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The Federal Open Market Committee in 1973

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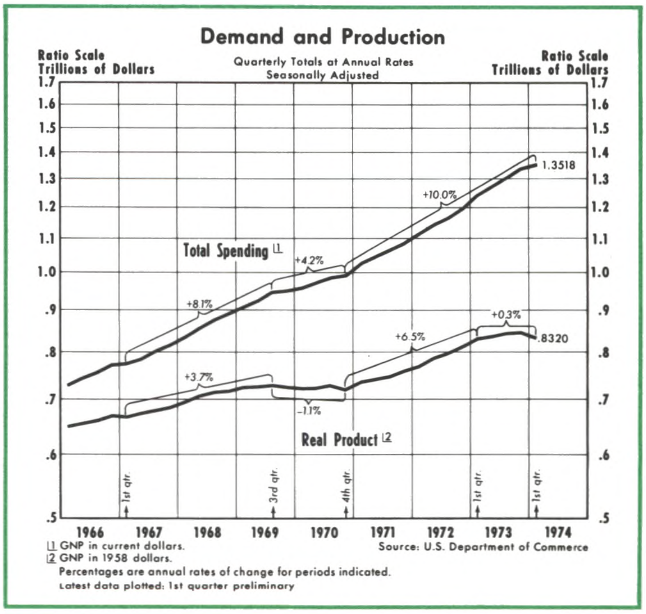
AT ALL BUT ONE meeting throughout the first eight months of 1973, the Federal Open Market Committee (FOMC) issued a directive calling for slower growth in monetary aggregates. During the last two meetings of the year, with information on the likely consequence of the oil shortage continuing to be assessed, the Committee sought "to achieve some easing in bank reserve and money market conditions."

This annual review of FOMC decisions is intended primarily as a description of actions under varying legal, traditional, and economic constraints. The make-up of the Committee and the published intentions and instructions to the Trading Desk of the New York Federal Reserve Bank are summarized in accompanying exhibits. A brief outline of observed and projected economic conditions, as presented in various documents,[1] is discussed in conjunction with actions taken at that time.



POLICY ACTIONS IN 1973

At the time of the FOMC meeting in January 1973, the United States was experiencing one of the strongest economic recoveries in its recorded history. At the end of 1972, gross national product was up 10.6 percent from a year earlier, which consisted of a 7 percent growth in output and a 3.3 percent increase in the price level. Employment rose at an unprecedented rate of 3.3 percent and unemployment declined to 5.1 percent. A strong demand for credit manifested itself in an annual increase of bank credit of 14 percent over the year and, in spite of the 7.7 percent increase in the narrowly defined money stock (M_1), the prime rate still rose from 5.25 percent in late December 1971 to 5.75 percent in December 1972. Over the same period the market yield on Treasury bills rose from about 4 to just over 5 percent, and the Federal funds rate rose from 4.14 to 5.33 percent.

The economic expansion of 1972 was marred by anticipations of reemerging inflation. In 1973 price rises did indeed accelerate and were accompanied by a rapid rise in interest rates. Concern with inflation and the high cost of credit became widespread early in the year. On numerous occasions in various public sources it was referred to as the major problem facing the economy.

> A higher rate of inflation, particularly during the first part of this year which now seems likely, is bound to endanger the outcome of the many wage negotiations that will begin this spring. A low rate of inflation is a necessity for assuring labor to accept moderate wage increases.
>
> Unfortunately, the assurance that must be offered to labor is the promise that inflation will again moderate sometime by the end of the year and not the demonstrable fact that inflation has been suffi-

[1]The "Record of Policy Actions," Federal Reserve *Bulletin* (April 1973-February 1974). "Financial Developments" for the four quarters of 1973, Federal Reserve *Bulletin* (April, August, November 1973, and February 1974).

Organization of the Committee in 1973

The Federal Open Market Committee (FOMC) consists of the seven members of the Federal Reserve Board of Governors and five of the twelve Federal Reserve Bank Presidents. The Chairman of the Board of Governors is also, by tradition, Chairman of the Committee. The President of the New York Federal Reserve Bank is a permanent member of the Committee and, also by tradition, is its Vice-Chairman. All other Federal Reserve Bank Presidents attend the meetings and present their views, but votes may be cast by only four of these Presidents, who serve as members for one-year terms on a rotation basis.

Members of the Board of Governors for most of 1973 included Chairman Arthur F. Burns, George W. Mitchell, Andrew F. Brimmer, Jeffrey M. Bucher, J. Dewey Daane, Robert C. Holland, and John E. Sheehan. Federal Reserve Board Governor and Vice-Chairman J. L. Robertson resigned from the Board April 30, 1973. On May 17 George W. Mitchell was designated Vice-Chairman of the Board. Governor Robert C. Holland assumed his office June 11 to fill the unexpired term of Governor Robertson. In addition to Alfred Hayes, President of the Federal Reserve Bank of New York, the following Presidents served on the Committee during January and February 1973: Philip E. Coldwell (Dallas), David P. Eastburn (Philadelphia), Bruce K. MacLaury (Minneapolis), Willis J. Winn (Cleveland). In March the Committee was reorganized and the four rotating positions were filled by the following members: John J. Balles (San Francisco), Darryl R. Francis (St. Louis), Robert P. Mayo (Chicago), and Frank E. Morris (Boston).

The Committee met regularly once each month during 1973 to discuss economic trends and to decide upon the future course of open market operations. As in previous years, occasional telephone or telegram consultations were held between regular meetings. Additional policy actions for subsequent weeks and months were generally discussed at these interim meetings. During each regular meeting, a directive was issued to the Federal Reserve Bank of New York stating the general economic goals of the Committee and providing general guidelines as to how the Manager of the System Open Market Account[1] at the New York Federal Reserve Bank should conduct open market operations to achieve these goals. Each directive contained a short review of economic data considered and the general economic goals sought by the Committee. The last paragraph gave operating instructions to the Account Manager. These instructions were stated in terms of bank reserve and money market conditions which were considered consistent with the achievement of desired growth rates of monetary aggregates. Any special factors, such as Treasury financing operations, were also taken into account.

[1]The Manager of the System Open Market Account may be referred to as the "Account Manager" and the Trading Desk of the New York Federal Reserve Bank as the "Desk".

The decisions on the exact timing and amount of daily buying and selling operations of securities in fulfilling the Committee's directive are the responsibility of the Account Manager at the Trading Desk of the New York Bank. Each morning, he and his staff decide what open market operations, if any, are to be undertaken that day. In developing this program, money and credit market conditions and aggregate targets desired by the Committee are considered, as well as other factors which may be of concern at that time. Each morning in a conference call, the Account Manager informs one voting President and staff members of the Board of Governors about present market conditions and open market operations which he proposes to execute that day. Other members of the Committee are informed of the daily program by wire summary.

A summary of the Committee's actions is presented to the public in the "Record of Policy Actions" of the Federal Open Market Committee. The "Record" for each meeting is released about 90 days after the meeting and is published in both the *Annual Report of the Board of Governors of the Federal Reserve System* each spring and in the Federal Reserve *Bulletin* each month. The "Record" for each meeting generally includes:

1) a staff summary of recent economic developments, such as prices, employment, industrial production, and components of the national income accounts; projections concerning real output growth for one or two quarters ahead; and prospective financial developments;
2) a discussion of the U.S. balance of payments and international financial developments;
3) a discussion of interest rate movements;
4) a discussion of open market operations and growth of reserve aggregates since the last meeting;
5) a discussion of the movements of monetary aggregates such as M_1 and M_2, and the adjusted credit proxy[2];
6) conclusions of the FOMC;
7) a policy directive issued by the FOMC;
8) a list of the voting position of members and any dissenting comments;
9) a description of any actions and consultations that may have occurred between the regularly scheduled meetings.

[2]M_1 refers to the money stock, defined as private demand deposits plus currency in the hands of the nonbank public. M_2 refers to money stock plus net time deposits; net time deposits are defined as total time deposits at all commercial banks minus large time certificates of deposit at large weekly reporting commercial banks. Adjusted credit proxy is defined as member bank deposits subject to reserve requirements plus bank-related commercial paper, Eurodollar borrowings of U.S. banks, and certain other nondeposit items.

ciently checked. . . . [Wilbur D. Mills, *New York Journal of Commerce*, February 8, 1973]

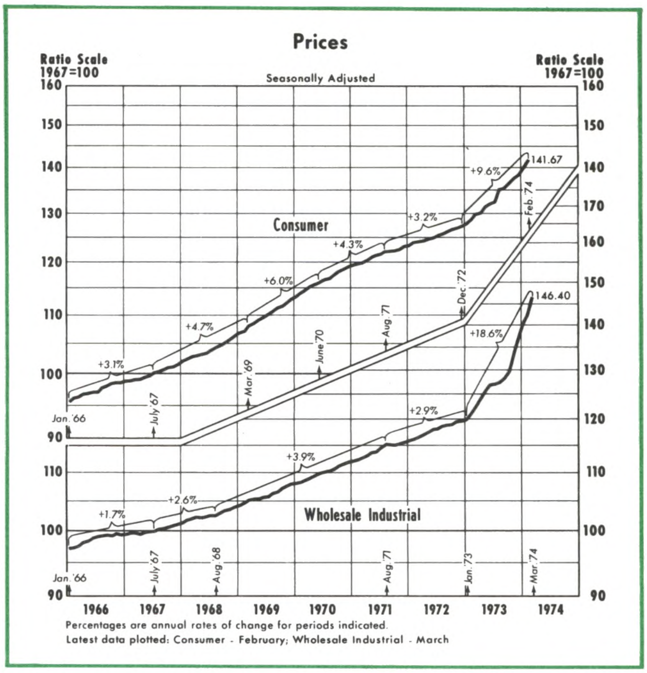
However, with labor and capital resources being utilized more fully, the expanding demand for goods and services could begin to pull prices upward and thereby reinforce prevailing cost-push pressures. In the absence of monetary and fiscal restraint, excess aggregate demand might easily re-emerge and touch off a new round of inflation.

This must not be permitted to happen. The hard-won gains our Nation has made in the struggle against inflation must not be frittered away. To do so would sap the confidence of our people in the integrity of government. [Arthur F. Burns, *Statements to Congress*, Federal Reserve *Bulletin* (March 1973), pp 164-68]

In addition to the inflationary problems which underscored the course of 1973, the predictable decline in the growth rate of real product began to take place. The rate of growth of output in 1972 had been almost double its long-term trend, and the decline in the rate of growth was inevitable. This became quite apparent in the middle of 1973 when reported shortages of intermediate goods began to develop, reflecting capacity constraints and misallocation of resources generated by price and wage controls. The announcement of the Arab oil boycott in October was interpreted as a factor which would create a decline in energy supplies and would further exacerbate the decline in production. The FOMC staff correctly projected this decline and the Committee took this projection into consideration. It is important to emphasize that this projected decline in the growth of output was attributed by some to supply considerations, rather than to the decline in demand which normally accompanies recessionary periods.

Meanwhile, inflation continued on its upward path. There were many different factors to which the acceleration of prices was attributed:

But as the Fates would have it, several unusual factors combined to impart a new dimension to our inflationary problem this year. First, the devaluation of the dollar not only resulted in higher prices of imported goods, but also affected our price level by leading to some substitution of domestic for foreign products and by imparting a sharp impetus to foreign demand for our products. Second, our economic expansion has been accompanied by rapid expansion in virtually every other industrial country. The worldwide demand for capital equipment and industrial materials — goods for which the United States is a major supplier — has therefore burgeoned. Third, our current ability to expand output of basic industrial materials is narrowly limited — in large part because investment by producers of key materials has been held back in recent years by unsatisfactory profits and new environmental controls. Fourth, bad weather in a number of countries severely restricted agricultural production last year — at the very time when the demand for foodstuffs was rising rapidly in response to the worldwide expansion of incomes and employment. The concatenation of these special factors has played a decisive role in driving up prices this year. [Arthur F. Burns, "Objectives and Responsibilities of the Federal Reserve System," Federal Reserve *Bulletin* (September 1973), p. 655]



In spite of these special considerations, the Committee apparently felt that a rapid growth of the money stock could have been a contributing factor[2] and repeatedly voted to restrain the expansion of monetary aggregates.

