
FRBSF WEEKLY LETTER

October 3, 1986

Tax Reform and Aggregate Spending

The tax reform bill currently before the Congress is designed to be revenue-neutral (i.e., to raise the same total revenues as the current tax system) over the long run, and to shift about \$25 billion a year in tax revenues, on average, from individual taxpayers to corporations. Because it would increase the cost of capital investment *before* it raises household disposable incomes (and thus probably consumption spending), there is concern that its passage could slow the economy.

The impact of tax reform on aggregate spending (the total of spending by the private and public sectors) in the near future is limited, however, by the fact that the \$25 billion shift in tax revenue from households to corporations represents only about one-half of one percent of GNP. In addition, if households increase their consumption spending *in anticipation* of tax cuts they can expect to receive in 1988 and beyond, no negative effect on aggregate spending may materialize. This *Letter* analyzes the likely impact of tax reform on consumption and investment spending in the near future, with particular emphasis on the *timing* of those effects.

Investment incentives

Investment spending depends upon the effective per period cost of capital, generally referred to as the user cost. The higher this user cost, the lower will be the rate of investment. In the absence of taxes, the user cost of capital in terms of real purchasing power is simply equal to the real, or inflation-adjusted, interest rate plus the physical rate of depreciation of the capital good.

Corporate profits taxes generally raise the user cost of capital for business investment after allowing for the deductibility of depreciation, investment tax credits, and interest costs on debt. However, deductions such as accelerated depreciation and investment tax credits can be so large that the tax system actually subsidizes investment by lowering the user cost of capital. In such cases the effective rate of taxation of business investment is actually negative.

The tax reform bill would raise the user cost of capital for business investment by eliminating the investment tax credit for equipment, length-

ening service lives for structures, and eliminating the tax advantages of limited partnerships. Potentially offsetting these factors is the reduction in the corporate tax rate from 46 percent to 34 percent. This reduction would generally not, however, be large enough to prevent the user cost of business fixed investment from rising.

For producers' investment in durable equipment, the effective rate of taxation — defined as the percentage increase in the user cost resulting from taxation — would rise from *minus* 4 percent to *plus* 13 percent. The current negative rate of taxation on equipment results from the combined effects of the investment tax credit and accelerated depreciation schedules. Depreciation schedules for equipment would not be changed appreciably by the tax reform bill, but the investment tax credit would be eliminated retroactive to January 1986. Since retroactive elimination of the credit was part of earlier House and Senate bills, businesses could have anticipated a likely increase in the user cost of equipment since early 1986.

The tax reform bill would keep the effective tax rate on nonresidential structures that are held for their full economic lives at 16 percent, but raise the effective rate on residential structures similarly held from *minus* 15 percent to *plus* 2 percent. Moreover, tax advantages of limited partnerships would be phased out. At present, such partnerships can buy into real estate for a portion of its useful economic life and write off accelerated depreciation against other taxable income only to be taxed at lower capital gains rates when the real estate is sold.

The lengthening of service lives on structures and the reduction in the corporate tax rate would both take effect January 1987. However, because the elimination of advantages for limited partnerships applies even to capital investments made prior to that date, as in the earlier Senate bill, investment in commercial and residential structures could also be significantly reduced this year.

The concept of the user cost of capital can be applied as well to household investment in owner-occupied housing and other consumer

FRBSF

durables, although financing costs in terms of actual cash flows may be the more relevant cost for some households. The output from household capital takes the form of a flow of services that are not taxed. But interest costs on debt-financed investment are deductible, and the return foregone on equity-financed investment is an after-tax return. The user cost of capital for households is therefore the real after-tax interest rate plus the physical rate of depreciation. The lower the marginal tax rate, the higher will be this user cost.

The tax reform bill would reduce the average marginal tax rate for households from a current level of 27 percent to 23 percent in January 1987. As a consequence, the effective rate of tax on the user cost of both old and new investment in owner-occupied housing would rise at that time from *minus* 20 percent to *minus* 14 percent. The bill would also completely phase out deductions for interest on consumer loans other than home mortgages. After this phase-out, the effective tax on the user cost of debt-financed investment in consumer durables would increase from *minus* 11 percent to zero.

Consumption and rational expectations

Under the tax reform bill, effective tax rates on the user cost of new capital investment would generally rise in January 1987. But investment made during 1986 in equipment, in owner-occupied housing, or by limited partnerships would also be subject to higher taxes. The resulting increase in the user cost would therefore reduce capital investment in both 1986 and 1987.

In contrast, there would only be a 1.6 percent cut in personal taxes in 1987, with the full 6.1 percent cut not taking place until 1988 and beyond. This "front-loading" of the tax burden on households would seem to suggest that the cutback in investment spending would not be immediately offset by a boost in consumption. However, such a conclusion could be unwarranted if households base their current consumption at least partly on *anticipated* future after-tax incomes.

