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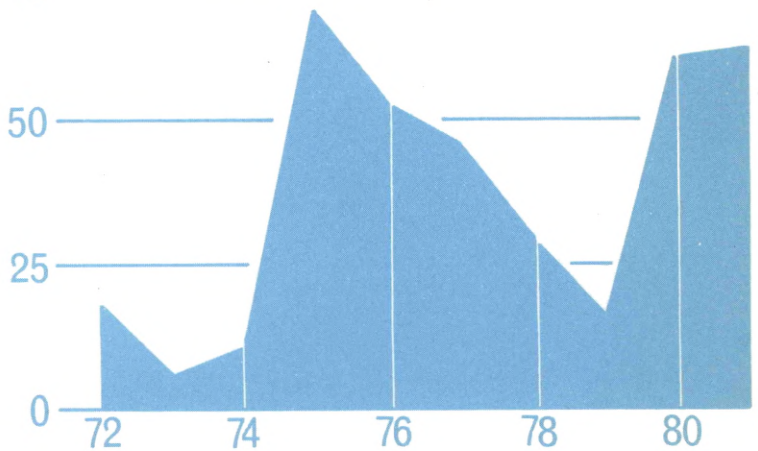125

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Federal Deficits: A Faulty Gauge
of Government's Impact
on Financial Markets

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Health Care:
Getting the Right Amount
at the Right Price

**FEDERAL DEFICITS:
A FAULTY GAUGE
OF GOVERNMENT'S IMPACT
ON FINANCIAL MARKETS**

*Brian Horrigan and
Aris Protopapadakis*

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Federal Reserve Bank of Philadelphia
100 North Sixth Street
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**HEALTH CARE:
GETTING THE RIGHT AMOUNT
AT THE RIGHT PRICE**

Laurence S. Seidman

Federal Deficits:
A Faulty Gauge of Government's Impact on Financial Markets

by Brian Horrigan and Aris Protopapadakis*

In the ongoing debate about the impact of government borrowing on financial markets, the focus usually centers on the size of Federal budget deficits. In the following article, the authors argue that looking only at the deficit can make for misleading conclusions about government's influence on the credit markets. They propose a more comprehensive measure which often behaves differently than the Federal deficit. The views expressed here are those of the authors and should not be identified as official views of the Federal Reserve Bank of Philadelphia or the Federal Reserve System.—Donald J. Mullineaux, Senior Vice President and Chief Economist, Federal Reserve Bank of Philadelphia.

Newspapers and magazines frequently warn about the dangers of big Federal budget deficits, claiming that the recent large deficits have pushed interest rates to record highs. The continuing debate over tax and expenditure cuts illustrates the importance many people attach to Federal budget deficits. Projections of large deficits appear to have prompted the Administration to request more expenditure cuts for 1982, and these projections have sparked a lively debate within the Administration on whether to propose sizable tax increases for 1983. Some members of Congress continue to advocate rolling back recent tax cuts or increasing other taxes in order to reduce the deficit.

People are concerned about budget deficits because they equate them with increased government borrowing from the private sector and increased government competition with private investors. They fear that when the U.S. Treasury borrows more, fewer funds will be available for private investment and interest rates will rise. But does a bigger budget deficit *necessarily* mean that

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the government sector is a bigger drain on credit markets? We argue that the deficit is not a reliable indicator of government's drain on credit markets. The Federal deficit is an incomplete measure of government borrowing because it does not include all government borrowing. More importantly, all government borrowing must be adjusted for inflation before it can be used as a gauge of government's competition with private borrowers. An alternative measure which we call "government net borrowing" accounts for all government borrowing and is adjusted for inflation to do a better job of gauging government's drain on the credit markets.

GOVERNMENT GROSS BORROWING

So far as the credit markets are concerned, what matters is how much the government sector borrows from the public. The Federal budget deficit measures only part of the government sector's borrowing activity. Other government units and related bodies—such as off-budget Federal agencies and state and local governments—also compete for funds in the credit markets by issuing their own debt, and these agencies often lend funds to the Treasury as well. To obtain the right total, the borrowing of all government units has to be added together and what they lend to each other has to be subtracted out. We label the resulting magnitude "government gross borrowing." Government gross borrowing measures the amount of money the government sector borrows from the public.

Off-Budget Agencies Borrow, Too, . . .
The Federal government borrows funds that do not appear in the Federal budget. Federally owned agencies, such as the Postal Service and the Tennessee Valley Authority, have the authority to borrow in the credit markets, but their activity does not explicitly appear anywhere in the unified Federal budget. Also, some Federally sponsored agencies, such as the Farmers' Home Administration and the Rural Electrification Administration,

can borrow directly from the Treasury via the Federal Financing Bank.[1] The Treasury lends to these agencies and to the Federal Financing Bank by borrowing directly from the public.[2] This kind of Treasury borrowing also does not appear in the unified Federal budget. Thus, even if the unified budget is balanced, gross borrowing from the public can be large.

The annual increase in total Federal debt includes all Federal borrowing, whether the Treasury is involved in it or not.[3] Column 1 in Figure 1 gives the Federal budget deficits as reported by the Treasury while column 2 in Figure 1 gives total Federal borrowing. The data show that in some years total Federal borrowing was over $20 billion more than the Federal budget deficit.

In addition to off-budget borrowing, there are other government obligations that should be taken into account in a comprehensive measure of the debt (see WHAT IS FEDERAL DEBT? overleaf). Since it is not possible to measure these obligations accurately, we do not include them in the calculations that follow. Adding accurate estimates of these obligations to the measures of borrowing developed here could change some of the conclusions.

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[1]For a detailed analysis of the Federal government's off-budget activities, see David Resler and Richard Lang, "Federal Agency Debt: Another Side of Federal Borrowing," *Review,* Federal Reserve Bank of St. Louis, November 1979. Also see John Fialka, "Growing Giant: U.S. Lender, Bigger Than Citibank," *The Wall Street Journal,* December 15, 1981; and H. Leonard and E. Rhyne, "Federal Credit and the 'Shadow Budget'," *The Public Interest,* Fall 1981.

[2]For example, as of the end of June 1981, the Student Loan Marketing Association (SLMA) owned $3.4 billion of Federally guaranteed student loans. The SLMA purchased the loans by issuing debt. The Federal Financing Bank (FFB) purchased the SLMA debt by issuing its own debt, and the Treasury in turn purchased the FFB debt. In effect, the Treasury borrowed money from the public to lend to students.

[3]A more precise calculation would involve using the market value of the *new* Treasury issues rather than their par value. However, the differences between par and market value are small.