As discussed in the "Record of Policy Actions" of the Federal Open Market Committee, the Committee's staff *reported* increases in the price level at every meeting, and *projected* further increases in February and the last four months of the year. Given the economic conditions at the beginning of the year, developments during 1973, and the staff projections of a decline in money demand because of the cumula-

[2]"At present there is no real alternative to a restrictive monetary policy. To be sure, if we permitted money and credit to expand at a more rapid pace, short-term interest rates would decline for a brief period. But in so doing we would be adding fuel to the inflationary fires now raging. Before very long interest rates would rise again, and probably well beyond their present level, as both lenders and borrowers adjusted to the quickened pace of inflation. The simple and inescapable truth is that inflation and high nominal interest rates go together." [Arthur F. Burns, "Objectives and Responsibilities of the Federal Reserve System," Federal Reserve *Bulletin* (September 1973) p. 656]

Table I

1973 FOMC Targets for Monetary Aggregates[1]

	Objectives for monetary aggregates	Narrowly Defined Money Stock (M_1): Prior 6-month growth rate	Narrowly Defined Money Stock (M_1): Growth over subsequent 6 months
January 16	. . . slower growth in monetary aggregates over the months ahead than occurred in the second half of last year.	8.7%	7.1%
February 13	. . . somewhat slower growth in monetary aggregates over the months ahead than occurred on average in the past 6 months.	6.3	5.7
March 19-20	. . . somewhat slower growth in monetary aggregates over the months ahead than occurred on average in the past 6 months.	6.6	5.4
April 17	. . . moderate growth in monetary aggregates over the months ahead.	5.3	4.9
May 15	. . . somewhat slower growth in monetary aggregates over the months immediately ahead than occurred on average in the past 6 months.	5.3	4.7
June 18-19	. . . somewhat slower growth in monetary aggregates over the months immediately ahead than appears indicated for the first half of the year.	6.1[2]	4.0
July 17	. . . slower growth in monetary aggregates over the months immediately ahead than occurred on average in the first half of the year.	6.1	2.4[4]
August 21	. . . slower growth in monetary aggregates over the months immediately ahead than has occurred on average thus far this year.	5.0[3]	4.8[4]

[1]All data are compounded annual rates of change using the money stock series prior to the February 1974 revision.
[2]The rate indicates the growth in the money stock from December 1972 to June 1973.
[3]The rate indicates the growth in the money stock from December 1972 to August 1973.
[4]The rates were computed using the revised money stock series.

NOTE: This table includes only the meetings through August 1973, since there was no reference to a base period in the "Record" at subsequent meetings.

tive impact of rising interest rates, the Committee voted for slower growth of monetary aggregates in all of its meetings between January and August with the exception of April. On seven occasions the FOMC called for a slower growth than had occurred over the previous six months. And, indeed, if the results of these actions were expected to become effective over an approximate span of the subsequent six months, the Committee's actions can be interpreted as having been successful (see Table I). In April and in the last four months of the year, the staff projected moderate growth in the demand for money and the Committee adopted a directive indicating a desire to achieve moderate growth in monetary aggregates.

Growth of the narrowly defined money stock during 1973 can be divided into two periods: in the first half of the year money grew at a 7.4 percent annual rate, as measured from the last quarter of 1972 to the second quarter of 1973; in the second half the growth was 4.8 percent from the second quarter of 1973 to the fourth quarter of 1973. When the trend is measured from the first quarter of 1970 to the fourth quarter of 1973, this sharp change in the growth rate of M_1 reduced the average growth of money only from 7.0 to 6.7 percent.

Although the growth of monetary aggregates slowed as desired, month-to-month growth was highly volatile; it varied from a 15.1 percent annual rate of growth in the May/June period to a 3.5 percent annual rate of decline in August/September. Such volatility has been attributed to many factors[3] which were operating in the economy in 1973. These erratic short-run movements were resisted by the Committee, and between meetings the Committee was consulted nine times when the growth of the aggregates seemed to fall outside acceptable ranges. In all cases but three,

[3]"Soon after the April meeting, it appeared that the monetary aggregates would grow in the April-May period at rates in excess of an acceptable range even though estimates suggested that reserves available to support private nonbank deposits (RPD's) would grow in that period at an annual rate below the range of 10 to 12 per cent specified by the Committee. The divergent tendencies were attributed to two main factors: Banks' excess reserves were lower than anticipated and currency in circulation was growing more rapidly than expected." ["Record of Policy Actions" of the Federal Open Market Committee, Federal Reserve *Bulletin* (August 1973), p. 577]

"The narrowly defined money stock (M_1), after changing little over the third quarter, grew moderately in October and rapidly in November. It appeared that the November rate of growth had been affected by such temporary influences as expansion in precautionary balances held by the public in response to the new economic uncertainties and increases in deposits of foreign commercial and central banks." [Ibid., Federal Reserve *Bulletin* (February 1974), p. 116.]

Also see "Financial Developments in the First Quarter of 1973," Federal Reserve *Bulletin* (May 1973), and p. 9 of this *Review;* "Financial Developments in the Second Quarter of 1973," Federal Reserve *Bulletin* (August 1973), and pp. 9-10 of this *Review;* and "Record of Policy Actions" of the Federal Open Market Committee, Federal Reserve *Bulletin* (August 1973) and (February 1974), and p. 17 of this *Review.*

the Committee agreed to adjust money market conditions in order to move monetary aggregates into the desired range; in the three remaining cases it agreed to maintain current money market conditions in view of the sensitive state of financial markets and the general economic situation.

There is no doubt that the growth of the money stock slowed in 1973 as compared with 1972. This outcome is consistent with the expressed desires of the Federal Open Market Committee. The *process* by which the decline occurred is subject to alternative interpretations. Since causality is based on some analytical framework, and there is no consensus as to the correct framework for analyzing monetary growth, alternative interpretations are possible. The following section analyzes the movements in monetary aggregates in greater detail and offers alternative explanations of the factors contributing to the observed growth.

MONETARY GROWTH IN 1973

On January 31, 1974, the Board of Governors of the Federal Reserve System released revised data for currency held by the public, demand deposits held by the public, and time deposits at all commercial banks. This revision included adjustments based on new benchmark data for nonmember bank deposits and vault cash, and the annual recomputation of seasonal adjustment factors which are applied to each basic deposit and currency series.

The pattern of monetary growth in 1973, as indicated by the data available to policymakers throughout the year, is compared with the pattern of growth displayed with the revised series. This comparison is useful since actual results of policy actions might be interpreted differently in light of the revised data. Generally, the revised series for monetary aggregates show that the increases in the narrowly defined and broadly defined money stock in 1973 were greater than previously reported.

This section provides two approaches to analyzing some of the factors influencing movements in money throughout the year. One approach is essentially supply-oriented and employs a concept referred to as the "monetary base". The other approach implies that factors affecting the *demand* for money and credit are also important in the money supply process.

Old Versus Revised Money Data

Table II illustrates the differences in the growth of money stock and the monetary base for three-month periods in 1973, and the differences between

Table II

Alternative Measures of Money and Base[1]

	Old Money Stock		New Money Stock		Monetary Base	
1971	Quarterly Average[2]	End-Month[3]	Quarterly Average	End-Month	Quarterly Average	End-Month
I	6.6%	9.2%	6.5%	9.2%	9.3%	9.2%
II	11.6	11.6	11.3	11.2	7.4	7.1
III	7.4	4.2	6.6	3.3	7.0	6.9
IV	2.1	1.9	2.1	1.9	5.6	4.8
1972						
I	5.4	9.5	5.4	9.3	8.4	9.8
II	8.8	6.3	8.5	6.3	7.6	6.7
III	8.2	8.4	8.5	9.0	5.0	4.5
IV	7.4	8.9	8.7	10.3	11.0	12.9
1973						
I	4.8	1.7	7.1	3.8	9.3	8.9
II	7.0	10.7	7.7	12.0	7.8	6.9
III	5.1	0.3	5.6	−0.2	5.3	4.3
IV	4.0	7.8	4.0	7.8	8.0	10.3
1974						
I			5.6	6.8	8.7	7.6

[1]All data are seasonally adjusted.

[2]Refers to the growth of money (M_1), in compounded annual rates, from the average of the previous quarter to the average of the designated quarter.

[3]Refers to the growth of money (M_1), in compounded annual rates, from the last month of the previous quarter to the last month of the designated quarter.

the old and new series of money. The table also shows growth rates based on three-month (quarterly) averages of successive quarters and on the end-months of successive calendar quarters.

The end-month figures for both the old and new series show essentially the same pattern, especially in 1973. Beginning in late 1972 they leave the impression that the pattern of money growth from one quarter to the next was fast — slow — fast — slow — fast. Since the data are seasonally adjusted, one would not expect such a repetitive pattern in the adjusted data to persist for a prolonged period of time, even if it prevailed in the raw data.

The growth of money in 1973, as indicated by the quarterly average figures, reveals a different pattern in the new series as compared to the old. Referring to the old series, the 4.8 percent rate of increase for the first quarter of 1973 appeared to indicate a significant slowing from previous money growth rates, although less than the 1.7 percent rate of growth on an end-month basis. Either figure was clearly in the direction consistent with the directive shown in the "Record" for the meetings in early 1973 which called for achieving "slower growth in monetary aggregates." Under the new data series, however, the 7.1 and 7.7 percent rates of money growth recorded in the first two quarters of 1973, respectively, were only marginally slower, on average, than the growth that had prevailed in the recent past. Thus, by mid-1973 the average growth rate of money for three years was 7 percent, the fastest growth for such a period since World War II.

