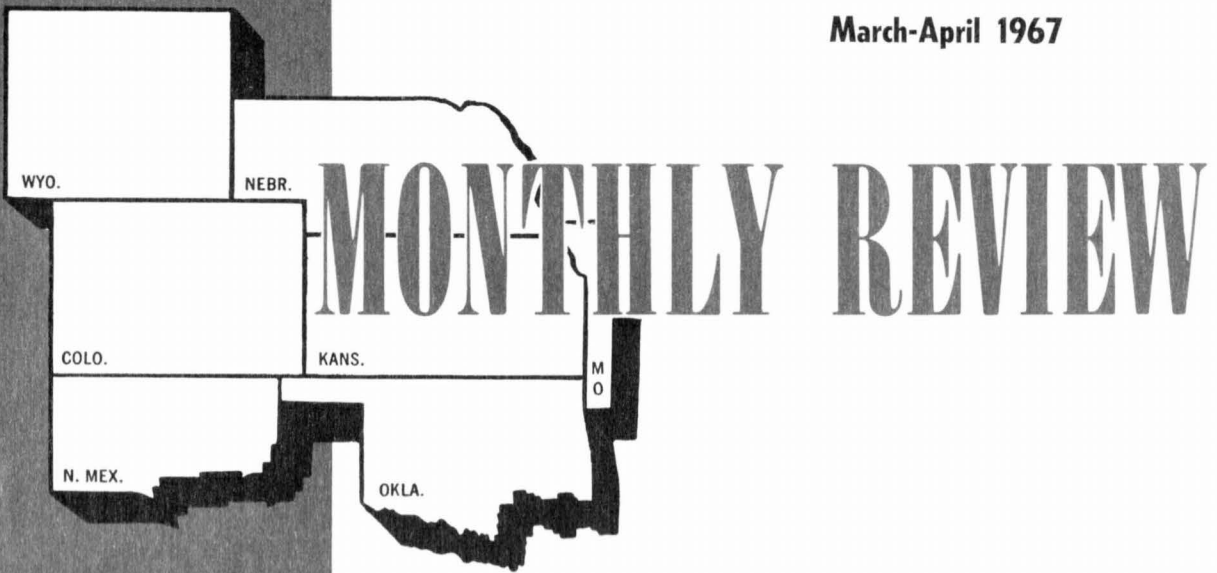


March-April 1967



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The Budget, Fiscal Action, and Short-Run Economic Change: Part 2

By Glenn H. Miller, Jr.

FOR THE STUDY of the impact of Federal fiscal operations on over-all economic activity, the effects of Federal transactions may be separated into two broad classes: income effects and liquidity effects. Income effects may be said to result from current account transactions, wherein Government activities directly affect private aftertax income, which, in turn, is the primary determinant of private spending. At the same time, important relationships exist between asset holdings and current spending, whereby the amount and the composition of asset holdings also influence private effective demand. Certain Federal transactions, through effects on the structure of interest rates and asset prices, may lead to an altered composition of financial assets and liabilities in the private sector and hence to changes in the private ability to spend. These indirect effects on private spending exerted through financial markets may be termed liquidity effects. It often is maintained that the national income and product accounts (NIPA) budget better presents the income effects of Government operations, while the cash budget (which includes Federal financial transactions not present in the NIPA budget) better presents the liquidity effects.

In addition to the exclusion of Federal financial transactions from the national income budget, the use of accrual accounting concepts there, in contrast to the cash basis of the cash

budget, also adds to the income effect versus liquidity effect distinction between the two budgets. In fact, the logic for treating some items on an accrual basis in the NIPA budget rather than on a cash basis "is to differentiate between those forces working through incomes and those forces working through assets and liabilities."¹ It may be concluded that for the study of fiscal impact (narrowly defined as Government operations leading to an income effect on the private sector), and therefore for fiscal policy purposes, the NIPA budget is a superior measure and tool of analysis. But when an analysis of the liquidity effects of Government operations is required, the consolidated cash budget frequently is judged to be more appropriate.

TIMING DIFFERENCES BETWEEN THE NIPA AND CASH BUDGETS

Because of the timing differences in recording receipts and expenditures under the cash and accrual methods of Government accounting, different time patterns for Federal expenditures, receipts, and surpluses or deficits are observed in the quarterly data. Use of quarterly data reveals differences between NIPA and cash budget data, in size and even

¹ Joseph Scherer, "On Measuring Fiscal Policy," *The Journal of Finance*, December 1965, p. 686.

in direction of changes, that may be concealed when only annual data are used.

Recorded budget surpluses or deficits result from the netting of receipts against expenditures, thus differences in timing of surpluses or deficits depend on nonoffsetting timing differences in receipts and expenditures in each of the two budgets. On the basis of the seasonally adjusted data, most of the timing differences are found on the receipts side of the picture. And within the receipts data, corporate profits taxes contribute more to those differences than do personal income taxes and social insurance contributions.

Corporate Income Tax Receipts

Cash payments of corporate net income taxes lag behind the accruals of tax liability. Thus corporate tax receipts in the cash budget (entered on a cash-received basis) lag behind corporate tax receipts in the NIPA budget (entered on an accrual basis). Because this time lag leads to a difference in the time at which corporate tax receipts are recorded in the cash and the NIPA budgets, and hence to a difference in the time patterns of total receipts and of surpluses and deficits, the question arises in short-run economic analysis as to which budget shows the more appropriate time sequence of the impact of Federal fiscal action on the economy. The argument revolves around the question of when the corporation truly feels the "bite" of diverting some of its gross income to the Federal Government in taxes.

The rationale for using an accrual basis in the NIPA budget rests on the assumption that the disposable income of households and businesses is the most important determinant of private spending and hence of over-all economic activity. Thus, the income effect of Federal transactions is best timed by recording the private liability or earning involved when it accrues, since this is the time that the private income stream feels the impact (i.e., it

is the time when the private decisionmaker adjusts his behavior to take account of the change arising from the Federal transaction). Since corporate managements think of income in accrual terms, income tax liabilities are thought of as claims against income at the time they are incurred, even though payment may not be due until later.