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FIGURE 1

ANNUAL INCREASES IN TOTAL GOVERNMENT DEBT HELD BY THE PUBLIC CAN BE QUITE DIFFERENT FROM THE BUDGET DEFICIT*

Year	(1) Reported Federal Budget Deficits	(2) Increases in Total Federal Debt	(3) Increases in Total Government Debt	(4) Increases in Privately Held Total Government Debt (Gross Borrowing)
1981	61.6†	98.0†	119.3†	89.0†
1980	61.2	84.5	108.9	90.3
1979	14.8	54.5	72.7	43.4
1978	29.2	68.5	90.9	60.2
1977	46.4	63.7	80.9	53.2
1976	53.1	77.9	91.0	63.0
1975	69.3	83.6	97.2	83.3
1974	11.5	23.3	38.1	24.7
1973	5.6	20.4	33.3	11.9
1972	16.8	25.1	39.3	26.0

*In billions of dollars. All figures are reported on a calendar year basis.
†Preliminary estimates.

SOURCES:
Federal deficits are from the *Economic Report of the President 1982*. Deficits are calculated by the NIPA method, which is based on accrual, unlike the unified budget deficit, which is based on cash flow.

For 1972-76, Federal debt outstanding, Federal debt held by agencies, Federal debt held by state and local governments, and Federal debt held by the Federal Reserve are taken from the *Annual Statistical Digest (1970-1979)*. After 1976, these data are taken from the *Federal Reserve Bulletin*, January 1982.

State and local government data are taken from the *Flow of Funds Outstanding*, September 1981. State and local debt outstanding data are from p.39, line 2, while internal holdings of state and local debt and holdings of the retirement funds are from p. 39, lines 9 and 15 respectively.

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WHAT IS FEDERAL DEBT?

In this article, we define the Federal debt as the sum of all the notes, bonds, and bills issued by the Treasury and other Federally owned agencies. But is this all the Federal debt? Debt is nothing more than an obligation, and the Federal government has many obligations that do not take the form of Treasury debt. An important example of obligations not included in the Federal debt is the Federal program of loan guarantees for private debt. The Federal government guarantees hundreds of billions of dollars of private loans against default risk, and it also has assumed hundreds of billions of dollars' worth of insurance commitments. According to the Treasury (as reported by *U.S. News and World Report,* May 4, 1981), Federally guaranteed private loans were $323.6 billion in 1980, and Federal insurance commitments were $2,217.4 billion.

The majority of the loan guarantees are for mortgages and housing loans ($219.7 billion). It would be absurd to add private mortgages to the national debt just because the Federal government guarantees the mortgages. If, by chance, none of the mortgages defaulted, the guarantees would cost the Treasury nothing. But if all of the mortgages defaulted, the Treasury would be stuck with having to pay off all of the mortgages. It would also end up owning the housing behind these mortgages. A sound strategy for the Treasury is not to include loan guarantees in the Federal debt; instead it could create a sinking fund to cover loan defaults, and make a fixed payment into the sinking fund every year. The annual payment would have to be large enough to keep the fund liquid and should be adjusted with the default experience. That way, the cost of these guarantees would appear in the budget, and Congress and the public would be forced to recognize and deal with the cost of loan guarantees. The same principle applies to insurance commitments.

Another serious problem with measuring the Federal debt concerns the actuarial deficits of the retirement and compensation programs of the Federal government. The Federal government obligates itself to pay retirement benefits to members of the armed forces and the Civil Service. It cannot morally renege on those obligations. If the government does not fund the retirement programs (as private pension and life insurance programs do), then the debt of the Federal government increases— that is, the government has committed itself to pay benefits for which it doesn't have funds. In 1980, the actuarial deficit of retirement and compensation programs (military, Civil Service, veterans, railroad, Foreign Service, Public Health Service) was estimated at $631 billion. These liabilities are part of the Federal debt and should be included in it. If the government commits itself to funding these liabilities fully, then it should create an asset position that exactly offsets its total pension liabilities. We have not included unfunded pension liabilities in the estimates of government net borrowing only because the estimates of the actuarial deficits are unreliable.

The above principle does not apply to Social Security. Social Security benefits and taxes are set by Congress and may be changed at any time. The $1,464-billion actuarial deficit of the Social Security trust funds in 1980 only indicates that Social Security needs reform, not that the Federal debt is mismeasured. Changes in the law could easily eliminate the entire actuarial deficit of the Social Security Administration.

. . . **As Do State and Local Governments.** Even adding in the off-budget Federal agencies doesn't give a complete picture of government borrowing. A large portion of government financing activity occurs at the state and local levels. It does not matter to private borrowers whether the Federal, state, or local government competes with them for available funds. Therefore, from the viewpoint of the private credit markets, the correct measure of government borrowing must include Federal, state, and local government borrowing, not Federal borrowing alone.

Column 3 in Figure 1 shows the annual borrowing of the combined Federal, state, and local governments for the past decade.

The consolidated government borrowing is always larger than Federal borrowing alone, and it is much larger than the Federal deficits. For instance, though the 1979 Federal deficit was less than $15 billion, total government borrowing was almost $73 billion. But not all of the increases in the Federal, state, and local debt represent a drain on private credit markets; some of this debt is purchased by Federal agencies, by the Federal Reserve System, and by state and local governments.

Not All Government Debt Is Held by the Public. A sizable portion of Federal debt is currently owned by Federal agencies, primarily the Social Security Administration. Since Social Security receipts almost always exceed outlays (they have in 9 of the last 10 years), the Social Security Administration purchases more Federal debt each year. Debt issued by the Treasury doesn't affect the credit markets if it is purchased by a Federal agency such as the Social Security Administration. Thus, increases in debt holdings of Federal agencies must be subtracted from the total increase in Federal debt. Increases in the Federal Reserve System holdings of Treasury debt must be subtracted for the same reason.[4]

And so must holdings of state and local governments. These governments typically are prohibited by their constitutions from running current account deficits. On average, they run surpluses which they often use to purchase their own debt and Treasury debt. To gauge the impact of government borrowing in the credit markets, increases in state and local government debt holdings must be subtracted from the total increase in government debt as well.

The calculations for 1980 illustrate the magnitude of the adjustments discussed above. In 1980, Federal debt increased by $84.5 billion while the state and local debt increased $24.4 billion, for a total increase of $108.9 billion. Of this increase, the Fed purchased $3.8 billion, Federal agencies purchased $5.4 billion, and state and local governments purchased an additional $9.4 billion. Thus, only the remaining $90.3 billion of government debt was available for purchase by the public.

Column 4 in Figure 1 shows the increases in the consolidated government debt held by the public—government gross borrowing. This borrowing is always larger than the reported Federal budget deficit, but in some cases it is smaller than the increases in total Federal debt. Gross borrowing is smaller than increases in the Federal debt whenever agencies, the Federal Reserve, and state and local governments buy back more debt than they issue.