The figures for the fourth quarter of 1973 lead to a somewhat ambiguous interpretation of the path of monetary growth. On a quarterly average basis, both the new and old series show further slowing in the growth of money from the rate registered in the third quarter. In contrast, the growth rate of money indicated by the end-month figures shows a sharp reacceleration. The difference in interpretation of monetary growth caused by data revisions or by different time spans can be clarified by reference to other theoretically-related series. The concept of the monetary base is used here to aid in assessing the pace of monetary growth.[4]

Monetary Base Growth

By definition, the base is the "net monetary liabilities of the government sector" or the non-interest bearing debt of the Treasury and the Federal Reserve Banks. The derivation and uses of the concept are reviewed elsewhere.[5]

Table III shows average growth rates of money and the base over four-quarter periods. Literally, the figures shown are the percentage changes from the corresponding quarter a year earlier. It is clear that the deceleration in the growth of money at the end of 1973 (both narrowly and broadly defined) is much more pronounced than for the monetary base. The

Table III

Yearly Changes in Money and Base*
(Change from Corresponding Quarter a Year Earlier)

1971	Monetary Base	M_1	M_2
I	7.5%	6.3%	10.9%
II	7.9	7.4	12.8
III	8.0	7.5	12.1
IV	7.3	6.6	11.3
1972			
I	7.1	6.3	10.6
II	7.1	5.6	9.3
III	6.6	6.1	10.1
IV	8.0	7.7	10.9
1973			
I	8.2	8.2	10.3
II	8.3	8.0	10.0
III	8.3	7.3	9.2
IV	7.6	6.1	8.8
1974			
I	7.4	5.7	8.9

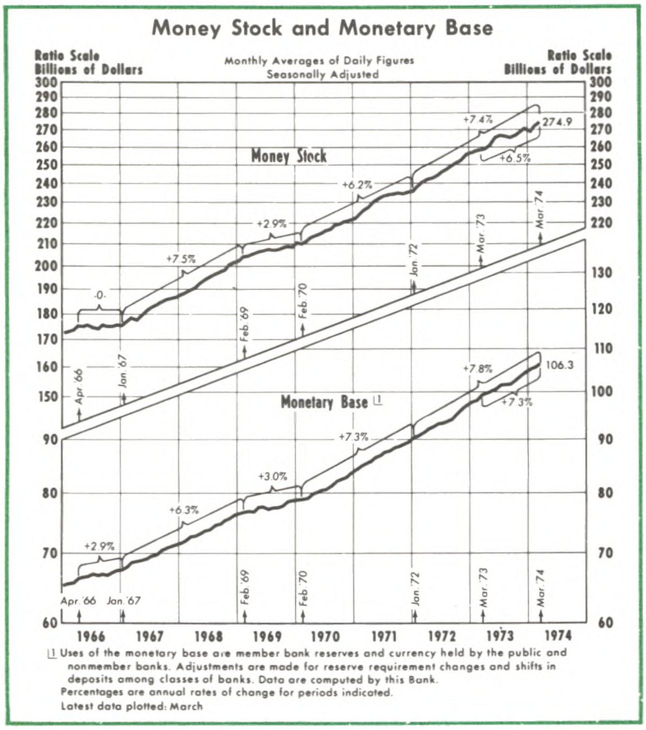
*All data are seasonally adjusted.

divergence in the growth rates of the narrowly defined money stock and the monetary base observed at the end of 1973 is greater than occurs normally, and previous data indicate that such a divergence is not likely to persist for any extended period.[6] This "gap" would be expected to close as a result of a reacceleration in the growth of money, a slowing in the growth of the monetary base which would, in effect,

[4]The monetary base is also referred to as high-powered money or demand debt of the government.

[5]For a more detailed discussion of the monetary base, see Leonall C. Andersen and Jerry L. Jordan, "The Monetary Base — Explanation and Analytical Use," this *Review* (October 1969), pp. 10-19; Jane Anderson and Thomas M. Humphrey, "Determinants of Change in the Money Stock: 1960-1970," *Monthly Review*, Federal Reserve Bank of Richmond (March 1972), pp. 2-8; John D. Rea, "Sources of Money Growth in 1970 and 1971," *Monthly Review*, Federal Reserve Bank of Kansas City (July/August 1972), pp. 3-13.

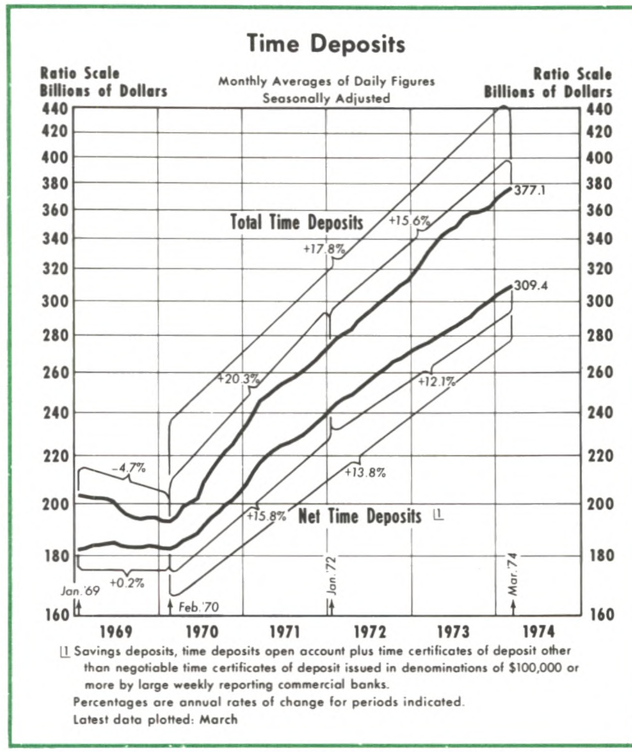
[6]The monetary base and the money stock are related through a "multiplier": M=mB, where M is the money stock, B is the monetary base, and m is the multiplier. The growth rates of money and base are usually similar over periods of a year or more, which means that the multiplier is relatively constant. Factors which cause short-run fluctuations in the multiplier include changes in time deposits and U.S. Treasury deposits at member banks. For a detailed exposition



ratify or confirm the slowing in money growth, or by a combination of these developments.

The growth rates of money and the monetary base are shown in the accompanying chart. The growth of the base in 1973 was about the same as the average rates of growth over the past two- and four-year periods. The factors contributing to the continued growth of the base in 1973 are shown in Table IV. Clearly, the rise in the monetary base in 1973 occurred mainly as a result of the large increase in the Federal Reserve portfolio of U.S. Government securities. The other single factor contributing significantly to the growth of the base was related to the monetization of gold following the rise in its official price from \$38 per ounce to \$42.22 per ounce.[7]

The significant factor explaining the slower growth of the narrowly defined money stock, as compared to the monetary base, last year is shown in the line entitled "Base Absorbed by Time Deposits" in Table IV. The increase in required reserves against time deposits at member banks absorbed 27.9 percent of the rise in the monetary base last year, compared with 19 percent a year earlier. Thus, the base available to support growth of M_1 in 1973 rose 6 percent — very similar to the 6.1 percent rise in the money stock.



This approach to analyzing money growth leads to the conclusion that since the rise in the base in 1973 was only slightly slower than in 1972, the slower growth in money is attributable to the very large rise in total time deposits at member banks and the reserves that were thereby absorbed. The term "supply-oriented" is applied to this approach since the "linkage" is from open market reserve-supplying operations to the total monetary base and, given the amount of reserves absorbed by time deposit growth, to the money stock.

The implication for monetary control is that open market reserve-supplying operations, under the direction of the FOMC, are a primary determinant of the growth of the money stock. Open market operations in 1973 increased the monetary base at about the same rate as in 1972; however, the much more rapid growth of time deposits in 1973 resulted in a slower growth of the narrowly defined money stock.

Another View of Money Growth

Official public documents discussing monetary and financial developments, such as the "Record of Policy Actions," and the quarterly report of "Financial Developments" submitted to the Joint Economic Com-

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of the "model" relating the monetary base and the money stock, see Albert E. Burger, *The Money Supply Process* (Belmont, California: Wadsworth Publishing Company, Inc., 1971), and Robert E. Weintraub, *Introduction to Monetary Economics; Money, Banking, and Economic Activity* (New York: Ronald Press Co., 1970).

[7]For a detailed analysis of the monetary effects of the devaluation and monetization of the increased value of the gold stock, see Albert E. Burger, "The Monetary Economics of Gold," this *Review* (January 1974), pp. 2-7.

Table IV

Factors Influencing Monetary Base[1]
(Millions of Dollars)

		IV/1972	IV/1973	Change	Change in Source Base Attributable To:
OPEN MARKET OPERATIONS	Holdings of U.S. Government Securities[2]	$ 71,282	$ 78,829	+$ 7,547	+98.4%
DISCOUNT WINDOW	Loans to Member Banks	743	1,388	+ 645	+ 8.4
DEVALUATION OF THE DOLLAR	Gold and SDRs	10,810	11,756	+ 946	+12.3
	All Other Assets and Liabilities	8,011	6,544	— 1,467	—19.1
	Total Source Base	$ 90,846	$ 98,517	+$ 7,671	100.0%
RESERVE REQUIREMENT CHANGES	Reserve Adjustment[3]	5,785	5,392	— 393	
					Percent Change
	Monetary Base[1]	$ 96,631	$103,909	+$ 7,278	7.5%
	Base Absorbed by Time Deposits	9,558	11,585	+ 2,027	
	Base Available for M_1	$ 87,073	$ 92,324	+$ 5,251	6.0
	Money Stock (M_1)	$253,200	$268,600	+ 15,400	6.1

[1]Except for money stock, all data are not seasonally adjusted. The monetary base is defined as the net monetary liabilities of the U.S. Treasury and Federal Reserve System held by commercial banks and the non-bank public.
[2]Includes Federal agency obligations and bankers' acceptances.
[3]Adjustment for reserve requirement changes and changes in average requirements due to shifts in deposits where different reserve requirements apply.

mittee (JEC) of Congress by the Board of Governors, provide analyses of the factors influencing the growth of monetary aggregates over immediate past periods. These reports also discuss factors influencing market interest rates as well as the sources and uses of bank reserves and credit in the money and capital markets.

In the reports to the JEC, the discussion of the growth of the money stock emphasizes factors influencing the *demand* for money balances and demands for credit.[8] The following statements are drawn from this report. The reader should bear in mind that data for monetary aggregates were significantly revised in early 1974. Unless otherwise indicated, the excerpted comments refer to monetary developments on the old basis.

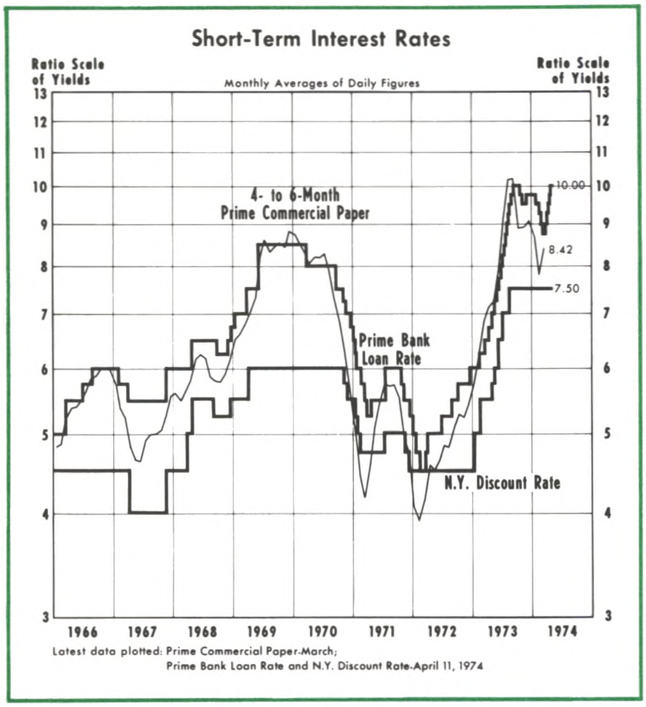
First Quarter 1973 — The report to the JEC states:

> The narrowly defined money stock, M_1, slowed to a 1.7 per cent annual rate of growth in the first quarter of 1973, tending thereby to offset the relatively rapid 8.6 per cent growth rate in the fourth quarter of 1972. For the 6 months together, M_1 increased at a 5.2 per cent annual rate. In the first quarter, *demands for money may have been reduced by the cumulative impact of rising interest rates* and possibly by *growing concern over inflation leading to at least some temporary substitution of goods for cash*. [emphasis added]
>
> In addition, several special factors may have had an influence on growth of M_1 in the first quarter. In January, for example, there was some indication that demand deposits were reduced as State and local governments shifted revenue-sharing funds, received in December, out of demand balances into time deposits. Also, in March the unusually light volume of business borrowing over the midmonth tax period suggests that corporations relied more heavily than usual on demand deposits as a source of funds for their tax payments. And finally, *in the midst of the international disturbances*, as noted earlier, there could have been some minor *movement of funds abroad directly out of demand deposits* in February and early March. [emphasis added]

Second Quarter 1973 — The report to the JEC states:

> When changes are measured from the end-month of the quarter, M_1 increased at a 1.7 per cent annual

[8]For a detailed analysis of this framework contrasted with the monetary base approach, see Albert E. Burger and Neil A. Stevens, "Monetary Expansion and Federal Open Market Committee Operating Strategy in 1971," this *Review* (March 1972), pp. 11-31.