Therefore, it seems reasonable to treat the inroads of corporation income taxes into disposable corporate incomes on an accrual basis for fiscal policy analysis.²

This is, of course, the way receipts are treated in the NIPA budget. Hence, the argument goes, since changes in disposable corporate income directly influence business spending and thereby affect total income and output, in order to determine the direct impact of Federal fiscal action on over-all economic activity, one must use a measure that correctly times that impact on private income—namely, the NIPA budget.

As far as the corporation is concerned, the balance sheet item known as tax liability "... represents the Government's share in earnings left in the business for the brief period between accrual and payment."³ Although tax liabilities serve as temporary sources of funds for corporations, corporate managements do not view these tax liabilities as unencumbered funds with which they may do as they please. The lag of tax payments behind accruals is likely to lead corporations to cover their accrued, but unpaid, tax liabilities with short-term liquid assets, such as Treasury tax-anticipation bills or certificates of deposit, thereby indicating that the corporations realize that the tax liability is not disposable income nor a permanent source of funds.

² "Federal Receipts and Expenditures—Alternative Measures," p. 5.

³ Harry A. Guthmann and Herbert E. Dougall, **Corporate Financial Policy** (3d ed.; New York: Prentice-Hall, 1955), p. 455.

The lag between tax liability incurred and payments made gives rise to a set of financial flows, or asset and liability exchanges. Government extends short-term credit in the form of unpaid tax liabilities, then may have to increase its short-term debt to finance its activities until the time taxes are paid. Both of these actions affect the composition of assets and liabilities in the private sector, as does the reversal of the process that occurs when tax payment is made. And these changes are likely to have indirect effects on private spending and, hence, on income and output in the economy.

Those who emphasize the cash budget figures in analyzing the impact of Federal receipts and expenditures on economic activity lean toward the assumption that, in the case of the corporate profits tax, the cash basis approach of the consolidated cash budget better represents economic reality than the accrual approach.

There are good reasons for believing that there is no bite quite so strong as an actual cash payment. This is clearly suggested by the unfavorable response to the proposal to accelerate corporate tax payments to 100 per cent of estimated profits in the year the profits are earned Similarly, the fact that there are always some corporations who borrow from banks at tax date to pay their profits tax also suggests that the reality of the payments bite is significantly greater than the accruals bite.⁴

It is likely that the income effect from incurring a tax liability and the liquidity effect of making a tax payment both have some impact on over-all private economic activity. Perhaps the distinction remains one of differences between direct effects on income and output due to changes in income flows and indirect effects from changes in the composition of assets and liabilities. This argument leads back to the conclusion that an analysis of both the cash budget and the NIPA budget

is necessary for a complete picture of Federal impact on the economy—the one permitting us to view liquidity effects; the other, income effects. For example:

. . . much of the economic impact of corporation income taxes occurs at the time the liability is accrued, rather than when the payment is actually made. This is not to say that the payment flows are irrelevant, for they do withdraw funds from the short-term capital market. Thus, analyses of the investment plans of corporations are carried out better with the accrual concept, but analyses of the trends in the capital markets are better done with a cash concept.⁵

The lag of cash payments of corporate net income taxes behind the accruals of tax liability has lessened considerably as a result of recent tax legislation. Before the 1964 tax law went into effect, the average lag was estimated at about 6 months. However, legislation passed in 1964 and modified in 1966 is bringing corporate tax payments to a more current basis. For the taxable year beginning in 1967 or any subsequent year, the entire amount of the estimated tax due must be paid during the taxable year, according to a schedule of instalment payments that depends on when in the year it becomes evident that the corporation's tax liability is such as to require estimation (i.e., is greater than \$100,000). Even then, however, there will be some timing difference between accrual and payment, since the residual liability will remain to be paid following the end of the taxable year.

THE BUDGET POSITION AND ECONOMIC ACTIVITY

Realized Budget Positions

We have noted that differences between the NIPA and the cash budgets in the timing of surpluses and deficits have occurred primarily

⁴ Scherer, p. 687.

⁵ Otto Eckstein, "On Choice of Concepts for the Federal Budget," *The Review of Economics and Statistics*, Vol. XLV, No. 2 (May 1963), p. 127.

because of differences in the timing of receipts (due in turn largely to the accrual versus cash treatment of corporate profits tax receipts). Now let us return to a consideration of the impact of Federal Government operations on over-all economic activity as measured by budget deficits and surpluses. In Chart 3 of Part I of this article, the actual budget surpluses or deficits for calendar year quarters are presented according to both the cash budget and the national income budget. For a given period, or point in time, a Federal budget deficit is often regarded as an expansionary influence on the economy; a surplus, as a restrictive influence. Based on this simple, somewhat mechanistic, view—sometimes called a cross section approach—the influence of Federal fiscal action in the current upswing appears more expansionary when measured by the cash budget—in surplus 2 quarters, in deficit 21 quarters—than when measured by the NIPA budget, which was in surplus 8 quarters and in deficit 15 quarters.

But economic analysis is at least as much concerned with changes in the level of economic activity as with the level of activity at a particular point in time. And when viewing changes over time—that is, when comparing one period with another—a consideration of changes in the budget position between periods may improve the analysis of the changing influence of Federal fiscal action. Introduction of the time dimension suggests that the budget may exert an expansionary influence through an increase in the size of a deficit or through a decrease in the size of a surplus; and it may exert a restrictive influence through a decrease in the size of a deficit or through an increase in the size of a surplus. The first of these may be termed a movement toward deficit; the second, a movement toward surplus.

An example of the use of the change in budget position over time as a measure of the Federal impact on the economy is found in

what has been characterized as the short and incomplete recovery of 1958-60. One part of the explanation of the brevity and incompleteness of that recovery rests on the restrictive effects on economic activity of the sharp turnaround in Federal finances. The recovery period lasted from the cyclical trough in April 1958 to the cyclical peak in May 1960. Within that period, the Federal budget position changed on a NIPA budget basis from a deficit of \$12.4 billion in the second quarter of 1958 to a surplus of \$7.1 billion in the first quarter of 1960. On a cash budget basis, there was a change from a deficit of \$15.2 billion in the first quarter of 1959 to a surplus of \$4.3 billion in the second quarter of 1960. (All figures are on a seasonally adjusted annual rate basis.) Thus, the NIPA budget position moved just slightly less than \$20 billion in a restrictive direction over 7 quarters, while the cash budget changed nearly \$20 billion in a restrictive direction over 5 quarters.