Gross borrowing is an accurate measure of the money government borrows from the public to finance its expenditures. Compared to this measure, Federal deficits understate the amount of money government borrows. But even gross borrowing may be an inadequate and misleading measure of the government sector's impact on credit markets, because

[4]The case for subtracting debt held by the Federal Reserve is less clear cut than that for Federal agencies and state and local governments. The Federal Reserve annually purchases a certain amount of Treasury debt, and in that respect it acts just like a Federal agency. It purchases this debt, however, by selling new reserves to the banking system. One could argue that the Federal Reserve is only converting interest-bearing Treasury debt to non-interest-bearing Federal Reserve debt, and that this debt represents as much of a demand on the credit markets as Treasury debt. Those who believe that government borrowing can crowd out private invest-

ment assume that consumers consider purchases of government debt and private corporate debt equivalent. Consumers do not realize that excess government debt may mean increased future taxes. There is not much disagreement, however, that individuals do not view purchases of bonds (government or private) and money as being equivalent. Thus the response of the financial markets to increases in the supply of reserves (and consequently money) will be different than their response to increases in the supply of government bonds, so that reserves and government debt should not be added together.

gross borrowing greatly depends on the in-
flation rate. Gross borrowing seriously over-
states government's impact on credit markets
when prices are rising, because inflation
increases the interest rate government must
pay on its debt while it reduces the real value
of government bonds held by the public.

GOVERNMENT BORROWING
AND CREDIT MARKETS:
WHAT'S THE CONNECTION?

A higher inflation rate automatically results
in larger government gross borrowing,
because interest rates are higher when infla-
tion is higher. But does an inflation-induced
rise in government borrowing mean that the
government is competing for more funds in
the credit markets? Only when gross bor-
rowing rises *more rapidly than prices* is
government a drain on the credit markets.
Therefore, gross borrowing figures need to
be adjusted for the effect of inflation to get a
good measure of government's impact on
credit markets.

As inflation increases, the interest that
government pays on its debt rises.[5] The
higher interest compensates bondholders for
the inflation-caused erosion of the real value
of their bonds (see INFLATION AND
INTEREST RATES). If these people are to
restore the purchasing power of their bond-
holdings, they must use the portion of the
interest payment that compensates them for
inflation—the inflation premium—to pur-
chase additional bonds. Therefore, increases
in government debt that keep the real value
of the debt constant don't add to government's
claims on the financial resources available
for private investment.

Inflation causes government borrowing
requirements to increase. But this increased
demand for funds can be met by the private

sector without affecting consumption and
investment, because the inflation premium
makes enough funds available to finance the
additional borrowing. Therefore, judging the
impact of government borrowing in the credit
markets without accounting for the effect of
inflation is highly misleading. In fact, two
economies can be identical in real terms, but
if they experience different inflation rates,
the government deficits and the amounts of
new debt the two governments must issue
can behave very differently.

Figure 2 gives an example of two such
hypothetical economies. Transylvania and

INFLATION
AND INTEREST RATES

Interest rates, including those on govern-
ment debt, are influenced by inflation because
interest involves payment in the *future*, and
tomorrow's dollars may be worth far less in
terms of goods and services than are today's
dollars. For example, if a $100 loan today is
repaid with $102 a year from now, the nominal
interest rate on that loan is 2 percent. If there
is no inflation, the 2 percent is also the real
interest rate—real because $102 buys 2 per-
cent more goods than $100 does. But if there is
inflation, the real interest rate differs from
the nominal interest rate. Inflation causes the
purchasing power of the dollar to depreciate;
future dollars buy fewer goods than current
dollars. Lenders want compensation for any
expected depreciation of their dollars caused
by inflation. If anticipated inflation rises
from zero to 10 percent, for instance, the
nominal interest rate must increase by 10
percentage points (to 12 percent) just to hold
the purchasing power of the principal
constant. Only in this way will the *real* interest
rate remain at 2 percent; 12 percent more
dollars ($112) buys 2 percent more goods after
the price level rises by 10 percent. The
additional $10 of interest payment (the
inflation premium) doesn't represent real
income, because it only offsets the lost pur-
chasing power of the $100 principal.

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[5]The Federal government alone has accumulated a
large debt ($1 trillion), and a significant part of its budget
goes to interest payments on this debt (almost $96 billion
in fiscal 1981).

Ruthenia have the same unchanging real (inflation-adjusted) consumption and investment, real interest rates, real government purchases and taxes, and real national debt. The two economies have different rates of inflation, though. Transylvania has no inflation, while Ruthenia maintains a steady 10-percent rate of inflation. Every year, Ruthenia's nominal consumption and investment, nominal government purchases and taxes, and nominal debt rise by 10 percent, but in real terms nothing changes. Transyl-

vania has a balanced budget, while Ruthenia has an ever increasing budget deficit and increasing gross borrowing. Yet this budget deficit (or gross borrowing) has no impact on the Ruthenian economy because the real value of government debt does not change. The budget deficit (100 billion Ruthenian dollars in the first year) is exactly equal to the inflation premium the government pays on its debt, and it serves to keep the real value of the debt constant.

The quantity that correctly measures the

FIGURE 2

INFLATION MEANS THAT TWO ECONOMIES CAN BE IDENTICAL IN REAL TERMS, BUT HAVE VERY DIFFERENT BUDGET DEFICITS*

Year	(1) Government Expenditures for Goods & Services	(2) Interest Payments	(3) Taxes	(4) Budget Deficit	(5) Government Debt	(6) Government Gross Borrowing	(7) Government Net Borrowing	(8) Private Consumption & Investment
TRANSYLVANIA								
	Inflation 0%, Nominal & Real Interest Rate 2%							
1	600	20	620	0	1,000	0	0	2,400
2	600	20	620	0	1,000	0	0	2,400
3	600	20	620	0	1,000	0	0	2,400
RUTHENIA								
	Inflation 10%, Nominal Interest Rate 12%, Real Interst Rate 2% (real values in parentheses)							
1	600 (600)	120	620	100	1,000 (1,000)	100	0	2,400 (2,400)
2	660 (600)	132	682	110	1,100 (1,000)	110	0	2,640 (2,400)
3	726 (600)	145.2	750.2	121	1,210 (1,000)	121	0	2,904 (2,400)

*In billions of Transylvanian and Ruthenian dollars.

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impact of government borrowing on the credit markets of both economies is government net borrowing, shown in column 7, Figure 2. Government net borrowing is the change in the *real* value of the government debt, expressed in current dollars. While gross borrowing is very different for the two countries, net borrowing is the same, reflecting the fact that the two economies are identical except for inflation.

But how is Ruthenia's inflation-induced government gross borrowing financed without causing a drain on the credit markets? The households in Ruthenia provide the funds by saving the inflation premium component of the interest payments on government debt. This is the only saving strategy that allows them to maintain both the *real* value of their consumption and the *real* value of their wealth in the face of rising prices. Thus the increase in the dollar savings

of the households is just equal to the dollar increase in government borrowing, leaving both real savings and real investment unchanged. A numerical example of a typical Ruthenian household may serve to illustrate the case.

Consider a family with wage income of $25,000 and accumulated savings of $20,000, all invested in one-year government bonds. Suppose there is no inflation and the interest rate is 2 percent, resulting in $400 of interest payments. To simplify the example assume that this family consumes all its wage and interest income—it undertakes no new saving. Over time, its assets (bonds) remain at $20,000 and its consumption at $25,400 (Figure 3, panel a).