Short-Term Interest Rates

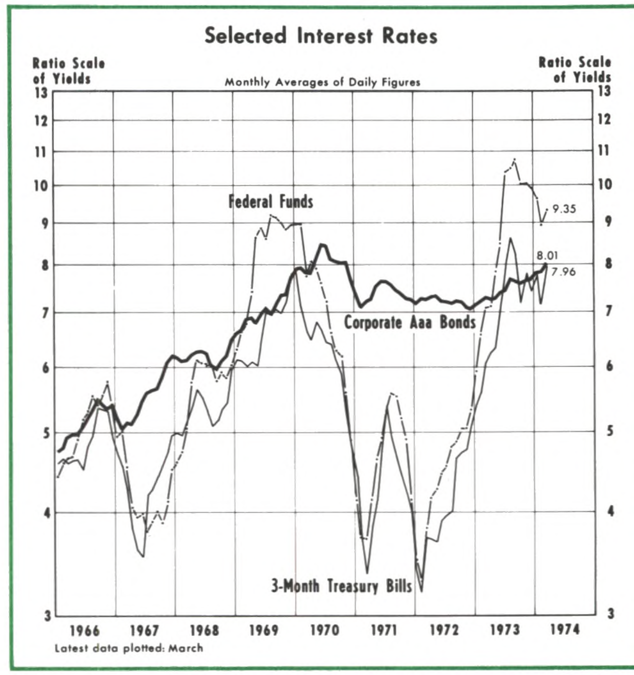
rate in the first quarter and at a 10.3 per cent rate in the second. However, when changes are measured from the average for a full quarter, rates of growth in M_1 were 4.6 per cent and 6.9 per cent for the two quarters, respectively. The quarterly average tends to smooth out fluctuations in the highly volatile M_1 series. Over the first half of the year the narrowly defined money supply grew at about a 6 per cent annual rate.

The *rate of growth in M_1 was slower* than might have been expected in the first quarter *given the rapid increase in gross national product. Part of the slowing was apparently attributable to a drawing down of the year-end bulge in State and local demand balances due to shifts of revenue-sharing funds into interest-earning assets. Also, during the first quarter there was some reduction in dollar cash balances in connection with speculative outflows into foreign currencies* during the winter. In the second quarter, in addition to the continuing impact of enlarged transactions demands for money by consumers and businesses, special factors such as unusually large personal income tax refunds in April and May may have contributed to the faster growth in M_1. [emphasis added]

Third Quarter 1973 — The report to the JEC states:

There was a marked slackening in growth of the monetary aggregates in the third quarter. Following a moderate rise during July, the narrowly defined money supply (M_1) declined in both August and September. On balance, M_1 showed almost no gain over the third quarter, as measured on an end-month of quarter basis from June to September. However, when changes are measured from the average for a full quarter, M_1 expanded at a 5.1 per cent annual rate in the third quarter, only moderately slower than the 6.9 per cent pace of the second quarter. These quarterly average growth rates — which tend to smooth out fluctuations in the volatile M_1 series and are the method used for measuring related economic quantities such as GNP — are perhaps a better reflection of the moderating trend in M_1 growth.

The reduction in M_1 growth in the third quarter was in large part related to the lagged effect of high and rising interest rates that increased substantially the opportunity cost associated with holding demand balances. There also may have been one-time shifts



Selected Interest Rates

from demand balances to consumer-type time deposits following the regulatory action on deposit rate ceilings in July and the subsequent upward adjustment of offering rates on time and savings deposits. Furthermore, in September corporations seemed to rely more heavily than in past years on demand balances to finance third-quarter tax payments, thus contributing to slower M_1 growth late in the quarter. [emphasis added]

Fourth Quarter 1973 — The report to the JEC states:

During the second half of 1973, the *narrowly defined money stock* expanded at a 3.7 per cent annual rate, much slower than the 7.7 per cent growth rate of the first half. However, it *grew at a relatively rapid rate in the final months of the year when public demands for cash balances may have been enhanced by precautionary motives in the uncertain financial and economic environment.* The rapid M_1 growth late in the year occurred with only a small increase in reserves available to support private nonbank deposits, as a reduction in large negotiable certificates of deposit (CD's) freed reserves to support expansion in the demand deposit component of M_1 . . . . [emphasis added]

Measured on an end-month of quarter basis, M_1 increased at a 7.5 per cent seasonally adjusted annual rate during the fourth quarter after showing little net change in the third quarter. When measured on the quarterly average basis commonly employed in calculations of such economic aggregates as gross national product, the fourth-quarter growth rate of M_1 was 3.9 per cent as compared with a 5.5 per cent rate for the third. M_2 expanded at an annual rate of 10.1 per cent from September to December, buoyed by stronger inflows of consumer-type time and savings deposits at commercial banks. M_3 rose at a 9.2 per cent rate over the period, reflecting expansion in M_2 and improved deposit flows at nonbank thrift institutions. These growth rates reflect year-end revisions in the monetary aggregates, incorporating new benchmark data for nonmember banks and updated seasonal adjustment factors. The revisions raised measured 1973 growth rates for M_1 by close to 1 per cent and for M_2 and M_3 by lesser amounts.

Special factors stemming primarily from the Arab oil embargo may have enlarged money stock growth late in the year. As the dollar gained strength in international markets because of the presumed greater impact of the fuel shortage on foreign economies, some foreign central banks sold dollar assets to support their own currencies. In November some of the proceeds of these sales were deposited temporarily at Federal Reserve Banks, thereby increasing the growth of M_1 in that month. Also, near year-end, the coincidence of European banking holidays with bank reporting dates led to an apparent accumulation of dollar balances by foreign commercial banks at U.S. commercial banks. *Uncertainties associated with the energy crisis may also have induced domestic wealth holders to seek refuge for a time in deposit claims of banks and thrift institutions rather than investing in marketable securities.* [emphasis added]

The analytical framework implicit in these descriptions of monetary developments suggests that demand forces were an important factor influencing the growth of the money stock in 1973. This approach also holds that shifts in these demand forces would result in undesired changes in short-term interest rates unless at least partially offset.

This article and the accompanying Appendix are available as Reprint No. 85.

APPENDIX

FOMC Decisions in 1973

With the exception of some footnote references, this Appendix consists entirely of excerpts from the "Record of Policy Actions" of the twelve regularly scheduled Federal Open Market Committee meetings held in 1973. The full "Record" is published in the Federal Reserve *Bulletin*. The excerpts for each meeting include the Committee's decisions with regard to monetary magnitudes, the "directive" issued to the Federal Reserve Bank of New York, and any dissents from the actions taken. Unless otherwise stated, emphasis has been added by this Bank. Table I provides statements from the "Record" reflecting *projections* made at each meeting by the Federal Open Market Committee staff with regard to the outlook for real output growth and prices.

Meeting Held on January 16, 1973

The Committee agreed that the economic situation continued to call for *growth in the monetary aggregates* over the months ahead *at slower rates* than those recorded in the second half of 1972. The members took note of a staff analysis of prospective reserve-deposit relationships, which suggested that more moderate rates of monetary growth might be achieved in the January-February period by fostering growth in RPD's in that period at an annual rate within a range of 9 to 11 per cent. In view of the very rapid monetary expansion in December, however, *the members concluded* that *open market operations should be directed at achieving still greater restraint* and that *reserve-supplying operations that would result in an easing of money market conditions should be avoided* unless the annual rate of RPD growth appeared to be dropping below 4.5 per cent. Specifically, they decided that operations should be directed at fostering RPD growth during the January-February period within a range of 4.5 to 10.5 per cent, while continuing to avoid marked changes in money market conditions.

To implement this policy . . . the Committee seeks to *achieve* bank reserve and money market conditions that will support *slower growth in monetary aggregates* over the months ahead than occurred in the second half of last year.

Table I

FOMC Staff Projections in 1973

Date	Real Output	Prices
January 16	Staff projections for the first half of 1973 continued to suggest that growth in real output . . . would remain rapid.	
February 13	Staff projections suggested that real growth in the second quarter would remain close to the first-quarter rate.	. . .now the expected rise in average prices was somewhat larger [for the first half of 1973 than projected four weeks earlier], in part because of the substantial increases that had already occurred in prices of foods and foodstuffs.
March 19-20	Staff projections for the second quarter suggested that real growth would remain close to the first-quarter rate.	
April 17	Staff projections for the current quarter suggested that growth in real output, while slowing from the high rate in the preceding two quarters, would continue relatively high. . . . According to staff projections, growth in real GNP would moderate in the second half of the year.	
May 15	Growth appeared to be moderating somewhat in the current quarter, and staff projections continued to suggest that it would moderate further in the second half of 1973.	
June 18-19	Staff projections continued to suggest that growth would moderate further in the second half of the year.	
July 17	Staff projections continued to suggest that growth would moderate further in the second half of the year.	
August 21	Staff projections continued to suggest that growth would be moderate in the third quarter.	
September 18	Staff projections suggested that growth in real output would slow slightly in the fourth quarter and would slacken further in the first half of 1974. . .	. . .the rise in prices was expected to remain rapid.
October 16	Staff projections continued to suggest that growth in real output would slacken in the first half of 1974. . .	. . .the rise in prices would remain rapid.
November 19-20	Staff projections continued to suggest that, in the absence of an oil crisis, growth in real output would slacken in the first half of 1974. . .	. . .the rise in prices would remain rapid.
December 17-18	Staff projections suggested that economic activity would weaken further in the first half of 1974. . .	. . .prices would rise appreciably, in part because of curtailment in oil supplies.

Absent and not voting:[1]
Mr. Hayes
(Mr. Treiber voted as his alternate.)

Meeting Held on February 13, 1973

The Committee agreed that the economic situation called for *growth in the monetary aggregates* over the months ahead *at somewhat slower rates* than had occurred on average in the past 6 months. The members took note of a staff analysis suggesting that the sharp further advance in short-term interest rates that had occurred in recent months would probably retard growth in the demand for money over the months ahead. The analysis also suggested that in the February-March period the Committee's objectives for monetary growth might be fostered by pursuing growth in RPD's at an annual rate within a range of 0.5 to 2.5 per cent and that attainment of RPD growth in that range probably would be associated with some additional firming of money market conditions and some upward pressure on long-term interest rates.

The Committee concluded that *active reserve-supplying operations should be avoided* unless RPD's in the February-March period appeared to be declining at an annual rate of more than 2.5 per cent. Specifically, the members decided that operations should be directed at fostering RPD growth during that period within a range of −2.5 to +2.5 per cent, while continuing to avoid marked changes in money market conditions.

To implement this policy . . . the Committee seeks to *achieve* bank reserve and money market conditions that will support *somewhat slower growth in monetary aggregates* over the months ahead than occurred on average in the past 6 months.

Absent and not voting:
Mr. Daane

[1]In addition to the "absent and not voting" category, the "Record" includes a listing of "votes for this action" and "votes against this action." In every case where a vote was cast against an action, the subsequent paragraph in the "Record" and in this summary provides details of the dissent.