Nothing quite so dramatic is observable in the data on changes in the Federal budget position for the period since 1961 (Chart 6). Of the 22 quarterly changes in the period, the Government's cash budget position, as shown by the actual surpluses or deficits recorded, changed toward surplus eleven times, moved toward deficit ten times, and showed no change once. The NIPA budget's surplus/deficit position has shown quarter-to-quarter changes toward surplus fourteen times and toward deficit eight times since the first quarter of 1961.

The over-all trend from 1961-I to 1966-III in the Federal budget position on a national income accounts basis was clearly toward surplus. That is, the Federal budget on a NIPA basis apparently has tended to become more restrictive as the expansion has continued. The over-all movement of the cash budget position also shows some slight tendency toward an apparently more restrictive influence, especially from 1961-I to 1965-II.

The direction of movement since mid-1965 is less clear, however. The wide quarterly swings in 1966 apparently reflect the acceleration of corporate tax payments, along with certain other adjustments in tax receipts. This suggests a change in the seasonal pattern of cash receipts which has not yet been taken into account in the seasonal adjustment of the data.

Full-Employment Budget Surplus

Although the analysis of the economic impact of the budget may be improved by regarding the changes in the realized surplus/deficit position over time, this standard is still not sufficient for complete understanding. The reason for rejecting actual observed sur-

pluses or deficits as sufficient indicators of the impact on the economy of Government operations may be expressed rather simply. Not only does the budget affect the economy, but actual budget positions are themselves in turn affected by the behavior of the economy. That is, for any given budget structure (a particular set of tax and expenditure programs) the actual size of the budget surplus (or deficit) depends on the level of total economic activity.

Thus, for any particular year, an economy operating at full employment may give a budget surplus, while the same economy operating at 6 per cent unemployment, with the same expenditure and tax programs, will probably show a sizable budget deficit.⁶

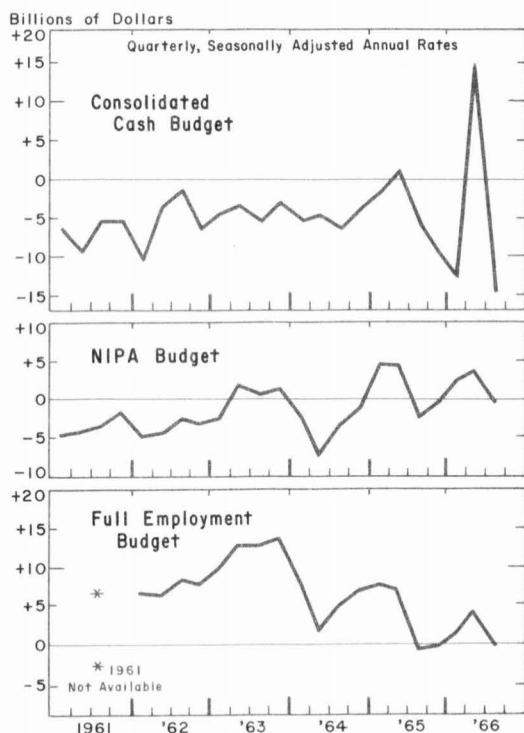
This implies, of course, that budget deficits of the same size may mean different things about the impact of Federal fiscal action in different situations, depending on the levels of economic activity involved and on the budget structures underlying the Government operations.

Thus, a large budget deficit which appears to be very expansionary may, in fact, be merely the end result of a highly restrictive budget structure which depresses both economic activity and Government revenues.⁷

But how then is it possible to determine how restrictive a given budget structure really is? This is where the concept of the full-employment budget surplus enters the picture.

Since tax revenues and some expenditures depend on the level of economic activity, there is a whole range of possible surpluses and deficits associated with a given budget program. The particular surplus or deficit

Chart 6
FEDERAL SURPLUS AND DEFICIT, 1961-66



SOURCE: U. S. Treasury Department, *Treasury Bulletin*; U. S. Department of Commerce, *Survey of Current Business*; and Federal Reserve Bank of St. Louis, *Federal Budget Trends*.

⁶ Joseph Scherer, "A Primer on Federal Budgets," *Monthly Review*, Federal Reserve Bank of New York, April 1965, pp. 87-88.

⁷ "Supplementary Statement by Michael E. Levy" in U. S., Congress, *The Federal Budget as an Economic Document*, Hearings before the Subcommittee on Economic Statistics of the Joint Economic Committee, 88th Cong., 1st Sess., 1963, p. 230.

in fact realized will depend on the level of economic activity.⁸

Therefore the realized budget surplus or deficit cannot be taken as an accurate measure of the amount of fiscal stimulus being provided. In order to distinguish between the influence of discretionary Federal actions on the economy and the response of Government revenues and expenditures to over-all economic activity, the size of the surplus (or deficit) for a particular budget program is estimated at a fixed level of economic activity—the full-employment level.

The full-employment budget surplus is an estimate of the budget outcome for any given budget structure, assuming that the economy is at full employment. . . . By estimating the net surplus or deficit of different budget structures for the assumed full-employment level of activity for any year, it is possible to measure the relative restrictiveness of these different structures, i.e., the budget structure with higher full-employment surplus is taken to be more restrictive than budgets with smaller surpluses (or deficits).⁹

The analytical background for the foregoing concise explanation of the measure and its use may be outlined as follows. The correct position for a stabilizing Federal budget is one that, at full employment, provides a large enough surplus (i.e., enough Government saving) to exactly offset the difference between private investment and private saving. If the full-employment budget surplus is greater than that amount, aggregate saving in the economy will be too large and total economic activity will be depressed (perhaps enough so to lead to an *actual* budget deficit). If the full-employment budget surplus is too small (i.e., less than an amount that exactly

offsets the difference between private investment and private saving), aggregate saving in the economy will be too small (given the amount of private investment) and total economic activity will be increasingly stimulated (perhaps to the extent that inflationary pressures will develop). The important point here is that the relevant analysis is full-employment analysis. This means that the budget position *at a noninflationary, full-employment level of economic activity*—not the actual surplus or deficit, or changes therein—is the focal point for analysis of the impact of Government operations on economic activity.