If inflation suddenly increases to 10 percent and is expected to stay there, the interest rate rises to 12 percent (fully reflecting inflation), and the family's wages rise at the

FIGURE 3

TO KEEP REAL CONSUMPTION CONSTANT, HOUSEHOLDS MUST SAVE MORE WHEN THERE IS INFLATION

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year	Wage Income	Interest Income	Total Income	Current Value of Consumption	Current Value of Saving	Real Value of Consumption	Current Value of Assets	Real Value of Assets
				(a) Inflation 0%, Interest Rate 2%				
1	25,000	400	25,400	25,400	0	25,400	20,000	20,000
2	25,000	400	25,400	25,400	0	25,400	20,000	20,000
3	25,000	400	25,400	25,400	0	25,400	20,000	20,000
				(b) Inflation 10%, Interest Rate 12%				
1	25,000	2,400	27,400	25,400	2,000	25,400	20,000	20,000
2	27,500	2,640	30,140	27,940	2,200	25,400	22,000	20,000
3	30,250	2,904	33,154	30,734	2,420	25,400	24,200	20,000

10-percent inflation rate (Figure 3, panel b). For the first year, the family's total income is higher because of the higher interest rates. Can this family still consume all its income and maintain the purchasing power (real value) of its assets? Obviously not, because inflation erodes the purchasing power of its bonds. If this family consumed all its new income, by the end of the third year its assets would be worth only $16,529 in today's Ruthenian dollars. Instead, it must save the inflation premium built into the nominal interest rate and buy more government bonds with that money. Only this behavior will allow the family's real consumption and its real assets to remain the same as before.

Figure 3 (panel b) shows the details of the family's new saving strategy. The key point is that the inflation premium built into interest rates is not truly income. Rather, it compensates investors for the loss of the purchasing power of their nominal investments (bonds). The family in the example must save all of the inflation premium component of the interest payments to keep its real wealth constant. In dollar terms (though not in real terms), this family is saving more than it used to, making more funds available to buy government bonds.

The examples about government and household finances show that inflation causes budget deficits and government gross borrowing to increase. But this increase can be exactly met by an equal increase in the dollar savings of the households.[6] Thus, though such inflation-induced deficits may seem alarmingly large, they are not due necessarily

to increases in net borrowing and therefore would not represent a drain on credit markets. Net borrowing is the correct gauge of any potential crowding out of private borrowers from the credit markets.[7]

The argument so far is made as if inflation is fully anticipated. But, realistically, inflation is never fully anticipated, and forecasts of inflation are often far off the mark. Under these circumstances, is government net borrowing still the correct measure of the government's impact on the credit markets? As discussed in detail in the Appendix, government net borrowing is a correct measure even when inflation is not fully anticipated.

IS GOVERNMENT A NET BORROWER?
With an inflation-adjusted measure of government borrowing, it is possible to find out whether the government sector might be crowding out private investment by calculating the net borrowing of government.[8] Columns 1 and 2, Figure 4 (overleaf), show Federal net borrowing and total net borrowing, respectively. These figures show that government net borrowing has been far smaller than the Federal deficit or gross

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[6]The examples in the text and in the appendix assume that inflation is neutral—that is, real GNP, the real rate of interest, and real investment are not affected by inflation. Given the current structure of tax laws it is highly unlikely that inflation is neutral in the U.S. However, though inflation may cause some real variables to change at the same time as it increases deficits, we try to focus on the deficits and their impact, leaving out the effects of inflation on the economy. Assuming neutrality greatly

simplifies that task, without changing the conclusion.

Another feature of our example is the absence of taxes on interest income. That omission is readily remedied by thinking about these rates of interest as after-tax rates.

[7]See G. V. Jump, "Interest Rates, Inflation Expectations, and Spurious Elements in Measured Real Income and Savings," *American Economic Review*, December 1980, and J. Siegel, "Inflation-Induced Distortions in Government and Private Saving Statistics," *Review of Economics and Statistics*, February 1979 for a similar analysis. The *Economic Report of the President 1982* also adjusts deficits for inflation. See Chapter 4, Appendix.

[8]To compute net borrowing, we use a price index to deflate the end-of-year gross debt. This procedure gives an estimate of real debt. The annual change in real debt gives real net borrowing; multiplying that by the price index gives net borrowing in current dollars. The price index is the geometric average of the GNP deflators for the last quarter of the year and the first quarter of the following year.

FIGURE 4
NET BORROWING GENERALLY HAS BEEN SMALL RELATIVE TO INVESTMENT*

	(1) Federal Net Borrowing	(2) Total Government Net Borrowing	(3) Net Private Investment	(4) Total Net Government Investment
1981	23.2†	19.0†	130.2†	26.5
80	19.7	16.2	132.6	32.9
1979	-12.9	-14.6	193.5	23.7
78	1.3	3.0	186.6	17.4
77	13.8	17.0	154.5	12.0
76	37.7	36.8	119.0	15.5
75	56.0	52.8	89.2	18.2
74	-15.6	-20.0	105.4	18.6
73	-18.5	-18.2	145.6	16.4
72	1.4	9.5	115.5	16.3

*Billions of dollars.
†Based on most recently available estimates.

SOURCE: *Survey of Current Business.* Net real government investment is the annual change in the net physical capital stock owned by the government sector as reported in the National Income and Product Accounts. This capital stock includes all equipment and structures owned by Federal, state, and local government and government-owned enterprizes. Net private investment, column 3, is calculated by adding the net private investment shown in the National Income and Product Accounts (Gross Investment minus capital consumption allowances) to net consumption of durable goods. Net consumption of durables is calculated by applying a 20-percent depreciation rate to the stock of durables and subtracting that from durables consumption in the National Income and Product Accounts.

borrowing figures would suggest. Often net borrowing is negative: the public *reduced* its real holdings of government debt in those years. When net borrowing is negative, government in effect supplements savings available for private investment.[9]

The figures show that government net borrowing was substantial only during the 1975 recession and the ensuing recovery. There is some government net borrowing also in 1980, the year of a sharp, but short-lived, downturn. It is not surprising that net borrowing, especially Federal net borrowing, rises during recessions; the increase in bor-

[9]To the extent that inflation is fully anticipated, negative net borrowing implies a flow of funds to the public. If inflation is completely unanticipated, there is no actual flow of funds. However, the unanticipated

capital loss on government bonds will cause households to save more out of their income to rebuild their wealth position. Thus negative government net borrowing in effect increases the supply of private savings.

rowing coincides with the recession-induced decline in tax revenues. [10]

One way to assess the potential impact of government net borrowing on the credit markets is to compare it to net private investment (see column 3, Figure 4). The data show that net government borrowing was very small relative to net private investment in the last decade. Thus the potential drain of government on the credit markets has been relatively small. For instance, in 1980 net government borrowing was only 12 percent of net investment and in 1978 it was less than 2 percent. Only during the 1975 recession was government borrowing large relative to private investment, and that was a result mainly of the recession.

