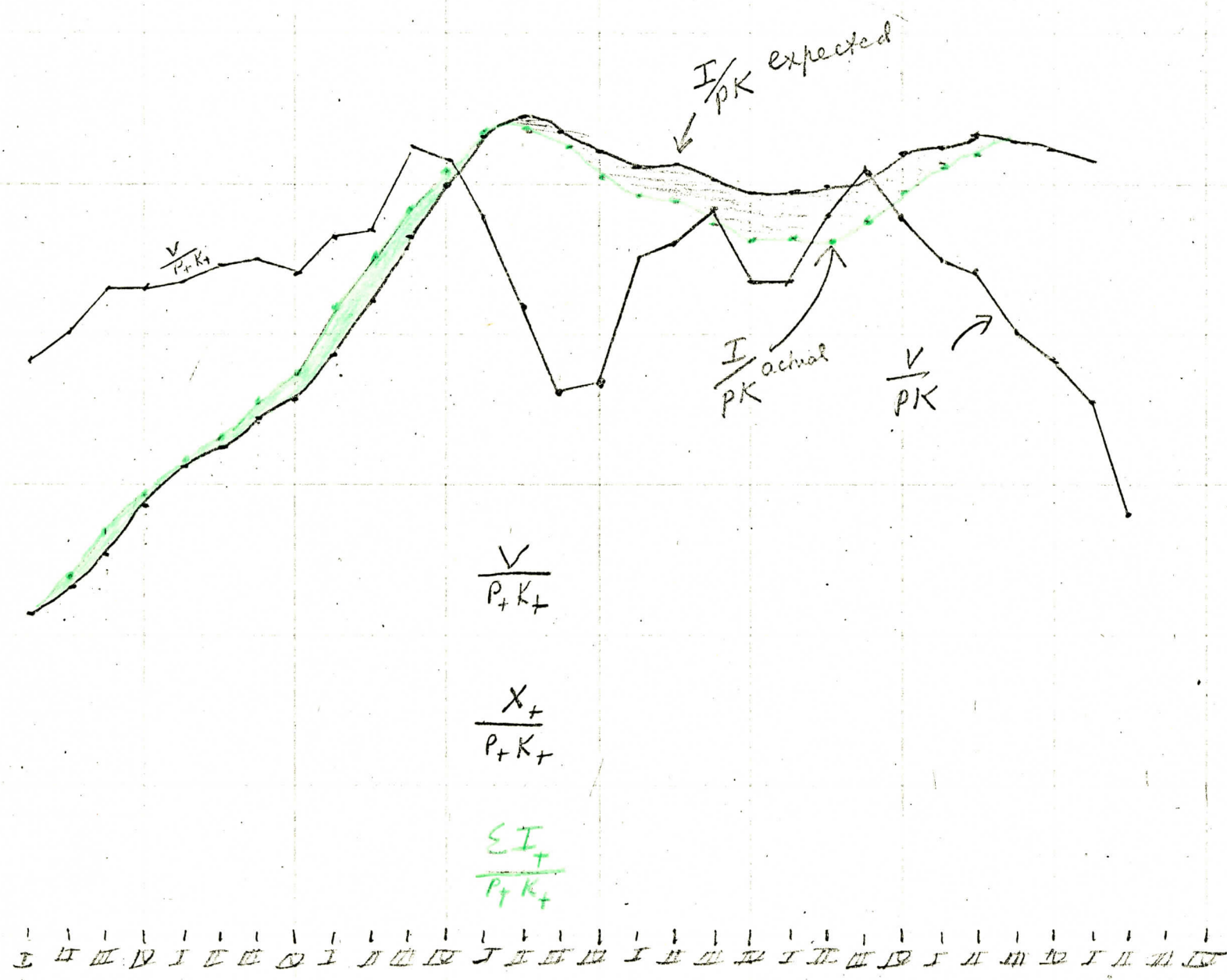
$$\frac{\% \Sigma I_t}{P_t K_t}$$



1953 1954 1955 1956 1957 1958 1959 1960 1961 1962

$$\frac{V}{P+K_t}$$

1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5



$$\frac{V}{P+K_t}$$

$$\frac{X_t}{P+K_t}$$

$$\frac{\Sigma I_t}{P+K_t}$$

1963 1964 1965 1966 1967 1968 1969 1970

$$\frac{\Sigma I_t}{P+K_t}$$

12.00

11.00

10.00

9.00

8.00

7.00