Since the size of the full-employment surplus appropriate for achieving the goal of full employment with stable prices is an amount just equal to the excess of private investment over private saving, deviation from this amount of full-employment surplus will have either expansionary or restrictive effects on over-all economic activity.

The full employment surplus is a measure of the restrictive or expansionary impact of a budget program on over-all demand. Generally speaking, one budget program is more expansionary than another if it has a smaller full employment surplus. . . .

If the full employment surplus is too large, relative to the strength of private demand, economic activity falls short of potential. Correspondingly, the budget surplus actually realized falls short of the full employment surplus; indeed, a deficit may occur. If the full employment surplus is too small, total demand exceeds the capacity of the economy and causes inflation.¹⁰

The following example may help to clarify the point. Full-employment income would yield a certain estimated amount of revenue at given tax rates. This revenue, along with existing spending programs, would give a particular surplus, say, \$20 billion. Hence, with national income at its full-employment level, the Government would be withdrawing

⁸ **Economic Report of the President** (Washington: U. S. Government Printing Office, 1962), p. 79.

⁹ Scherer, "A Primer on Federal Budgets," p. 88. The full-employment surplus discussion is focused on the income effects of Federal fiscal action and is carried on within the context of NIPA budget concepts.

¹⁰ **Economic Report of the President**, 1962, pp. 80-81.

\$20 billion more from the economy than it would be putting back in expenditures. With such a Federal budget surplus, full employment could be reached only with very strong private demand. If private demand were not strong enough to purchase the output of a full-employment economy, then income would not reach its full-employment level, and tax receipts would not be large enough to provide an *actual* \$20 billion budget surplus. With too large a surplus at full employment implicit in the budget, income would be below its full-employment level, and tax receipts would be below their projected level, as would the budget surplus. In short, the tax rates and expenditure programs making up the budget structure would be inconsistent with the achievement of full employment.

Emphasis on the significance of Federal fiscal action, in achieving the goal of full employment with stable prices, should not be allowed to obscure the importance of the relationship of the budget structure to private demand. The goal of a stabilizing budget policy is, after all, to offset destabilizing movements in the private sector. This remains true when attention is shifted from the actual budget position to the full-employment budget surplus. The proper size of the full-employment surplus will differ from time to time as underlying private demand varies. When private demand is exceptionally strong, a relatively large full-employment surplus is likely to be consistent with full employment and no inflation, while very weak private demand might require a relatively small full-employment surplus—and perhaps even a deficit. In the words of the Council of Economic Advisers:

The appropriate size of the surplus or deficit in the full-employment budget depends on the strength of private demand and its responsiveness to fiscal policy. The budget must counterbalance private demand. The weaker the underlying determinants of private demand, the more expan-

sionary the budget should be; the stronger the determinants, the more restraining the budget should be.¹¹

Budget policy is not the only Government policy that affects the private economy and the behavior of over-all economic activity. Monetary policy also has an important influence on private demand, and differences in monetary policy therefore may influence the appropriate size of the full-employment surplus. An expansionary monetary policy that strengthens private demand permits a larger full-employment surplus than a more restrictive monetary policy that weakens private demand. (“The tighter the monetary policy, the smaller the budget surplus consistent with full employment, and vice versa.”)¹² Thus, when other policy variables, and other factors such as the distribution of income, are brought into the picture, it becomes evident that a number of different sizes of the full-employment surplus may be consistent with one level of full-employment income.

Finally, it should be noted that, with an unchanged budget structure (i.e., with unchanged tax rates and expenditure programs), the amount of the full-employment surplus itself will increase over time as GNP grows. As full-employment GNP grows, tax revenues yielded by a given set of tax rates also will grow, as will the budget surplus with no change in spending programs. An unchanged full-employment surplus is not an indication that no discretionary fiscal action has been taken. In fact, discretionary action, in the form of increased spending or reduced tax rates, is necessary to hold constant the amount of the full-employment surplus.

Just as in the case of the actual budget surplus/deficit position, either a cross section

¹¹ *Economic Report of the President*, 1964, p. 42.

¹² Charles L. Schultze in U. S., Congress, *Current Economic Situation and Short-Run Outlook*, Hearings before the Joint Economic Committee, 86th Cong., 2d Sess., 1960, pp. 120-121.

or a time series approach may be adopted with regard to the question of the impact of the full-employment surplus.

At any given time, the larger the surplus at full employment, the more restrictive is fiscal policy; changes in the full-employment surplus or deficit indicate whether fiscal policy has, on balance, moved in an expansionary or a restrictive direction.¹³

In Chart 6, a decline over the course of the present expansion in the size of the full-employment surplus is exhibited, coincidental with the tendency toward surplus of the actual NIPA surplus/deficit position. Thus, fiscal policy appears to have had an increasingly restrictive effect when measured by the movement of the realized surplus, but a decidedly expansionary effect when measured by the trend of the full-employment surplus. This is another example of the seeming paradox identified by Solomon "as to whether the budget becomes more or less restrictive when the full-employment and actual surplus or deficits move in opposite directions."¹⁴ He observed such a pattern for calendar 1961 and noted the necessity of reconciling two conflicting observations: actual budget results which apparently were increasingly restrictive, and a declining full-employment surplus which suggested that fiscal policy was becoming more expansionary.

As Solomon concluded (and as implied earlier in this article), the answer to the paradox is "that the realized budget results [are]

misleading as an indicator of the influence of fiscal policy . . . since the realized budget reflects the economy's influence on the budget as well as the budget's influence on the economy." A nondiscretionary movement toward deficit, as a response to lower rates of economic activity, should not be regarded as stimulating aggregate demand.

On the other hand, a reduction in the full employment surplus must reflect either a discretionary increase in expenditures or a lowering of tax rates. Either of these actions does tend directly to increase aggregate demand.¹⁵

The full-employment budget surplus is a superior instrument for analyzing the impact of fiscal action on aggregate demand.