Another way to gauge the significance of government net borrowing is to compare it to government net investment. Net government investment measures the net addition to the physical capital stock (items such as buildings, bridges, highways, and defense installations) owned by the Federal, state, and local governments. These data are shown in column 4, Figure 4. Government net borrowing is considerably smaller than government net investment, except during periods of recession. Government has been collecting more taxes than it needs in order to finance its current expenditures. All of net borrowing and some tax revenues go to finance government investment projects—a situation which raises policy issues (see SHOULD GOVERNMENT INVESTMENT PROJECTS BE FINANCED WITH TAXES? overleaf).

The results of our analysis show that the size of government net borrowing usually has been small compared to the amount of either private investment or government investment. It is difficult to see how these relatively small amounts of net borrowing could have caused the record high interest rates experienced recently.

Using the concept of government net borrowing can help put the projected budget deficits in perspective. The Administration's most recent forecast is a $97-billion deficit for calendar 1982. This deficit is by far the largest ever. Nonetheless, this large deficit represents only about $46 billion in Federal net borrowing according to our estimates. [11] By historic standards $46 billion of net borrowing is large, but it is much less (47-percent less in real terms) than Federal net borrowing was in 1975—another recession year. Such large net borrowing—and a budget deficit—would only be a problem if it persists after the economy comes out of the recession.

CONCLUSION

Many people are concerned that large Federal deficits cause high interest rates and crowd out private investment. Whatever the validity of the crowding-out hypothesis, the unified Federal budget deficit simply is not the appropriate measure of government's drain on credit markets. The unified Federal budget deficit does not include the borrowing of off-budget Federal agencies and of state and local governments, nor does it exclude the debt purchased by government agencies, by state and local governments, and by the Federal Reserve System. Most importantly, the meaning of the Federal deficit is distorted

[10]If the government were to try to hold down its net borrowing by reducing its expenditures and raising taxes during a recession, it would destabilize the economy unnecessarily, and a deeper recession could result. The potential impact of net government borrowing must be evaluated over the business cycle and not year by year.

[11]Projections of Federal borrowing for 1982 are from *Borrowing and Debt* Special Analysis E, released by the Office of Management and Budget. Since detailed 1982 estimates of Federal Reserve, state, and local holdings of Federal debt are not available, we assume that these institutions will behave as they did in 1981. Thus, as a result of a projected increase in Federal debt of $131.3 billion, public holdings have to rise by $90.8 billion. We also adopt the consensus forecast that the GNP deflator will grow by 7.3 percent in 1982.

SHOULD GOVERNMENT INVESTMENT PROJECTS BE FINANCED WITH TAXES?

When a private firm undertakes an investment project, it does not usually suspend dividends and try to finance the project internally. If the firm's credit standing is good and the proposed project is expected to be profitable, it borrows in the market or issues new equity; the new investment generates new cash flows sufficient to pay the additional dividends and interest.

Investment projects, whether private or public, are undertaken because they are expected to yield benefits that exceed the cost of building and maintaining them. The difference between private and public investment projects is that while private projects will be undertaken only when their *financial* benefits exceed their cost, this rule need not hold for public investment. For example, a local government may decide to build a bridge to alleviate traffic congestion. The local government could finance the bridge from additional tax revenues. But the appropriate financing strategy is to borrow the initial cost of the project and plan to pay for the real portion of the interest charges, for maintenance, and for depreciation with future taxes or tolls. The project will eventually be paid for in either case, but debt finance matches the tax payments the community makes to the benefits it receives more closely than immediate tax finance.

The reason that the government should not finance investment projects with current taxes lies in the role taxes play in the economy. While taxes raise revenues for the government, they also affect the decisions individuals make about labor supply and saving. Evidence suggests that an increase in income and profits taxes decreases saving and labor supply moderately.* Financing investment projects from current taxes means that tax rates are higher than they need be, unnecessarily reducing incentives to produce and save.

The Department of Commerce has estimated the net investment of the Federal, state, and local governments.† Column 4 in Figure 4 shows that government net investment substantially exceeds government net borrowing except during the 1975 recession and the 1980 downturn. For the last ten years government net borrowing has covered only part of new government investment. The sum of government net borrowing from the private sector from 1972 through 1979 amounts to $49 billion (in 1972 dollars), while the sum of government net investment is $138 billion (in 1972 dollars). Thus a large part of these investments has been and is continuing to be financed by current taxes. This has meant higher taxes and higher tax rates than necessary.‡ The economy could benefit from lower tax rates that would result from financing government investments through borrowing from the public.

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*See Aris Protopapadakis, "Supply-Side Economics: What Chance for Success?" *Business Review*, Federal Reserve Bank of Philadelphia, May/June 1981.

†The Department of Commerce provides estimates only of the *physical* capital stock owned by the government. These estimates do not include financial assets purchased by the government. This exclusion is particularly important for our estimates, because our net borrowing includes off-budget agencies. Some of these agencies (for instance the SLMA) purchase financial assets. However, it is very difficult to estimate the market value of these assets and we do *not* include them in our net investment figures.

‡We do not argue here that the taxes collected should always be equal to current expenditures and transfers. Whether optimal revenue raising involves budget deficits or surpluses is not known, because the information necessary to decide that issue is very difficult to find. We only argue that paying for capital projects with current taxes is not an optimal strategy. Furthermore, it is generally agreed that the government should not adjust its taxes and expenditures every year so as to keep its net borrowing constant every year. Rather, the government should allow net borrowing to rise and fall over the business cycle.

by inflation. The inflation of the last decade caused interest rates to rise and therefore caused budget deficits to balloon. These large deficits do not represent necessarily a drain on the credit markets.

Government net borrowing is a better measure of the government sector's impact on credit markets. The net borrowing figures show that government has not been a significant drain on the credit markets. Looking to the future, it is clear that as long as inflation persists, government can run substantial budget deficits without crowding out private investment. But as inflation and inflationary expectations fall, budget deficits will fall without any expenditure cuts or tax increases.

APPENDIX . . .

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THE CASE
OF UNANTICIPATED INFLATION

The examples in the main text on the relationship between inflation, interest rates, and government budget deficits assume that inflation is always fully anticipated. But a 10-percentage-point rise in the inflation rate raises the nominal interest rate from 2 percent to 12 percent only if the public fully anticipates the inflation, and then only if inflation is neutral. If increases in inflation are not fully anticipated, the reported budget deficits will not rise sufficiently to hold the real national debt constant. At the same time, an unanticipated increase in the price level imposes a windfall loss on bondholders.*

The wealth loss imposed on holders of government bonds by unanticipated inflation is a wealth gain for the government. An inflation-induced drop in the real value of government bonds is equivalent to an increase in the taxes of the bondholders. The real value of the outstanding debt falls, but the interest rate is not high enough to compensate the bondholders for this loss.