Early in the inter-meeting period[2] it had appeared that growth in the monetary aggregates would remain strong and that bank sales of CD's, in association with the larger-than-expected demands for bank credit, might result in growth in RPD's in the February-March period at an annual rate in excess of 2.5 per cent. Consequently, the System had acted promptly to slow the expansion in RPD's, and the Federal funds rate rose to about 6¾ per cent for the statement week ending February 21 from around 6⅜ per cent in the days before the February meeting. After *March 1* — when *Committee members agreed that the weekly average rate for Federal funds should be permitted to rise somewhat further* if necessary to limit growth in RPD's — the rate fluctuated around a level slightly above 7 per cent.

Meeting Held on March 19-20, 1973

The Committee agreed that the economic situation called for *growth in the monetary aggregates* over the months ahead at *somewhat slower rates* than had occurred on the average in the past 6 months. The members took note of a staff analysis suggesting that the cumulative impact of the advance in short-term interest rates that had already occurred would probably slow growth in the monetary aggregates over the months ahead. Nevertheless a relatively rapid rate of growth in RPD's was projected for the March-April period, chiefly because the substantial increase in the outstanding volume of large-denomination CD's that had occurred in recent weeks would affect required reserves with a lag and further expansion in the outstanding volume was expected. Therefore, the Committee's objectives for monetary growth might be fostered by pursuing growth in RPD's in the March-April period at an annual rate within a range of 14 to 16 per cent. The analysis also suggested that attainment of RPD growth in that range might be associated with some further increase in some short-term interest rates and probably also in long-term rates.

The Committee concluded that active reserve-supplying operations should be limited unless RPD's in the March-April period appeared to be growing at an annual rate of less than 12 per cent. Specifically, the members decided that operations should be directed at fostering RPD growth during that period at a rate within a range of 12 to 16 per cent, while continuing to avoid marked changes in money market conditions.

> *To implement this policy* . . . the Committee seeks to *achieve* bank reserve and money market conditions that will support *somewhat slower growth in monetary aggregates* over the months ahead than occurred on average in the past 6 months.

On April 11, 1973, less than one week before the date scheduled for the Committee's next meeting, *the System Account Manager* reported that in light of the latest estimates for RPD's and the monetary aggregates, *he interpreted the Committee's instructions to call for reserve-supplying operations consistent with an easing in money market conditions.* On that day *a majority of the members concurred in a recommendation by the Chairman that such operations not be undertaken* prior to the next meeting, when the Committee would have an opportunity to deliberate on the appropriate policy course.

On March 15, 1973, Committee members had voted to increase from $2 billion to $3 billion the limit on changes between Committee meetings in System Account holdings of U.S. Government and Federal agency securities specified in paragraph 1(a) of the continuing authority directive with respect to domestic open market operations, effective immediately, for the period ending with the close of business on March 20, 1973.

Absent and not voting:
Messrs. Burns, Daane, and Sheehan

This action, which was ratified by unanimous vote at this meeting, had been taken on recommendation of the System Account Manager. The Manager had advised that a substantial volume of open market purchases of Treasury and Federal agency securities had been required in the period since the Committee's previous meeting in order to offset the reserve absorption caused by a sizable unanticipated rise in Treasury balances at Federal Reserve Banks, an increase in currency in circulation, and changes in certain other market factors, and that a temporary increase in the leeway for System purchases appeared desirable in light of the prospective near-term needs to supply reserves.

Meeting Held on April 17, 1973

The Committee agreed that the economic situation and prospects called for *moderate growth in the monetary aggregates* over the months ahead, continuing the policy course agreed upon at the preceding meeting. The members took note of a staff analysis suggesting that the demand for money was likely to be stronger over the near term than it had been in the first quarter of the year, reflecting the unusually large Federal tax refunds — which would add to demand deposits temporarily — and continued strong expansion in economic activity. Although it was likely that expansion in the outstanding volume of large-denomination CD's would slow from the rapid pace in February and March, the increase was still expected to be large. Therefore, a relatively rapid rate of growth in RPD's in the April-May period was projected to be consistent with moderate growth in the monetary aggregates over the months ahead. The analysis also suggested that such a rate of growth in RPD's might be associated with little change in money market conditions and short-term interest rates in general.

The Committee decided that operations should be directed at fostering RPD growth during the April-May period at an annual rate within a range of 10 to 12 per cent, while continuing to avoid marked changes in money market conditions.

> *To implement this policy* . . . the Committee seeks to *achieve* bank reserve and money market conditions consistent with *moderate growth* in *monetary aggregates* over the months ahead.

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[2]This paragraph was excerpted from the March "Record."

Absent and not voting:
Mr. Mayo
(Mr. Winn voted as his alternate.)

Meeting Held on May 15, 1973

The Committee agreed that the economic situation and prospects called for *somewhat slower growth in the monetary aggregates* over the months immediately ahead than had occurred on average in the past 6 months. A staff analysis suggested that the unusually large refunds of Federal personal income taxes had added temporarily to both demand deposits and consumer-type time and savings deposits and that as such refunds diminished growth in the demand for money would tend to moderate in the period immediately ahead. The analysis also suggested that the lagged effects of recent increases in interest rates would work in the direction of moderating the demand for money. Faced with sustained strong demands for credit, banks were likely to continue to increase substantially the outstanding volume of large-denomination CD's. Therefore, according to the analysis, relatively rapid growth in RPD's in the May-June period was likely to be consistent with somewhat slower growth in the monetary aggregates than had occurred on average over the past 6 months. The staff analysis also indicated that such a slowing in monetary growth would probably be associated with further increases in short-term interest rates and also with some rise in longer-term rates.

The Committee decided that operations should be directed at fostering RPD growth during the May-June period at an annual rate within a range of 9 to 11 per cent, while continuing to avoid marked changes in money market conditions. . . . It was understood that the Chairman might call upon the Committee to consider the need for supplementary instructions before the next scheduled meeting if significant inconsistencies appeared to be developing among the Committee's various objectives and constraints; the chance seemed greater than usual that such consultation would be needed.

> *To implement this policy* . . . the Committee seeks to *achieve* bank reserve and money market conditions consistent with *somewhat slower growth in monetary aggregates* over the months immediately ahead than occurred on average in the past 6 months.

Absent and not voting:
Mr. Mitchell

Soon after the May meeting,[3] it had appeared that in the May-June period the monetary aggregates would grow at rates in excess of acceptable ranges and that RPD's would grow at an annual rate above the range that the Committee had specified. Consequently, the System had acted promptly to resist the expansion in RPD's, and the Federal funds rate rose from around 7¾ per cent in the days before the May meeting to an average slightly above 8 per cent in the statement week ending May 23. On *May 24 and again on June 8*, a majority of the *Committee members concurred* in recommendations by the Chairman that *money market conditions should be permitted to tighten still further if necessary* to limit growth in RPD's, and the *Federal funds rate rose to around* 8½ per cent in the days before this meeting.

Meeting Held on June 18-19, 1973

The Committee agreed that the economic situation and prospects called for *somewhat slower growth in monetary aggregates* over the months immediately ahead than appeared indicated for the first half of the year. A staff analysis suggested that expansion in the demand for money was likely to slow considerably from the high rate indicated for the second quarter in response to the anticipated moderation in GNP growth, to the sharp rise in short-term interest rates that had occurred in recent months, and to the running down of the deposits that had been built up in association with the unusually large refunds of Federal income taxes in the second quarter. . . . It was noted, however, that projections of the demand for money were subject to more uncertainty than usual because of the unknown effects of the short-term freeze on prices and the lack of information concerning the elements of the price and wage stabilization program to follow. . . .

In view of the rapid monetary expansion in the second quarter and uncertainty about the demand for money in the months ahead, the Committee agreed that the lower end of the range specified for the annual rate of RPD growth in the June-July period should be lower than that projected in the staff analysis. Specifically, the members decided that operations should be directed at fostering RPD growth during that period at an annual rate within a range of 8 to 11.5 per cent. They agreed that money market conditions might be permitted to vary somewhat more in the inter-meeting period than had been contemplated at other recent meetings, if such variation appeared indicated in the conduct of operations directed toward achieving RPD growth in the desired range.

> *To implement this policy* . . . the Committee seeks to *achieve* bank reserve and money market conditions consistent with *somewhat slower growth in monetary aggregates* over the months immediately ahead than appears indicated for the first half of the year.

Absent and not voting:
Messrs. Balles and Hayes
(Messrs. Clay and Debs voted as alternates for Messrs. Balles and Hayes, respectively.)

Soon after the June meeting,[4] available data suggested that in the June-July period RPD's would grow at an annual rate above the range that the Committee had specified and that M_1 would grow at a rate in excess of an acceptable range. Data that became available after the July 4 holiday continued to suggest excessive strength

[3]This paragraph was excerpted from the June "Record."

[4]This paragraph was excerpted from the July "Record."

in RPD's and the monetary aggregates in the June-July period, even though money market conditions had continued to tighten, and on Friday, July 6, a majority of *Committee members concurred* in a recommendation by the Chairman that *money market conditions should be permitted to tighten to a greater extent* than had been contemplated at the June meeting. The *Federal funds* rate, which *had been* about 8¾ *per cent* in the days before the June meeting, *was close to* 9¾ *per cent during most of the week preceding this meeting, and in the last few days it had risen further.*

On July 6, 1973, *Committee* members *voted to increase from $2 billion to $3 billion the limit on changes between Committee meetings* in System Account holdings of U.S. Government and Federal agency securities specified in paragraph 1 (a) of the authorization for domestic open market operations, effective immediately, for the period ending with the close of business on July 17, 1973.

Absent and not voting:
Messrs. Bucher, Daane, Hayes, Mayo, and Morris
(Messrs. Debs and Winn voted as alternates for Messrs. Hayes and Mayo, respectively.)

This action was taken on recommendation of the System Account Manager. The Manager had advised that a substantial volume of open market purchases of securities had been required in the period since the Committee's meeting on June 19 in order to offset the reserve absorption caused by a rise in Treasury balances at Federal Reserve Banks, an increase in currency in circulation, and a decline in Federal Reserve float, and he further advised that a temporary increase in the leeway for System purchases appeared desirable in light of the prospective near-term needs to supply reserves.

Meeting Held on July 17, 1973

The Committee agreed that the economic situation and prospects called for slower growth in monetary aggregates over the months immediately ahead than had occurred on average in the first half of the year. A staff analysis suggested that expansion in the demand for money was likely to slow considerably from the high rate recorded in the second quarter — in response to the anticipated moderation in GNP growth and to the sharp rise in short-term interest rates that had occurred in recent months.

> *To implement this policy* . . . the Committee seeks to *achieve* bank reserve and money market conditions consistent with *slower growth in monetary aggregates* over the months immediately ahead than occurred on average in the first half of the year.

Absent and not voting:
Mr. Mitchell

Mr. Francis dissented from this action not because he disagreed with the objectives of the policy adopted by the Committee but because he believed that — as had proved to be the case following other recent meetings — the objectives would not be achieved because of the constraint on money market conditions.

During the first 2 weeks after the July meeting,[5] available data had suggested that in the July-August period RPD's would grow at a rate above the range that the Committee had specified and that the monetary aggregates would grow at rates in excess of an acceptable range. Therefore, the System had acted promptly to limit expansion in RPD's, and the Federal funds rate — which had averaged around 10¼ per cent in the statement week ending July 18 — rose to around 10½ per cent in the next two statement weeks.

On August 3, *a majority of the Committee members*[6] *had concurred* in a recommendation by the Chairman that *money market conditions should be permitted to tighten still further* if necessary to limit growth in RPD's and in the monetary aggregates, *but in light of subsequent developments, tighter conditions were not sought* and *the funds rate remained close to 10½ per cent.*

Meeting Held on August 21, 1973

The Committee agreed that the economic situation and prospects called for *slower growth in monetary aggregates* over the months immediately ahead than had occurred on average thus far in 1973. A staff analysis suggested that despite the substantial growth expected in nominal GNP the demand for money in the period ahead would be limited by the sharp rise in short-term interest rates that had occurred in recent months. In the immediate future, moreover, monetary growth was likely to be restricted by a downward adjustment in the public's demand for cash balances in response to the increases in rates paid on time and savings deposits.