The movement toward surplus in the realized NIPA budget position from 1961 to 1966 reflects primarily the impact on the budget of rising levels of economic activity. The movement over the period of the full-employment surplus toward smaller surpluses reflects, on the other hand, the discretionary changes that occurred in the budget program. Chief among these discretionary changes were major reductions in personal and corporate income tax rates, as well as lesser reductions in excise taxes, and a major increase in expenditure programs due primarily to greater outlays for the war in Vietnam. These Federal actions reduced the size of the full-employment surplus and had strong expansionary effects on economic activity, thus fostering vigorous income growth which, in turn, led to larger realized budget surpluses.

¹³ *Economic Report of the President*, 1965, p. 63.

¹⁴ Robert Solomon, "The Full Employment Budget Surplus as an Analytical Concept," *American Statistical Association, Proceedings of the Business and Economics Section*, 1962, p. 110.

¹⁵ *Ibid.*, p. 111.

A Look at Some Measures of Inflation

By Sheldon W. Stahl

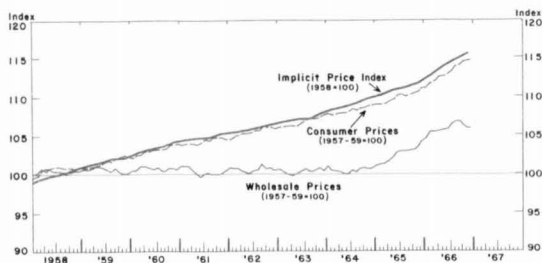
INFLATION is a term which has been, and continues to be, subject to a variety of interpretations. Even a casual observer of the current economic advance since it got underway early in 1961 would have seen or heard numerous references made to one or another kind of inflation. A considerable segment of the literature devoted to an appraisal of the economic outlook stresses the danger of growing "cost-push" inflation as a consequence of diminished productivity gains combined with aggressive wage demands. Coming at a time when the forward pace of the economy has slowed perceptibly, this is in contrast to "demand-pull" inflationary pressures generated when the level of aggregate demand exceeds the real output capabilities of the economy. However, in both instances the causative dimensions of inflation, rather than inflation itself, have been described. Inflation is the result of demand and/or cost pressures which force the general level of prices to rise. It is inflation in this latter sense—price inflation—that is the focal point of concern in this article.

To be sure, while a rise in the general level of prices is necessary to define the existence of inflation, it is not necessarily a sufficient condition to identify or label inflation. Not

even the pervasiveness of price increases should, at all times, warrant concern that every upward movement in the price level is evidence of inflation. For example, it is not uncommon for widespread price increases to occur during the recovery phase of a business cycle. However, the mere reversal of earlier cyclical price declines is not generally thought of as a manifestation of inflation. The current economic advance witnessed substantial increases in the prices of certain nonferrous metals, livestock, hides, and skins. In each of these instances, the increases were of sufficient magnitude to yield a rise in the general level of prices, yet the forces which triggered these price increases stemmed from limitations on supply or strong export demand which frequently were unrelated to cyclical factors or to the prevailing level of economic activity.

Despite these precautionary remarks regarding judgments on the presence or absence of inflation, there is some basis for concern over the problem of inflation. The recovery phase of this expansion is far behind and the current economic advance has entered its seventh year. Resource utilization rates are at relatively high levels and the general rise in prices which occurred in 1966 cannot be dismissed simply as

Chart 1
MAJOR MEASURES OF PRICE CHANGE



SOURCE: U. S. Department of Labor, Bureau of Labor Statistics; and U. S. Department of Commerce.

an aberration. This concern was expressed in the 1967 *Economic Report of the President*¹ which stressed the importance of restoring price stability through such means as prudent fiscal and monetary policies, by governmental action to relieve key pressure points on prices, and by responsible action on the part of both business and labor in arriving at wage and price decisions.

The courses of action noted above are an integral part of what may be termed economic policy. Such policy—private or public—depends for its success upon the quality, comprehensiveness, and timeliness of the data used in its formulation. In attempting to deal with inflation, perhaps no series of data are of greater importance than the indexes used to measure price changes and price trends. Probably the three major indexes used for this purpose are the Consumer Price Index (CPI), the Wholesale Price Index (WPI), and the Implicit Price Index (IPI)—also known as the Gross National Product Deflator.

Chart 1 traces the course of these indexes from 1958 through 1966. It can be seen that the evidence of inflation—at least from 1958 through 1964—is far from uniform, while developments during 1965 and 1966 still leave a number of questions regarding inflation un-

resolved. The behavior of the WPI during the 1958-64 period would provide very little corroboration for the charge of inflation; however, both the CPI and IPI were marked by persistent rises throughout those 7 years. Thus, the relevant evidence of inflation for this period would depend on the particular index chosen—even if one ignored the matter of what rate of annual price increase constituted inflation.

Table 1 quantifies the index changes shown in Chart 1 and, additionally, separates the 1958-66 period into two subperiods. During 1958-64, the WPI advanced only .1 per cent, and the index actually recorded declines in 1961 and 1963. In contrast, the CPI and IPI showed aggregate increases of 7.3 per cent and 8.9 per cent, respectively. The average annual increase in the CPI was 1.2 per cent, while the IPI rose at an average rate of 1.4 per cent. For the period 1964-66, however, all three indexes not only moved in the same direction, but the WPI outpaced both the CPI and the IPI. The aggregate gain in wholesale prices was 5.3 per cent, versus 4.6 per cent and 4.9 per cent, respectively, for the other two indexes. During this same period, the annual rate of increase in consumer prices

Table 1
MAJOR PRICE INDEX CHANGES, 1958-66

	Consumer Price Index (All Items)		Wholesale Price Index (All Commodities)		Implicit Price Index (For Total GNP)	
	1957-59=100	Year-to-Year Change (Per Cent)	1957-59=100	Year-to-Year Change (Per Cent)	1958=100	Year-to-Year Change (Per Cent)
1958.....	100.7	100.4	100.0
1959.....	101.5	0.8	100.6	0.2	101.6	1.6
1960.....	103.1	1.6	100.7	0.1	103.3	1.7
1961.....	104.2	1.1	100.3	-0.4	104.6	1.3
1962.....	105.4	1.2	100.6	0.3	105.8	1.1
1963.....	106.7	1.2	100.3	-0.3	107.2	1.3
1964.....	108.1	1.3	100.5	0.2	108.9	1.6
1965.....	109.9	1.7	102.5	2.0	110.9	1.8
1966.....	113.1	2.9	105.8 ^p	3.2	114.2	3.0
Percentage Change:						
1958-66.....	12.3*	1.5†	5.4*	0.7†	14.2*	1.7†
1958-64.....	7.3	1.2†	0.1	†	8.9	1.4†
1964-66.....	4.6	2.3†	5.3	2.6†	4.9	2.4†

^p Preliminary.