The thesis of our article—that the proper measure of the impact of government borrowing is given by the change in the real value of total government debt—does not depend on whether or not inflation is unanticipated. It is easiest to see why by considering again the inflationary economy of our example, Ruthenia.

If the Ruthenian inflation is anticipated, the additional financing needs of the government equal the inflation premium of the interest payment—$100 billion. But what if the inflation is not anticipated at all? As long as the government takes no action, there would be no budget deficit and the net borrowing would be -$100 billion. This sum is the same as the purchasing power loss suffered by the bondholders. If the government uses net borrowing as a guide for its fiscal policy and tries to keep net borrowing constant, it would attempt to return to its original net borrowing, $0 in this example. It can do so by either increasing transfer payments or cutting taxes and running a $100-billion budget deficit. If it cuts taxes by $100 billion, individuals in the economy who suffered capital losses on their bondholdings will use these *unanticipated* taxes to restore their portfolio without changing their consumption or saving plans (taxes are unanticipated because the inflation was unanticipated.) But since the government, by running a $100-billion deficit, is providing the right quantity of bonds the public needs for the rebuilding of portfolios, consumption and investment will remain the same, whether or not the inflation is anticipated.

To the extent that each individual is different, the capital losses on bonds will not be exactly offset by the tax breaks or by the increases in transfer payments for each individual. Thus, any government action to offset the impact of unanticipated inflation will alter the distribution of wealth and probably the value of the real variables in the economy, which may be legitimate cause for concern. Under these circumstances, government net borrowing may not be the only information necessary to gauge government's impact on the credit markets.

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*If, for example, bondholders require a 2-percent real return on their investment and they expect a 6-percent inflation rate, the nominal interest rate would be 8 percent. Should the actual inflation rate turn out to be 10 percent, the bondholders realize a real return on their investment of -2 percent.

Health Care:
Getting the Right Amount at the Right Price

*by Laurence S. Seidman**

During the past decade, the consensus among health policymakers appeared to be that significant government regulation and planning would be required to hold down the cost of health care and make it more easily accessible to the less well-off members of society. Although full-fledged national health insurance was not enacted, important steps were taken in that direction. The issue for many policymakers was not whether comprehensive NHI should be legislated, but only in what form.

Recently, however, government regulation and planning in the health industry, as in others, have come to be viewed with increas-

ing skepticism. A market-oriented approach recommends itself more and more to policymakers. The next few years promise to witness a fundamental clash of opposing strategies, which may decide the direction of the health sector for the rest of the century.

HOSPITAL COSTS:
DECADES OF HIGH GROWTH

Since the beginning of the drive for national health insurance, an overriding consideration has been cost, and cost remains uppermost in the minds of many of today's health-care reformers.

Hospital cost growth has substantially outpaced the rise in the consumer price index (CPI) for three decades. In the period from 1950 to 1965 (prior to the enactment of Medicare and Medicaid), cost per patient day in short-stay hospitals increased 8 percent per year, while the CPI increased 2

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percent. From 1965 to 1976, cost per day increased 12 percent, while the CPI increased 5 percent. While half of the price rise came from an increase in resources used—increase in the quantity, quality, and style of service—half of it came from rising costs for labor and other inputs for hospital care. This unusually rapid cost rise has led many critics to ask whether care is being provided as efficiently as it might be—that is, whether consumers' preferences are being reflected accurately in the assignment of resources and whether those resources are being used in such a way as to get as much care out of them as possible.

Efficiency, however, is only one side of the health sector issue. The other is equity. Although the typical patient is able to pay for a hospital stay through insurance, some inadequately insured households remain unable to do so, and they continue, each year, to have great difficulty affording the medical care they need. When hit with catastrophic illness, they suffer severe financial hardship.

Medicare for the elderly and Medicaid for the poor were enacted in 1965 to reduce the number of such households. Yet important gaps still remain. Universal major-risk or catastrophic protection does not yet prevail in the U.S. Thus, both efficiency and equity issues remain on the health policy agenda.

While lack of health insurance is the source of inequities in providing care, observers of the health scene trace efficiency difficulties to the payment of bills by third parties through health insurance plans.

HEALTH INSURANCE SPREADS

Over the last three decades, the share of the national hospital bill paid by third-party insurers—private and public—has increased strikingly. In 1950, half of all hospital revenues from patient care came from insurers. By 1965, the third-party share exceeded 75 percent. Today, nearly 95 percent of the national hospital bill is paid by insurers.

For the *average* hospital patient today, hospital care is free: the bill a patient runs up is irrelevant to him financially, because the insurer will pay 100 percent of it. (The physician's fee generally is not fully covered, so the patient will pay a fraction of the MD bill). Thus patients have no incentive to care about the cost of their own hospital care. But such care cannot be free to society, because it consumes real resources. In the end, all households collectively pay for hospital care in large part through their health-insurance premiums.

The situation is similar to restaurant bill-splitting. Suppose a large group goes out to dinner, and it is agreed, in advance, that the bill will be split without regard to each person's individual order. What happens? Each person realizes that his *own* order will have little effect on his financial burden, which will depend largely on what everyone else orders. So some probably will inflate their orders, and the result is an inflated bill.

In effect, the U.S. hospital system is financed by bill-splitting. Through insurance premiums and taxes (for Medicare and Medicaid), the citizens split the bill. It is therefore little wonder that when the MD decides whether to admit his patient to the hospital, which hospital to use, what tests to run, and how long to extend the stay, he generally ignores cost. His patient would not want him to consider cost, because it has no effect on his own financial burden.

There is a broad consensus that because patients and physicians lack incentives to keep costs down, too many people end up demanding too much care, driving the cost up too high. The disagreement is over what to do about it.

THE REGULATORY APPROACH

Until recently, the dominant view among participants in the health policy debate was that government should act to bring health care within the reach of all by making it free to everyone. Free-care advocates recognized

that their approach would remove incentives from patients and physicians to weigh cost. But they counted on government regulation and planning to fill the vacuum and encourage efficient resource use.

Over the past decade, several methods have been tried or proposed to promote efficiency. The basic problem is that with free care there is excess demand—demand that it would be wasteful and thus inefficient to satisfy fully. The first method of eliminating waste is to limit supply; the second, to limit demand.

How can supply be limited? One method is to require hospitals to obtain certificates of need from regulators, in advance, before expanding facilities or acquiring new technology. Certificate-of-need programs were begun in various states and have been authorized under the Health Planning Act of 1974. A second method is to limit the growth in revenue permitted of any hospital. The Carter Administration proposed a hospital cost containment measure which would have limited revenue growth to approximately 9 percent per year. But this proposal has not been enacted into law. So far, attempts to limit supply haven't been notably successful.

The attempt to limit demand has taken the form of utilization review. In 1972, Congress authorized the creation of Professional Standards Review Organizations (PSROs), composed of physicians in each local area, to review cases that appeared to use hospital facilities wastefully. It was hoped that PSROs would pressure MDs to reduce demand for hospital facilities on behalf of their patients. PSROs, however, haven't made a major dent in hospital cost growth either.