> *To implement this policy* . . . the Committee seeks to *achieve* bank reserve and money market conditions consistent with *slower growth in monetary aggregates* over the months immediately ahead than has occurred on average thus far this year.

Absent and not voting:
Mr. Mitchell

Mr. Francis dissented from this action, although he agreed with the objectives of the policy adopted by the Committee, because he could not accept the constraint placed on money market conditions.

Meeting Held on September 18, 1973

The Committee agreed that the economic situation and prospects called for *moderate growth in monetary aggregates* over the months ahead. A staff analysis indicated that, although transactions demands for money

[5]This paragraph was excerpted from the August "Record."

[6]This paragraph was excerpted from the August "Record." The July "Record" notes, "On August 3, 1973, the available members — with the exception of Messrs. Bucher and Sheehan — concurred in a recommendation by the Chairman that money market conditions should be permitted to tighten still further if necessary to limit growth in RPD's."

probably would expand, growth in the money stock in the months ahead was likely to be limited in lagged response to the rise in short-term interest rates that had occurred in recent months. Consequently, achievement of moderate growth in monetary aggregates within an acceptable period of time was likely to require some easing in money market conditions. In the current environment of unusual sensitivity of expectations in financial markets, however, signs that monetary policy was moving toward a significant easing in money market conditions might result in large expectational declines in short-term interest rates and also in further declines in long-term rates, tending to erode the existing degree of monetary restraint.

In view of the relatively weak behavior of the monetary aggregates in August and prospects for limited expansion in the months immediately ahead, *the Committee concluded that reserve-supplying operations should not become restrictive* unless RPD's in the September-October period appeared to be growing at an annual rate of more than 18 per cent. Specifically, the Committee decided that operations should be directed at fostering RPD growth during that period within a range of 15 to 18 per cent, while taking account of deviations in monetary growth from an acceptable range and avoiding unduly sharp changes in money market conditions. Although the members recognized that pursuit of the objective for RPD's might be associated with some easing in money market conditions, a number of them cautioned against the risk of generating market impressions that monetary restraint was being relaxed significantly, and it was agreed that, in the conduct of operations, account should be taken of domestic financial market developments.

> *To implement this policy* . . . the Committee seeks to *achieve* bank reserve and money market conditions consistent with *moderate growth in monetary aggregates* over the months ahead.

Absent and not voting:
Messrs. Brimmer and Hayes
(Mr. Debs voted as alternate for Mr. Hayes.)

On October 1 the *Account Manager reported*[7] that *significant inconsistencies* existed among the Committee's various objectives and constraints, and the Committee held *a telephone meeting on October 2.*

Following the telephone meeting, at which the majority of the *members concluded* that *money market conditions should be allowed to ease somewhat* if such easing did not threaten to reinvigorate the sharp rally in markets for short-term securities, the System became somewhat more aggressive in supplying reserves. . . .

On October 10 the Committee held another *telephone meeting,* at which the *members agreed* that in the few days remaining until this meeting, *reserves should be supplied* at a rate *consistent with some easing in money market conditions* beyond that decided upon on October 2.

[7]The following three paragraphs were excerpted from the October "Record."

Meeting Held on October 16, 1973

At this meeting *the Committee agreed* that the economic situation and prospects continued to call for *moderate growth in monetary aggregates* over the months ahead. A staff analysis indicated that, although the transactions demand for money would probably expand, the sharp rise in short-term interest rates that had occurred through early September would tend to dampen the demand for money in the months ahead. Consequently, achievement of moderate growth in monetary aggregates was likely to require some easing in money market conditions. . . .

In view of the weak behavior of the monetary aggregates in August and September, *the Committee concluded that reserve-supplying operations should not become restrictive* unless RPD's in the October-November period appeared to be growing at an annual rate of more than 5 per cent. Specifically, the members decided that operations should be directed at fostering RPD growth during that period within a range of 2 to 5 per cent, while avoiding unduly sharp changes in money market conditions.

> *To implement this policy* . . . the Committee seeks to *achieve* bank reserve and money market conditions consistent with *moderate growth in monetary aggregates* over the months ahead.

Meeting Held on November 19-20, 1973

The Committee agreed that the economic situation and prospects continued to call for *moderate growth in monetary aggregates* over the months ahead. A staff analysis suggested that in the near term the demand for money would expand in response to the sizable increase in nominal GNP estimated for the fourth quarter and to the uncertainties generated by the oil shortage. . . . While the outstanding volume of large-denomination CD's was expected to expand toward the end of the year in response to a renewal of growth in business loans at banks, it was anticipated that required reserves against such CD's would drop further in the November-December period. Consequently, negative growth in RPD's in that period — at an annual rate within a range of −1 to −3 per cent — was thought likely to be consistent with moderate growth in both the narrowly and the more broadly defined money stock over the months ahead. It was expected that such a change in RPD's would be associated with little change in money market conditions.

> *To implement this policy* . . . the Committee seeks to *achieve* bank reserve and money market conditions consistent with *moderate growth in monetary aggregates* over the months ahead.

Mr. Morris dissented from this action because he felt that in view of the marked deterioration in the economic outlook that had occurred over the past few weeks, stemming from the energy crisis, a modest move in the direction of a more stimulative monetary policy was appropriate.

Subsequent to the meeting it appeared that in the November-December period growth in the monetary aggregates might exceed acceptable ranges. In view of that behavior, the System, under ordinary circumstances, would have become somewhat more restrictive in its reserve-supplying operations, expecting that money market conditions would tighten somewhat. On *November 30,* however, the *available members concurred* in a recommendation by the Chairman that, in light of current uncertainties regarding the economic outlook and the sensitive state of financial market psychology, the System aim to *maintain current money market conditions* for the time being.

Meeting Held on December 17-18, 1973

The Committee concluded that the economic situation and outlook called for a *modest easing of monetary policy.* The *members decided* that for the period until the next meeting *somewhat more emphasis should be placed on money market conditions* than had been the case in recent months; specifically, they decided that operations should be directed toward achieving some easing in bank reserve and money market conditions, provided that the monetary aggregates did not appear to be growing excessively. Taking into account the staff analysis, the members expected that pursuit of that objective would be consistent with growth in RPD's in the December-January period at an annual rate within a range of 8¼ to 11 per cent.

> *To implement this policy* . . . the Committee seeks to *achieve some easing in bank reserve and money market conditions, provided that the monetary aggregates do not appear to be growing excessively.*

Absent and not voting:
Mr. Francis
(Mr. Kimbrel voted as alternate for Mr. Francis.)

Mr. Hayes dissented from this action because, with the problems of inflation increasing rather than abating and with the monetary aggregates apparently growing more rapidly in 1973 than the Committee had considered desirable, he favored a continuation of the current degree of monetary restraint without noticeable relaxation unless signs of weakening in the economy became more apparent. He believed that, while there was not much that monetary policy could do to relieve the economic problems arising from the oil shortage, a premature easing of policy could exacerbate the problems of inflation.

Subsequent to the meeting it appeared that in the December-January period the annual rate of growth in RPD's might be close to the upper limit of the range that had been specified by the Committee and that rates of growth in M_1 and M_2 might exceed acceptable ranges, although a significant part of the growth in the monetary aggregates could be attributed to an unanticipated increase in deposits of foreign commercial banks at U.S. banks. *On January 11 the available members — with the exception of Mr. Francis — concurred* in a recommendation by the Chairman that, in view of the sensitive state of financial markets and the general economic situation, the System aim to maintain prevailing money market conditions for the time being.

Authorization for domestic open market operations — *On January 4, 1974, a majority of Committee members voted to increase from $2 billion to $3 billion the limit on changes between Committee meetings in System Account holdings of U.S. Government and Federal agency securities* specified in paragraph 1(a) of the authorization for domestic open market operations, effective immediately, for the period ending with the close of business on January 22, 1974.

Absent and not voting:
Messrs. Balles, Bucher, and Daane
(Mr. Clay voted as alternate for Mr. Balles.)

This action was taken on recommendation of the System Account Manager. The Manager had advised that a substantial volume of open market purchases of securities had been required in the period since the Committee's meeting on December 18, 1973, in order to offset reserve absorption resulting from market factors and that a near-term need to supply reserves was in prospect; he had further advised that strength of the dollar in foreign exchange markets suggested that foreign official sales of U.S. Treasury bills might be heavy and that the System should be in a position to acquire some of those bills while offsetting any undesired effects on bank reserves by other means.

Mr. Francis dissented from this action because, in view of his concern over the continuing rapid rate of growth in the monetary aggregates, he preferred that additional reserves necessary to meet requirements over the next few weeks be obtained through member bank borrowings rather than provided through additions to System holdings of securities. Moreover, he believed that foreign official sales of Treasury bills should be absorbed in the market.

National Income Accounting and Economic Welfare: The Concepts of GNP and MEW

by KENNETH STEWART

THE MOST comprehensive indicator of economic performance in the nation in a given year is gross national product (GNP). Changes in GNP reflect both changes in prices and changes in the physical volume of output. GNP adjusted for price level changes is generally accepted as a reliable indicator of growth in the nation's total production and is used by economic analysts to indicate whether the economy is expanding or contracting. Policymakers use GNP data, along with other measures of economic activity, in the formulation and subsequent evaluation of stabilization policy.

A growing GNP is generally associated with expanding opportunities for employment and an increasing amount of material welfare. Economic policy facilitating GNP growth is formulated, in part, as a means of reducing both unemployment and poverty. But a growing GNP has also been accompanied by urban decay and pollution, which are not accounted for in national income data. Critics of economic growth, as measured by national income data, argue that such data tend to emphasize the growth of material welfare while ignoring what is happening to the "quality of life" or "social welfare." GNP has been growing, but what has been happening to total welfare?

William Nordhaus and James Tobin recently proposed an indicator to obtain a measure of "economic welfare" or "standard of living" to complement GNP.[1] This indicator, referred to as "Measure of Economic Welfare" (MEW), would modify the present GNP measure primarily in three ways: 1) by subtracting estimates of certain costs or "bads", such as pollution, from the national income total; 2) by excluding some services, such as police services, since it is possible that increased police budgets to combat rising crime do not indicate an increase in welfare; and 3) by adding to GNP some activities, such as household activities (housework, home repairs, etc.) and leisure, which are not included in the GNP total.

This article discusses the Nordhaus-Tobin measure of economic welfare. Since they use GNP as a point of departure, the concept of GNP is reviewed in the first part of this paper and then compared with the proposed MEW concept.

DEFINITION AND CONCEPT OF GNP

Gross national product can be defined as the market value of domestic current final output.[2] It provides a measure of the nation's aggregate economic activity — income or output — measured in terms of current market prices over a given period of time, usually a year.

Two methods can be used in measuring the nation's income or output — the income approach and the expenditure approach. The income approach determines gross national income by totaling the various income shares of the factors of production, such as compensation of employees, rental income, proprietors' income,

[1]William Nordhaus and James Tobin, "Is Growth Obsolete?", *Economic Growth,* Fiftieth Anniversary Colloquium, Vol. 5 (New York: National Bureau of Economic Research, 1972).