*Components may not add to total due to rounding.

†Average annual rate.

‡Less than .5 per cent.

SOURCE: U. S. Department of Labor, Bureau of Labor Statistics; and U. S. Department of Commerce.

¹ *Economic Report of the President* (Washington: U. S. Government Printing Office, 1967).

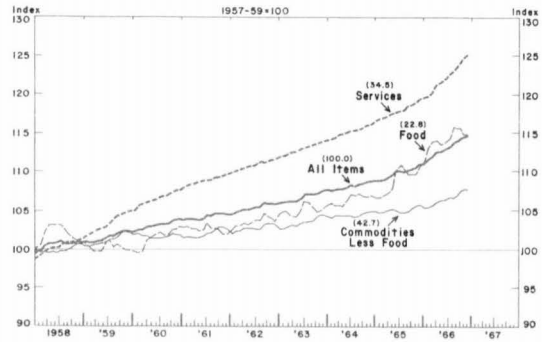
doubled and that of the IPI increased by about two thirds.

In face of the nearly parallel over-all performance by the three major price indexes in 1965 and 1966, it might seem moot to consider the question of whether the United States recently has been subjected to price inflation. However, the matter of which index best measures inflation still would remain unresolved, even if there were general agreement on the notion that upward movements in all three major indexes are indicative of inflation. Public or private economic policy decisions made during the period 1958-64, for example, might vary depending upon whether the measure used to gauge price changes was the WPI (which showed no trend) or either the CPI or the IPI (both of which exhibited persistent annual increases averaging from 1 to 1.5 per cent, respectively). Similarly, policy actions or prescriptions during 1965 and 1966 also might differ if one attached greater significance to the dramatic advance in the level of wholesale prices following many years of no change, rather than to the acceleration in the rate of price advance which was evidenced in both the CPI and IPI. In this important matter of formulating policy to cope with inflation, the key role of the major price indexes should be evident. Nonetheless, the appropriate interpretation of the signals given by them must rest on an understanding of precisely what is, or is not, being measured by each of the indexes, as well as on the collateral issue of the usefulness or validity of the various measures of price change in attempting to gauge the incidence of inflation. In the following analysis, the three major price indexes will be examined more closely, in order to better appraise them as measures of inflation.

THE CONSUMER PRICE INDEX

The Consumer Price Index or, as it is officially called, the Consumer Price Index for

Chart 2
CONSUMER PRICES



SOURCE: U. S. Department of Labor, Bureau of Labor Statistics.

Urban Wage Earners and Clerical Workers, is a statistical measure of changes in prices of goods and services purchased by urban wage earners and clerical workers, including families and, since the January 1964 revision, single persons living alone. The coverage of the index, according to the Bureau of Labor Statistics (BLS), includes:

... prices of everything people buy for living—food, clothing, automobiles, homes, house-furnishings, household supplies, fuel, drugs, and recreational goods; fees to doctors, lawyers, beauty shops; rent, repair costs, transportation fares, public utility rates, etc. It deals with prices actually charged to consumers, including sales and excise taxes. It also includes real estate taxes on owned homes, but it does not include income or personal property taxes.²

To be sure, the above list is not all-inclusive, as the "market basket" used for pricing purposes since January 1964 contains nearly 400 items. Nonetheless, it does help to give a reasonably good idea of the wide range of goods and services which are included in the calculation of the over-all index. Chart 2 shows the performance of the over-all CPI and major

² U. S. Department of Labor, Bureau of Labor Statistics, **The Consumer Price Index** (Revised January 1964), (Washington: U. S. Government Printing Office, September 1964), p. 1.

A Look at Some

groupings (relative weights shown in parentheses) during the period 1958-66.

The CPI probably is the most familiar of the three major price indexes discussed in this article. Its lineage may be traced to World War I, when it was referred to as the Cost-of-Living Index, a term which still is frequently, although erroneously, applied to the CPI. Initially formulated as an aid in wage negotiations, the index has undergone a series of revisions, the most recent occurring in 1964, as noted above. The revisions have encompassed the goods and services priced in the index, the list of survey cities used, as well as the weights assigned to the various index components. Emphasis has shifted over time, as a basis for assigning weights, from the expenditures of wage-earner families to the outlays of middle-income wage and salary workers.

As indicated earlier, the CPI was initially used to aid in wage negotiations. It still is used extensively in collective bargaining negotiations—especially during periods of rising prices. Currently, frequent references are made by labor to the recent advances in the CPI as justification for seeking wage increases in 1967 in excess of the 3.2 per cent rate suggested earlier by the wage-price guideposts. Automatic wage adjustments, based on specified percentage changes in the CPI, have been incorporated into many labor-management contracts—so-called cost-of-living escalator clauses. Other long-term contracts, such as leases, utilize the rent component of the CPI as part of an escalator clause for adjustment purposes. Other uses of the index include measuring changes in the purchasing power of the dollar in order to adjust the level of pensions, welfare payments, royalties, etc. The CPI is used to convert money wages into “real” wages to gauge the degree to which labor is sharing in improved living levels. Many of the components of the CPI are used in the construction of the IPI. Additionally,

the CPI probably is used by the public more than either the WPI or the IPI as a measure of inflation or deflation in the economy.