Thus it isn't surprising that some critics of free care and regulation have focused on the cost issue, even going so far as to argue that having a free-care system guarantees that the share of GNP going to health costs must continue to grow, and grow significantly. It needn't, though. Other countries using the

regulatory-planning approach have demonstrated that, despite free care, supply limitations can succeed in containing the health share of GNP. In Britain, for example, where the government owns and operates the hospital system under the National Health Service, the health share of GNP is roughly half that in the U.S. (5 percent instead of 9 percent).

Cost containment, however, is not the same thing as efficiency. It is just as inefficient to devote too few resources to a given sector as it is to devote too many. Efficiency requires achieving just the right level of care, where further expansion entails a cost not justified by the benefit to the users. Moreover, efficiency requires that a given total supply be allocated among users according to the urgency of each one's demand.

The shortcoming of the regulatory strategy is not that it cannot control total cost effectively. Evidence from abroad shows that in some cases it can. Rather, the central weakness is that there is no effective way to register the true preferences of each consumer. As a result, it is difficult to determine the proper growth rate of cost and the allocation of scarce supply among individual consumers.

In virtually all other sectors, where each person pays according to his own use, consumers self-regulate. We seldom worry about whether the growth rate of cost in sector X is appropriate, because we know that each consumer must balance cost against benefit. But in the hospital sector, there is no incentive for self-regulation. Each MD knows that his insured patient wants the best and most, regardless of cost. MDs transmit these inflated demands to the system. Without consumer cost sharing, how can the regulators and planners assess the true intensity of patient preferences?

In such supply-constrained health systems, clear emergencies usually are handled with the urgency they warrant. But many medical conditions that may require hospital service are not clear-cut emergencies. With limited hospital capacity, it is not obvious that those

with the most urgent nonemergency demand will obtain the limited supply. Waiting lists and queues for elective treatment are a common feature of many regulated, free-care systems, such as the British National Health Service.

Thus all in all, the regulatory approach doesn't offer an easy way to decide how much care to provide and who should receive it.

A MARKET-ORIENTED STRATEGY

At the end of the last decade, an alternative approach began to challenge the regulatory strategy. Although advocates of this market-oriented approach concede that the market does not function effectively in the hospital sector, they believe that it can be restored to reasonable health. Moreover, they contend that achieving equity and restoring the market mechanism can be made compatible.

Advocates of this strategy believe that the source of the current market failure in the hospital sector is misguided Federal tax policy. For several decades, Federal tax treatment has encouraged employers to shift the compensation package away from cash towards comprehensive, costly health insurance.

Consider an employer who has decided to raise compensation per employee by $100. If he pays this increase in cash wage or salary, the $100 will be taxable income; after payroll and income taxes, the employee may perhaps keep $70. But if the employer instead buys the employee $100 of additional health insurance, this form of compensation will not be regarded as taxable income for the employee. Thus the choice facing the employee is to take $70 more in cash or $100 more in insurance. The tax exclusion of insurance obviously biases employee choice in the direction of insurance.

Undoubtedly, the intent of Congress in excluding insurance benefits from taxable income was to encourage households to obtain adequate major-risk protection so that they could afford the care they needed even if struck with a catastrophic illness. The crucial feature of the Federal tax exclusion, however, is that it is open ended. Rather than being limited to an amount sufficient to buy major-risk protection, it applies without limit. Thus employees have been encouraged to seek, and employers to provide, first-dollar, shallow hospital insurance—insurance that covers all care from the first dollar spent, with no provision for patient cost sharing. Such high premium first-dollar coverage does more than assure major-risk protection; it makes hospital care free for the typical patient.

The crucial first step, then, in the market-oriented strategy is to remove the substantial tax bias towards shallow insurance. In a recent session of Congress, several bills were introduced that would place a cap on the tax exclusion so that only part of the insurance benefit would be excluded from taxable income. An employer contribution above this cap would be included in the taxable income of the employee exactly as if it were cash salary.

But wouldn't it be politically impossible to set the cap at a level lower than the benefit level employees are receiving now? It might seem so, but the incentives can be arranged in such a way as to induce employees to choose lower benefit levels. The trick is to give cash payments under the cap the same tax advantages as benefits.

As proposed in a bill introduced last year in Congress, employees could be allowed to keep cash tax free below the cap should they choose less costly insurance. Suppose, for example, that the cap were set at $1,200 for a workplace where previously the comprehensive insurance premium was $1,200. If an employee preferred to switch to a less costly policy with an $800 premium, he would be permitted to keep the difference ($400) tax free.

An alternative would be to count the entire contribution of an employer as taxable

income for the employee, but to enact a new health insurance tax credit for all households. The key feature of the credit is that it would be a fixed-dollar amount for a household of a given size and income regardless of how much the household spent on insurance. The household no longer would be subsidized for purchasing insurance above the amount of the credit.

It seems likely that if tax reform removed the bias towards insurance, many employees would prefer a shift in their compensation package back toward cash. Without the tax subsidy, many probably would prefer insurance with a more moderate premium, even though it would require moderate patient cost sharing (deductibles and co-insurance). Major-risk coverage would continue to be purchased, but high-premium insurance that makes hospital care free would be much less common.

Physicians soon would recognize that the average patient no longer is covered fully for hospital care. Of course the typical patient wouldn't nag his doctor about costs while on his stretcher in the ambulance. Nevertheless, the recuperating patient would receive a bill and would bear a fraction of the cost. Anticipating the impact on his patient, the average MD would try to avoid unnecessary cost.

The new sensitivity of MDs to cost would be transmitted to hospital managers. Under free care, a hospital manager has no incentive to try to provide a given quality at lower cost, because MDs and patients regard cost as irrelevant. With cost sharing, MDs would prefer hospital A to hospital B if A provided the same grade of care at lower cost. Thus, insurance with cost sharing ultimately would transmit pressure for efficiency to producers, just as it does in other sectors.

Removal of the tax subsidy not only would promote efficiency under traditional fee-for-service (FFS); it also would remove an obstacle against health maintenance organizations (HMOs). Prepaid HMOs, such as Kaiser on the West Coast, give providers an incentive to limit cost because they are prepaid a fixed sum, regardless of service rendered, in contrast to fee-for-service. HMO supporters believe they can capture an important share of the health sector if households are not subsidized when they buy high-premium FFS insurance. Removal of the tax subsidy would make HMOs, if they are more efficient and less costly, more attractive to consumers.

If the market-oriented strategy works as advocates envision, it should improve efficiency. And an income-related, last-resort tax credit would ensure that all households have income-related major-risk (catastrophic) coverage. The tax credit would assure equity, while the repeal of the tax exclusion would promote efficiency.