[2]For further discussion of the GNP concept, see Armen A. Alchian and William R. Allen, *University Economics,* 3rd ed. (Belmont, California: Wadsworth Publishing Company, Inc., 1972), especially pp. 529-533.

net interest, and corporate profits (and adding in an allowance for depreciation, indirect business taxes, and other smaller items). The expenditure approach determines the current value of production basically by totaling all expenditures for final goods and services based on type of purchase and expenditure (plus the net change in business inventory). Expenditures in the national income accounts are classified as personal consumption expenditures, gross private domestic investment, government purchases of goods and services, and net exports. The two approaches provide approximately the same total, for expenditures on final goods and services provide income to the factors of production which produced these items.

In general, nonmarketed goods, such as goods and services produced and consumed by the household (which would include meals prepared in the home and home repairs) are not included as part of the nation's measured income. The exclusion of such productive work performed by household members limits the validity of the GNP concept as a measure of the nation's *total* product.[3]

It also should be stressed that not all market transactions are included in determining GNP, for this would involve double-counting. Final products are not normally resold; intermediate products are resold in some form. For example, flour sold by a miller to a baker is resold in the form of bread. To count the flour sold by the miller and the bread sold by the baker as part of GNP would involve double-counting the value of the flour.[4]

Market transactions involving the exchange of wealth or claims to wealth are also excluded in the determination of GNP. Exchange of stocks on the stock market and exchange of bonds in the securities markets only shift ownership of claims to existing assets from one person to another. For the most part, the sale of a used car has a similar effect. In both cases, no increase in production or productive capacity is directly related to the exchange of these assets. Included in GNP, however, are some of the dealer costs associated with these transactions. These costs include, among other things, the salaries and the commissions of the stock and security brokers and used car salesmen, since they provide a current service in the exchange of existing assets. In determining what is included in GNP, the emphasis is on current economic activities which are "productive" in the sense of creating income. A sale of a new car would be included in GNP for this is an end item of current productive activity.

The concept of GNP then necessarily implies selection of what one considers "productive activity". In determining GNP, one must use some criteria of production which are based on an implicit or explicit value judgment. To quote Simon Kuznets, a pioneer in developing national income accounting concepts:

> . . . if no criteria of social productivity are used, national income becomes a mechanical total of all net receipts of individuals and business agencies, regardless for what activity or even whether there is any activity. It would include the compensation of robbers, murderers, drug peddlers, and smugglers, differential gains from the transfer of claims, and pure transfers such as gifts and contributions, which, in the absence of a productivity criterion, cannot be distinguished from payments for services. Such a judgmentless estimate would be of little use, since, to measure all market transactions, some gross rather

[3]A leading authority on national income determination, Simon Kuznets, considered this problem when discussing issues involved in defining national income. He argued against the inclusion of nonmarket activities in general, but cautioned in the interpretation of data which exclude such activities: "The national income estimator must choose between comprehensive definition — with the consequence that large sectors of the economy either cannot be measured on a continuous basis or cannot be included with more precisely measurable sectors because the errors are so enormous — and a narrower definition that confines economic activities to those market-bound — for which tolerably reliable estimates can be made. In current national income measurement in this country, the decision is usually in favor of the second alternative. And it finds support in the argument that the activities so segregated for measurement are the ones subject primarily to economic criteria and rationale; whereas those that are not directed at the market are much more a part of life in general. One may and does discharge a housekeeper for inefficiency in managing a household, but by itself this is rarely a ground for divorce . . . .

"The national income estimator cannot do much about such omissions, since scarcity or lack of data is inherent in the nature of the omitted areas. But in interpreting national income movements in terms of satisfying consumers' wants, the limitation of national income largely to noncasual market-bound activities must be stressed. In this country as in many others where the market is always being extended, the relative importance of the household as a source of consumer goods is declining. Many activities formerly performed by the housewife or other members of the family and not measured (baking, sewing, canning, etc.) have progressively been taken over by business enterprises and gone into market-bound activities; other household functions have vanished without leaving a direct substitute in business activity. Hence, national income totals tend to exaggerate the upward movement in the supply of goods to consumers, if such supply is comprehensively defined as coming from both market-bound and family activities." [Simon Kuznets, *National Income: A Summary of Findings* (New York: National Bureau of Economic Research, Inc., 1946), pp. 124-125.]

[4]At the end of an accounting period, any increase in the inventory of raw materials (or intermediate products) is included as part of the total product of that period. Double-counting can be avoided by totaling only the market value of "final" products, such as bread (plus an allowance for changes in inventories), or by totaling the sum of the "value added" by *all* firms. Value added by a firm equals the market revenues received by the firm minus the cost of the raw materials. In the above example the value added by the baker would be the revenues received through the sale of the bread minus the cost of the flour and other ingredients.

> than net total is requisite. It would measure neither the positive contribution of the country's economic system to the needs of its members for purposes of consumption or capital formation nor the sum total of what the inhabitants of the country *think* their income is.[5]

Kuznets favored a policy of making any underlying "scheme of values or social philosophy" explicit and allow it to guide the selection of the data.

HISTORICAL DEVELOPMENT OF GNP

The concept of "production" or "productive activity" in the measurement of national income has been given different meanings by various writers and governments. In *The Wealth of Nations,* which was first published in 1776, Adam Smith distinguished productive activities as the making of material goods only; all services, such as those provided by churchmen, lawyers, doctors, musicians, etc., were considered unproductive since "the work of all of them perishes in the very instant of its production."[6]

Smith's concept of productivity was perpetuated in the writings of David Ricardo and John Stuart Mill and formed the basis of the primary national income estimates in England and France for nearly a century. It was not until Alfred Marshall identified the production of goods and services with the creation of utility in the latter part of the nineteenth century that estimators in these two countries returned to a broader concept of production.[7] This broader concept included services as well as material commodities in the measurement of output. Karl Marx accepted Smith's distinction, and consequently, the Soviet Union and other communist countries of Eastern Europe adopted a concept of national product that basically excludes all those services which do not contribute to material production.[8]

In the United States, studies on the measurement of national income appeared in the mid-nineteenth century, and the National Bureau of Economic Research published several studies in the 1920s. Spurred by the economic depression and increasing government involvement in economic affairs, the Department of Commerce established a National Income Division in the late 1930s which prepared estimates of national income data on an official basis. Official figures of U.S. national income and product first appeared in the *Survey of Current Business* in 1942 and were published in accounting form for the first time in 1947. Various revisions and refinements have been made since, but the basic structure of national income accounting has not been altered greatly.[9]

PROPOSED MEASURE OF ECONOMIC WELFARE

National income or GNP in the United States today is basically a measure of the market value of goods and services produced during a given period of time.[10] As two proponents of an indicator to measure economic welfare, William Nordhaus and James Tobin do not question the usefulness of the GNP data as a measure of production. They consider GNP data indispensable for short-run stabilization policy and for assessing the economy's long-run growth in productive capacity. They do question, however, the usefulness of GNP data in evaluating the growth of economic welfare.

Nordhaus and Tobin would like to see the development of a new concept to measure the growth of economic welfare, and their argument for the development of such a concept is as follows:

> An obvious shortcoming of GNP is that it is an index of production, not consumption. The goal of economic activity, after all, is consumption. Although this is the central premise of economics, the profession has been slow to develop, either conceptually or statistically, a measure of economic performance oriented to consumption, broadly defined and carefully calculated. We have constructed a primitive and experimental 'measure of economic welfare' (MEW), in which we attempt to allow for the more

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[5]Simon Kuznets, *National Income and Its Composition, 1919-1938,* Vol. 1 (New York: National Bureau of Economic Research, 1941), p. 4. In 1971, Kuznets received the Nobel Prize in Economics, which was awarded, in part, for his work on developing measurements of national income.

[6]Adam Smith, *The Wealth of Nations* (New York: The Modern Library, 1937), p. 315.

[7]Earlier estimators of national income had used a more comprehensive production concept. See International Encyclopedia of the Social Sciences, s.v. "National Income and Product Accounts: Developments up to World War I."

[8]See Moshe Yanovsky, *Social Accounting Systems* (Chicago: Aldine Publishing Company, 1965), pp. 112-115. Other aspects of national income accounting in the Soviet Union are also influenced by the writings of Marx. For example, following Marx's theory of value, income is related to only one factor of production – social labor.

[9]The present U.S. national income accounting system consists of five interlocking accounts: National Income and Product Account, Personal Income and Outlay Account, Government Receipts and Expenditures Account, Foreign Transactions Account, and Gross Savings and Investment Account.

[10]The major exceptions concerning production of goods and services which are not marketed but included in the measurement of GNP are estimates of food produced and consumed on farms, financial services of commercial banks and other financial intermediaries, and the rental value of owner-occupied houses.

obvious discrepancies between GNP and economic welfare.[11]

To construct their measure of welfare or consumption, Nordhaus and Tobin make several modifications to the existing national income accounts. These modifications fall into three general categories: 1) reclassification of GNP expenditures as consumption, investment, and intermediate; 2) imputation for the services of consumer capital, leisure, and household activities; and 3) correction for some of the disamenities of urbanization and industrialization.[12]

Table I

GROSS NATIONAL PRODUCT AND MEASURE OF ECONOMIC WELFARE (MEW): 1929 AND 1965

(Billions of Dollars, 1958 Prices)

	1929	1965
Gross National Product	$203.6	$ 617.8
Less: capital consumption, NIPA[1]	— 20.0	— 54.7
Net National Product, NIPA	183.6	563.1
Less: NIPA final output reclassified as regrettables and intermediates		
a) Government	— 6.7	— 63.2
b) Private	— 10.3	— 30.9
Imputations for items not included in NIPA		
Plus: a) Leisure	339.5	626.9
b) Nonmarket activity	87.5	295.4
c) Services of public and private capital	29.7	78.9
Less: d) Disamenities	— 12.5	— 34.6
Less: Additional capital consumption	— 19.3	— 92.7
Less: Growth requirement	— 46.1	— 101.8
Sustainable MEW[2]	543.6	1241.1

[1]NIPA refers to National Income and Product Accounts.

[2]MEW figures are based on using variant B as a deflator.

Source: William Nordhaus and James Tobin, "Is Growth Obsolete?", *Economic Growth*, Fiftieth Anniversary Colloquium, Vol. 5 (New York: National Bureau of Economic Research, 1972), p. 55.

Sustainable MEW

These modifications are shown in Table I. In essence, this table provides various additions and subtractions to gross national product, or net national product, to arrive at what is labeled sustainable MEW.[13]

Capital Consumption — Sustainable MEW as a measure of consumption is somewhat similar to the concept of net national product (NNP) as a measure of production. Part of the output included in GNP will be used to repair and replace the existing stock of capital goods. This portion of output is classified as the capital consumption allowance. The subtraction of the capital consumption allowance from GNP gives NNP. NNP tells us how much current income or production can be consumed consistent with the maintenance of productive capacity or income potential.

In a similar manner, the Nordhaus-Tobin concept of sustainable MEW provides a measure of "the amount of consumption in any year that is consistent with sustained steady growth in per capita consumption at the trend rate of technological progress." The sustainable MEW concept then considers not only the amount of capital which must be replaced in a period to maintain consumption at the existing level, but also how much additional investment or abstention from consumption in the current period must be made in order to keep consumption per capita growing at some rate which is based on technological progress.[14] After estimates for both the capital consumption allowance and the growth requirement are made, these estimates are subtracted from GNP.

Intermediates and Regrettables — Some output, classified as final output for GNP purposes, is reclassified as regrettables and intermediates by Nordhaus and Tobin and is excluded from MEW.