The CPI, like all indexes, measures price changes from a designated base reference period. Since 1962, the base period has been 1957-59 equals 100. Thus, an index level of 113 means that prices have risen by 13 per cent from the base period. Conversely, an index level of less than 100 would mean that prices have fallen. It is important to remember, however, that what is being measured is the change in the amount of money required as prices change—with all other things, such as income, being held constant—to buy a fixed combination of goods and services (the market basket). The market basket is regarded as being representative of all goods and services purchased by consumers in the particular period used to derive both index weights and pricing samples. The fact that the market basket of the base period is held fixed, until the next weight revision, means that the CPI maintains the pattern of expenditures of the base period in measuring subsequent price changes. This sort of index makes no allowance between weight revisions for the adjustment or alteration of spending patterns by consumers so as to maximize the purchasing power of their incomes as prices change. However, in a true cost-of-living index, the level of living, welfare, or utility would be held constant, while the consumer would be permitted to alter his pattern of expenditures (the market basket would no longer be fixed) as prices changed. For this reason, despite the fact that the CPI measures changes in many of the key items which enter the cost of living, it is not a cost-of-living index *per se*.

From the standpoint of practicality, it is not reasonable to expect a monthly index, such as the CPI, to serve as a measure of changes in the cost of living. However, in order to make the index more representative of shifting patterns of consumer expenditures, the

Table 2
RELATIVE IMPORTANCE OF
CONSUMER PRICE INDEX MAJOR
GROUPS, SELECTED PERIODS OF
EXPENDITURES STUDIES

	1917-19	1934-36	December 1952	December 1963
	(In per cent)			
All Items	100.0	100.0	100.0	100.0
Food	40.7	33.5	29.6	22.4
Housing	26.6	32.0	32.5	33.2
Apparel	17.7	10.6	9.2	10.6
Transportation	3.1	8.3	11.3	13.9
Medical care	4.7	3.9	5.1	5.7
Personal care	1.0	2.0	2.0	2.8
Reading and recreation	3.7	5.9	5.3	5.9
Other goods and services	2.5	3.8	5.0	5.4

SOURCE: Table II-1 in "Inflation and Price Indexes," **Materials Submitted to the Subcommittee on Economic Statistics of the Joint Economic Committee, Congress of the United States** (Washington, U. S. Government Printing Office), July 1966, p. 18.

BLS utilizes the results of consumer expenditures studies to periodically change the relative importance of the major components of the CPI. Such changes are shown in Table 2. At such times, changes in the index would, of course, more closely reflect changes in the cost of living. The lengthy intervals between such revisions, however, mean that the farther away one moves from the revision date, the less will price changes, as measured by the CPI, reflect actual changes in the cost of living.

The data in Table 2 largely reflect the influence of rising income levels over time on spending patterns. The dramatic decline in the proportion of total income expended on food, and the relative stability of spending on clothing and housing, stands in sharp contrast with the marked rise in the proportions of what may be termed discretionary spending on the other groups shown in Table 2. In addition, each of the groups has been marked by changes, in varying degrees, in the kinds of goods and services priced by the index, with the addition of new products and/or the replacement of older ones. The current market basket undoubtedly represents a higher level of living than formerly. In the light of these developments, it becomes quite diffi-

cult to assess the over-all inflationary implications of increases in the CPI over time. It may be worth reflecting further on the suggestion advanced in 1961 by the National Bureau of Economic Research Price Statistics Review Committee that "... it is quite possible that the cost of maintaining a fixed standard of living has fallen despite the fact that the price of a fixed market basket has risen."³

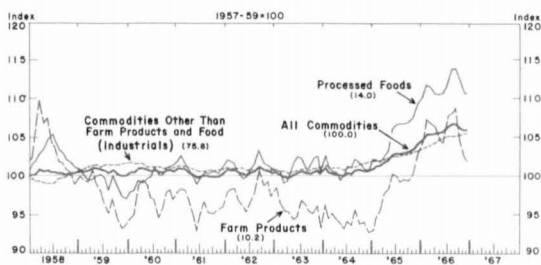
THE WHOLESALE PRICE INDEX

The purpose of the WPI is to measure average price changes in commodities sold in primary markets of the United States. The base reference period, as in the case of the CPI, is 1957-59 = 100. The WPI, or its components, is used for a variety of purposes, including economic forecasting and the escalation or scaling down of long-term industrial purchase and sales contracts, in much the same way as the CPI is used in making cost-of-living adjustments. Again, as was true of the CPI, components of the WPI are used in estimating the IPI.

The BLS has compiled an index of wholesale prices dating back to 1890. It should be noted that the term "wholesale," as used in the title of the index, does not refer to prices received by jobbers, wholesalers, or distributors, but simply to sales in quantities. The coverage of the WPI does not include price movements of retail transactions or transactions for services (except gas and electricity), construction, real estate, transportation, or securities. Similarly, the prices of products entering into international trade are excluded from the WPI. Chart 3 shows the performance of the over-all WPI and the major commodity groups (relative weights shown in parentheses) during the period 1958-66.

³ U. S., Congress, Joint Economic Committee, **Government Price Statistics, Hearings . . . January 24, 1961**, 87th Cong., 1st Sess., 1961, p. 51.

Chart 3
WHOLESALE PRICES



SOURCE: U. S. Department of Labor, Bureau of Labor Statistics.

According to the BLS, the prices used in the construction of the WPI:

... are those which apply as nearly as possible to the first significant commercial transaction in the United States. Later transactions for the same item at other stages in the distribution cycle are not included. However, as raw materials are transformed into semifinished and finished goods, the resulting products are represented according to their importance in primary markets.⁴

The price quotations used in compiling the WPI are obtained from respondents by mail. It is important to note that the prices received by the BLS are from the sellers of goods, not the buyers. Although the sellers are requested to provide actual prices charged to their customers, including all discounts from list prices, the response has not been uniform and the BLS, at times, receives only list prices. At times, when list prices and transaction prices tend to diverge, the WPI fails to reflect the actual price changes which occur. To the extent that this kind of bias is symmetrical in periods of both rising and falling price levels, it would tend to cancel out over time. However, at critical phases of a business cycle, the short-term sensitivity of the WPI to actual price changes may be less than desired.

⁴ **Wholesale Prices and Price Indexes, 1963**, U. S. Department of Labor, Bureau of Labor Statistics, Bulletin No. 1513 (Washington: U. S. Government Printing Office, June 1966), p. 9.