Consider, for example, a household with $20,000 of income. Whether or not it has private insurance, it might have to bear the first $2,000 (10 percent of income) of expense (excluding any expense of an insurer on its behalf) before being eligible for a tax credit. It might then be entitled to a credit equal to 80 percent of its additional expense, until it has borne $3,000, or 15 percent, of its income. At that point, it would be entitled to a 100-percent tax credit on additional expense.

The credit would provide an out-of-pocket ceiling equal to 15 percent of income. Whatever a household's private insurance coverage, the tax credit of last resort would assure major-risk coverage. Moreover, the credit would be refundable, so that a low-income household would receive a check from the IRS if its credit exceeded its tax liability. Thus the income-related refundable credit could replace Medicaid.

No policy prescription, on health care or anything else, is likely to scrape by without criticism, and this market approach to health care is no exception. What are the typical objections?

SOME CRITICISM

Critics of the market-oriented strategy

give several reasons for their skepticism.

For one thing, they doubt that removing the tax bias toward shallow insurance in fact will reduce the prevalence of such insurance. They believe households strongly prefer first-dollar coverage and would pay high premiums even without the tax advantage. Advocates reply that one reason why the tax advantage was originally enacted was the concern that, without it, many people might choose cash over even major-risk insurance.

Also, critics doubt that insurance contracts with cost sharing would affect either physician or hospital behavior even if those contracts became widespread. They contend that MDs, not patients, make the decisions, and that they will be unaffected by the financial impact on their patients. But even today MDs often consider financial impact in the few areas where it matters to the patient. MDs sometimes tell patients for example: "I will put you in the hospital where your insurance will fully cover you, even though I could treat you as an out-patient, where it would cost you more." MDs know that patients appreciate such concern.

Finally, some critics fear that cost sharing would impose severe burdens on households unable to afford it. Those critics surely are correct that removing the tax bias alone might well produce hardship and would do nothing to protect households with little or no private insurance. But the income-related last-resort tax credit can address these concerns. Whatever the cost sharing under a private insurance policy, an income-related credit can ensure that every household receives enough assistance to afford the care it needs without hardship.

CONCLUSION

Most other countries have adopted a regulatory-planning approach to the health sector. Free hospital care has been accepted as necessary for equity, and regulation has been relied upon to promote efficiency. Until recently, this strategy appeared to be the dominant one in the U.S. as well.
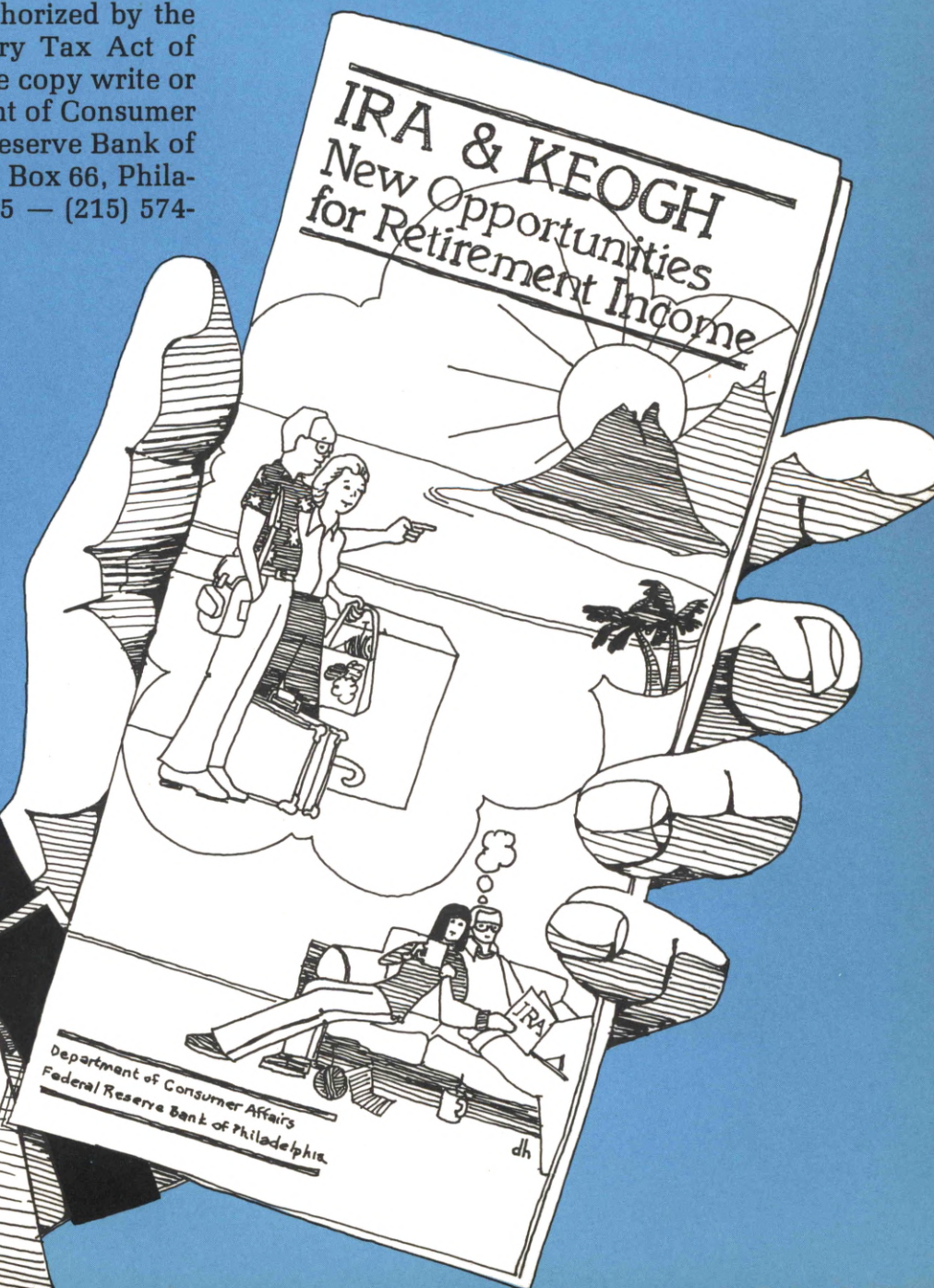
An alternative, however, has emerged to challenge the regulatory approach—a market-oriented strategy. To promote efficiency, this strategy would reform the tax treatment of private health insurance to remove the bias toward shallow, first-dollar coverage. With the tax exclusion curtailed, many employees would shift over time to less costly insurance that includes patient cost sharing. With hospital care no longer free to most patients, physicians would begin to weigh cost, and hospital managers would respond to this new sensitivity on the part of MDs.

The market-oriented strategy would promote equity though an income-related last-resort tax credit that would ensure an out-of-pocket ceiling related to household income for all households, whatever their private coverage. The tax credit is a modern policy instrument that enables assistance to be provided according to income while preserving confidentiality.

The debate over health care provision will be resolved one way or another in the next few years. Its outcome will determine the direction of the health sector for the rest of the century, with important implications for social welfare. It is a debate worth watching carefully.

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