By intermediate product, Nordhaus and Tobin mean "goods and services whose contributions to present or future consumer welfare are completely counted in the values of other goods and services";[15] they are "not directly sources of utility themselves but are regrettably necessary inputs to activities that may yield utility."[16] Regrettables represent expenditures for national security, prestige, or diplomacy, which in the judgement of Nordhaus and Tobin, do not directly increase the economic welfare of households. No sharp dividing line exists between what is classified as intermediates or regrettables.

Some private expenditures and some Government expenditures are reclassified as intermediate products

[11]Nordhaus and Tobin, "Is Growth Obsolete?", p. 4.

[12]Ibid., p. 5.

[13]Another concept, labeled actual MEW, consists only of total consumption for a given period and does not take into account any investment expenditures.

[14]Sustainable MEW omits capital expenditures required to maintain the capital-output ratio. According to the authors, "It allows for capital depreciation, for equipping new members of the labor force, and for increasing capital per worker at the trend rate of productivity change." See Nordhaus and Tobin, "Is Growth Obsolete?", pp. 24-25.

[15]Ibid., p. 5.

[16]Ibid., p. 7.

or regrettables. Private expenditures, such as personal business expenses and a part of transportation expenditures in the GNP accounts, would be reclassified as intermediate products. A major portion of Government purchases, such as national defense, space research and technology, international affairs and finance, veterans benefits, general government, and civilian safety (police, fire, and correction) are reclassified as regrettables or intermediate products and subtracted from GNP.[17]

Imputations — The authors impute an estimate for many activities which they feel have a positive or negative effect on social welfare but are not considered in the determination of GNP. Specifically, imputations are made for leisure, nonmarket activity, disamenities, and services of public and private capital.

The most substantial modifications to GNP in obtaining a measure for sustainable MEW are the result of the imputations for leisure and nonmarket activity. Leisure is important to a welfare index, for welfare could rise (consumption of leisure) while GNP falls if employees voluntarily decide to work less. An estimate for nonmarket activity or household production and consumption, such as meals, cleaning, and home repairs, is also added to GNP to obtain MEW.

An estimate for the disamenities of urbanization is subtracted from the GNP data in determining MEW. This estimate considers social costs which are not included in the costs of producing consumption goods and services.[18] These costs would include pollution, litter, congestion, noise, and insecurity. The estimate of these costs is based on the income differentials between large cities and smaller towns and rural areas. Assuming that people can choose residential locations, a portion of the observed income differential can be considered a "disamenity premium" which compensates individuals for unpleasantness associated with living in urban areas.[19]

Services of public and private capital is the last category of imputations for items not included in GNP. The only imputation made for the services of capital in determining GNP is the addition of an estimate for the services received from owner-occupied housing. The MEW concept would extend imputations from capital to include services from Government structures (excluding military) and services from consumer durable goods (under the MEW concept, consumer durables are reclassified as investment goods rather than consumption).

Assessment of MEW

Nordhaus and Tobin state that they are after a measure of consumption, "broadly defined and carefully calculated," but then label this measure a "measure of economic welfare." However, consumption and welfare are two different (although related) concepts. Welfare would depend on the amount of total satisfaction one receives from total consumption, and, among other things, would depend also on the distribution of income. Nordhaus and Tobin realize the problems involved in trying to measure welfare and state that they "cannot . . . estimate how well individual and collective happiness are correlated with consumption."[20] In a comment on the Nordhaus-Tobin MEW concept, Robin C. O. Matthews points out that debates in the 1940s recognized such distinctions between consumption and welfare, and argues that the MEW concept is a measure of consumption not a measure of welfare.[21]

Obtaining reliable estimates of various economic activities which are not included in the national income accounts poses a serious problem in computing MEW. The problems involved in obtaining an accu-

[17]Ibid., p. 7. Kuznets supported the notion that many government services should be treated as intermediate goods rather than final product. He argued that services to businesses such as economic legislation and the maintenance of internal and external security is not a direct service to consumers but a cost of maintaining society at large: "a *condition* of economic production rather than an activity directly yielding final economic goods." He supports the exclusion of these government activities from a country's output by emphasizing that the total which is sought is "that of product, of end-result of activity — not of the volume of activity itself." See Simon Kuznets, "Discussion of the New Department of Commerce Income Series: National Income: A New Version," *The Review of Economics and Statistics* (August 1948), pp. 156-157. Also see Martin J. Bailey, "Appendix: The Concept of Income," *National Income and the Price Level*, 2nd ed. (New York: McGraw-Hill Book Company, 1971), pp. 272-274. For an argument against such exclusion see Milton Gilbert, George Jaszi, Edward F. Denison, and Charles F. Schwartz, "Objectives of National Income Measurement: A Reply to Professor Kuznets." *The Review of Economics and Statistics* (August 1948), pp. 183-189.

[18]For an economic analysis concerning problems of social costs, see R. H. Coase, "The Problem of Social Cost," *The Journal of Law and Economics* (October 1960), pp. 1-44.

[19]According to the authors, the disamenity premium was about 8 percent of average family disposable income in 1965. Since income differentials have tended to induce migration to urban areas, only a portion of the estimated income differential is subtracted from the GNP accounts as a disamenity premium.

[20]Nordhaus and Tobin, "Is Growth Obsolete?", p. 25.

[21]Robin C. O. Matthews, "Discussion," *Economic Growth, Fiftieth Anniversary Colloquium*, Vol. 5 (New York: National Bureau of Economic Research, 1972), p. 91.

rate measure of household activities is one of the reasons why such activities are not included in measured GNP. The authors of MEW recognize this problem and attempt to estimate the reliability of various components of MEW.

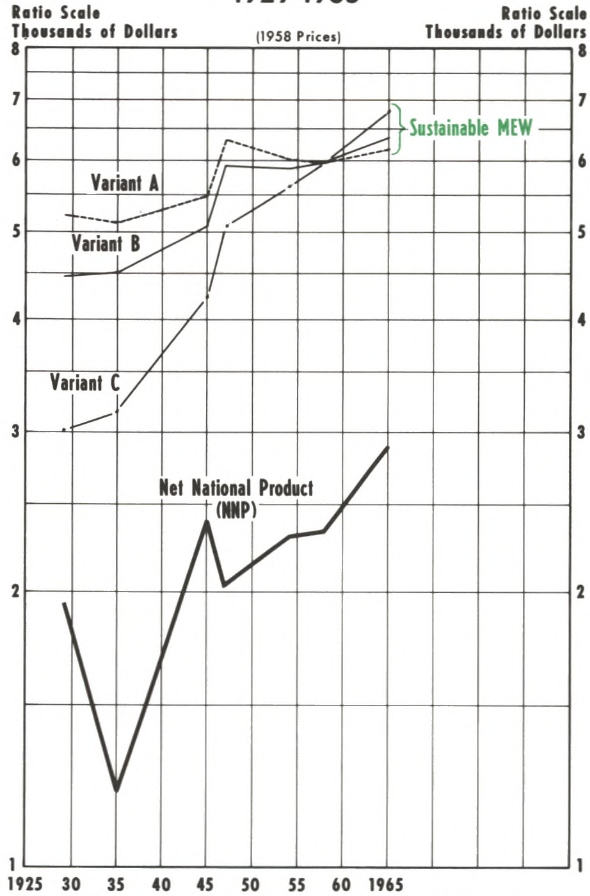
Nordhaus and Tobin rank the reliability of the components of MEW as having a low error, medium error, high error, or very high error. Data in the national income accounts, such as GNP, are used as a benchmark in determining reliability and are put in the low error category. Components in the very high error category are judged to have about ten times the percentage error of GNP. The imputations for leisure, nonmarket activities, and disamenity fall into this very high error category. The imputations for these activities, however, account for much of the difference between GNP and MEW.

The imputations for leisure and household activities, in terms of constant prices, vary greatly depending on how current price estimates are deflated. The authors obtained constant price estimates of both activities by deflating current prices by a consumption deflator and by deflating by wage rates. The accompanying chart presents three different growth paths of sustainable MEW which depend on how leisure and nonmarket activities are deflated. The authors indicate a preference for variant B which deflates leisure by a wage index and which deflates nonmarket activity by a consumption deflator.[22]

All three variants of MEW show a positive rate of growth over time, which indicates that real consumption per capita has been increasing. According to variant C, per capita sustainable MEW grew at a 3.6 percent average compound annual rate from 1929 to 1965, which is slightly faster than the 3.1 percent rate for NNP. In the same time period, variant B grew at a 2.3 percent rate and variant A at a 1.8 percent rate.

Nordhaus and Tobin have provided an estimate of sustainable consumption over time. After allowing for some of the disamenities of modern production techniques and urban congestion, their estimates show that net consumption has been growing, but probably at a slower rate than total measured output. They recognize that many unsolved problems are posed by their MEW concept, but view the measure as an attempt to obtain an indicator of the growth in economic welfare. Perhaps the intent and conclusions of their study can best be summed up by the authors themselves:

Per Capita Net National Product and Per Capita Sustainable Measure of Economic Welfare (MEW) 1929-1965



Source: William Nordhaus and James Tobin, "Is Growth Obsolete?", Economic Growth, Fiftieth Anniversary Colloquim, Vol. 5 (New York: National Bureau of Economic Research, 1972), pp. 53, 57.

Note: Data on MEW are available only for the years 1929, '35, '45, '47, '54, '58, and '65. For comparability, the NNP series is plotted only for those years, even though this series is available on a continuous basis over this period.

> We recognize that our proposal is controversial on conceptual and theoretical grounds and that many of the numerical expedients in its execution are dubious. Nevertheless, the challenge to economists to produce relevant welfare-oriented measures seems compelling enough to justify some risk-taking. We hope that others will be challenged, or provoked, to tackle the problem with different assumptions, more refined procedures, and better data. We hope also that further investigations will be concerned with the distribution, as well as the mean value, of a measure of economic welfare, an aspect we have not been able to consider.[23]

[22]Variant A deflates both leisure and nonmarket activity by a wage index, and variant C deflates both activities by a consumption deflator.

[23]Nordhaus and Tobin, "Is Growth Obsolete?", p. 26.

SUMMARY

GNP, in general, provides a measure of current production in the United States for which a money income has been received. As a production or income measure, it has been used in forming policy goals for output, employment, and price level changes.

Criticism has been directed against the GNP concept as emphasizing the quantity of goods and services produced while ignoring what is happening to the "quality" of life. Proponents of a new measure to obtain such a quality indicator, or an economic welfare measure, would modify the present national income accounts in several ways. They would subtract from GNP any costs incurred in maintaining clean air and water in the production of goods and services, subtract an estimated cost of urban congestion, subtract expenditures for police and national defense, and include an estimate for the value of nonmarket activities such as household activities and leisure time.

In obtaining their measurement, however, Nordhaus and Tobin have had to resort to a number of crude estimates and rely considerably on their own value judgments concerning the classification of goods and services as consumption or intermediate product. In particular, Nordhaus and Tobin make estimates of many activities, such as household activities, that official national income estimators have avoided because of lack of data. Their judgments concerning what is or is not an intermediate product also play a significant part in this measure. The problem of defining intermediate products is not unique to this measure of consumption, however, as the problem of defining intermediate goods remains an unsettled issue among various national income estimators. For example, Simon Kuznets supports the notion that many governmental services should be treated as intermediate products rather than final products in the national income accounts.

Although the proponents of this new concept refer to it as a measure of welfare, it more accurately provides a broad measure of consumption. A welfare measure would quantify the amount of satisfaction or utility received from consumption and would depend, in part, on the distribution of income. As a measure of consumption, however, the MEW concept attempts to provide an indicator more closely associated with the concept of welfare than that provided by a production measure such as GNP. Unfortunately, in view of the high error content associated with this measure, the proposed MEW concept does little more than break the ice in an attempt to provide an accurate estimate of economic welfare.