The WPI has gone through several comprehensive revisions since 1890. The weights used in the index are revised at approximately 5-year intervals, as data from industrial censuses become available. Coverage of the index has grown from less than 200 commodities in 1890 to nearly 2,200 in 1960. Table 3 illustrates this extended coverage and also shows very clearly the marked changes in the relative importance of the major commodity groups over a 70-year period. The relative weight changes shown reflect the transition of the economy from a largely rural and agrarian society into a much more urban and highly industrialized society.

The growing importance of industrial prices in the WPI probably has served to make the index more stable, since industrial prices tend to fluctuate less widely than those of either farm products or processed foods. Nonetheless, the element of duplication in the WPI, owing to the inclusion of products at different stages of production, can result in a dramatic impact on the entire index, when the price of a key item changes. A notable example of this is the decline in the supply of livestock in 1965, which triggered off substantial increases in the prices of farm products, processed foods, and hides and skins. Yet, this same element of duplication has its merits, since price increases can be traced through successive stages of production—from the raw material to the finished product. By providing evidence of the pervasiveness of price increases at differing points in the production process,

Table 3
RELATIVE IMPORTANCE OF COMMODITIES IN THE WHOLESALE PRICE INDEX AND NUMBER OF COMMODITIES AT SELECTED DATES

	1890	1918	1929	1947	1960
	(In per cent)				
All commodities	100.00	100.00	100.00	100.00	100.00
Farm products	29.04	27.11	19.01	14.59	10.59
Processed foods	25.54	25.80	18.36	15.87	14.04
Nonfarm, nonfood (industrial)	45.42	47.09	62.63	69.54	75.37
Number of commodities	199	534	784	1,819	2,161

SOURCE: U. S. Department of Labor, Bureau of Labor Statistics.

the behavior of the components of the WPI may be of help in assessing more correctly the movements in the over-all index. Because the WPI tends to reflect price pressures at the earliest stages of the production-distribution process, it may well be the best indicator of future price trends in the over-all economy.

THE IMPLICIT PRICE INDEX

The Implicit Price Index is the newest, and probably the least familiar, of the three major indexes discussed in this article. It was first published in 1951 and is compiled and published quarterly by the Office of Business Economics (OBE) of the U. S. Department of Commerce, using the reference base 1958 = 100. It is the most comprehensive of the three major price indexes, in that it attempts to measure the general price level of all final goods and services produced by the economy during a given period. However, the IPI is not derived by means of direct price collection, as is the case with the CPI and the WPI. That is, in its efforts to determine the level of real (constant dollar) GNP, the OBE generates the IPI as a byproduct. It is derived by taking the ratio between current dollar gross national product (GNP) and constant dollar GNP and multiplying it by 100.

It should be pointed out that current dollar GNP may increase, either as a consequence of an increase in the physical volume of goods and services produced or merely through an increase in prices with no change in physical production. The determination of the real growth in output involves removing the effect of price increases by use of deflation procedures. The OBE deflation process entails dividing the current dollar value of each component of GNP by some appropriate price index and summing the deflated components to arrive at the level of real GNP. When the deflated GNP data are divided into the current dollar GNP figure, the resulting ratio represents an implied average price relationship.

Table 4

RELATIVE IMPORTANCE OF PRICE DEFLATORS FOR TOTAL GROSS NATIONAL PRODUCT IN THE IMPLICIT PRICE INDEX

Per Cent Importance in Terms of Base Year (1958) Weights of:

Implicit Price Deflator	BLS		USDA		Implicit Prices	Earnings Indexes†
	Consumer Prices	Wholesale Prices	Agricultural Prices	Other Prices*		
100.0	45.6	12.3	6.8	13.5	9.3	12.5

*Other prices refer to price data collected by Government agencies other than the BLS and USDA and by private organizations.

†Includes implicit earnings indexes for Government compensation.

SOURCE: U. S. Department of Commerce, Office of Business Economics.

Both the CPI and the WPI are fixed weight indexes in which the expenditure weights and the contents of the respective market baskets being priced are fixed between revision dates. The theoretical design of these indexes is such that price changes of the same, or essentially similar, items can be measured directly over time. The IPI, on the other hand, is not a fixed weight index. The weights used in estimating the IPI are the proportions in which the different components of GNP are entered in the national income accounts from year to year. Any change in the yearly pattern of spending on the components of GNP automatically will result in a change in weights. Thus, because the IPI cannot directly measure price changes when the composition of output changes, the quality of the index rests heavily upon the choice or appropriateness of the various price deflators employed in estimating real GNP.

Table 4 shows the relative importance of the six different classes of price and wage data used to deflate total GNP. The components of the CPI and the WPI account for nearly 60 per cent of all GNP deflators used in the IPI. Thus, much of the accuracy of the IPI rests upon two measures of price change which are, themselves, subject to qualifications in their use. With the added exception of

agricultural prices, which are collected by the U. S. Department of Agriculture (USDA), the remaining deflators in Table 4 are supplied either by Government agencies other than the BLS and the USDA, by private organizations, or are arrived at indirectly. In this connection, one of the major criticisms of the IPI involves the use of price deflators in the private sector which are not strictly comparable—and, therefore, unsuitable—to the dollar totals to which they are applied. The failure to allow for increases in output per man-hour in deflating the construction sector and Government services also has been cited by many observers as a prime factor which introduces a significant element of distortion into the IPI, and thereby overstates the magnitude of price inflation and understates the increase in real GNP. It can be seen, then, that the method of computing the IPI compounds the probabilities of error or bias which are an inherent part of the construction of any price index.

A FINAL NOTE

Price statistics are an important component of our total body of economic knowledge. In conjunction with other kinds of economic intelligence, they play a key role, not only in the evaluation of the performance of the economy but, additionally, in the formulation of public and private economic policy. The three price indexes discussed in this article frequently are relied on as measures of inflation. Each of them can help shed some added light on that complex phenomenon. Their usefulness in this capacity is directly related to a better understanding of what they measure, as well as a recognition of their limitations. The growing burden of public and private policy formulation being placed upon measures of price change indicates the increasing need for more and better price statistics, and a correspondingly greater effort at understanding and interpreting their meaning.