Economists believe that households base their consumption spending on perceptions of likely income over a number of years, referred to as

"permanent" or "life cycle" income. In part, the likely macroeconomic effect of the current tax reform bill boils down to whether households will form their expectations of permanent income, and thus their spending decisions, by looking forward or backward. Although it might appear more rational for households always to be forward looking, uncertainties about individual future household incomes and obstacles to borrowing against them may prevent households from doing so.

For the problem at hand, it is useful to distinguish four different ways of forming expectations of permanent income. The more forward looking of these are usually labeled "rational" by economists, even though actual households may not always behave that way.

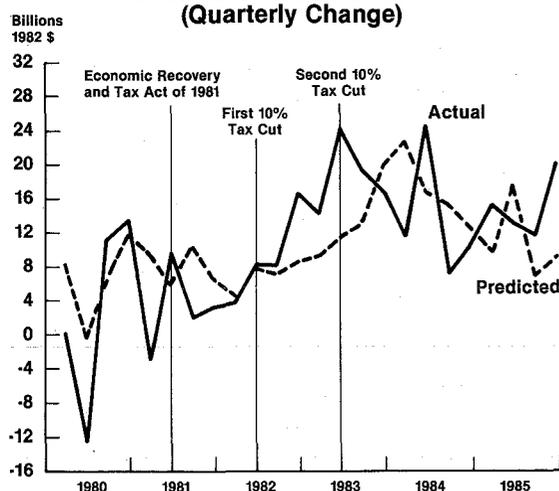
1. *Adaptive*. With adaptive expectations, households form expectations of permanent income on the basis of current and past incomes. This formulation is used in most econometric models in which permanent disposable income is typically measured as a weighted average of current and past disposable incomes. With adaptive expectations, household consumption would not be significantly boosted by tax reform in 1987 but would be more strongly boosted by it in 1988, after households have experienced a rise in their after-tax incomes.

2. *Slightly Rational*. With slightly rational expectations, households take a forward looking view with respect to their own wage and dividend income but not with respect to income retained by the corporate sector. Even with no significant change in personal disposable income until 1988, households would therefore begin to increase their consumption once passage of the tax reform bill was assured.

3. *More Fully Rational*. With more fully rational expectations, households take a more forward looking view of the effect of all taxes falling upon the private sector. Specifically, in the case of a revenue-neutral tax reform bill, they would consider that direct tax reductions for households would be offset by tax increases on the corporate sector. Since the total tax burden on the private sector would be unchanged, they would not alter their personal consumption either now or in the future in response to any changes in disposable income resulting from the tax bill.

4. *Fully Rational*. With fully rational expectations, households also take into account any future taxes that would have to be levied to ser-

Real Consumption of Nondurable Goods & Services (Quarterly Change)



vice future increases in the national debt. In the case of a revenue-neutral tax change, however, the result would be no different from the previous case of "more fully rational" expectations.

An interesting parallel

An interesting historical parallel to the current tax reform bill is the 3-year personal tax cut provided in the Economic Recovery Tax Act of 1981. Since both corporate and personal taxes were cut then, there was no possibility of revenue neutrality. By July 1981, households knew they would receive a 5 percent tax cut in October 1981, a 10 percent cut in July 1982, and another 10 percent cut in July 1983. The October 1981 cut was so small in size and duration as to be fairly inconsequential. But the 1982 and 1983 cuts were very substantial — amounting to about \$45 billion each in 1982 dollars. Also, there was no assurance that government spending would be reduced enough to prevent a substantial increase in the national debt.

Were households (slightly or more fully) rational enough to anticipate these boosts to disposable income, but not (fully) rational enough to ignore them in making their consumption decisions? The evidence on consumer behavior appears in the Chart, which plots the change in consumption of nondurable goods and services predicted by the adaptive measure of permanent income

versus the actual changes that took place after 1979. The relationship between consumption and permanent income was estimated through the fourth quarter of 1979, and forecasts made through the fourth quarter of 1985.

The most relevant quarters are 1981Q3 through 1982Q2, when the tax bill had already passed but no significant personal tax cuts had yet taken place. In those four quarters, consumption of nondurables and services actually averaged less than predicted, contrary to slightly or more fully rational expectations. The same result applies to the period 1980Q4 to 1981Q2, when there was a significant likelihood of passage of the 3-year Kemp-Roth tax cut. From 1982Q3 to 1983Q2, when about half of the tax cut had taken place, consumption was stronger than predicted, but not abnormally so in relation to past experience as represented by the estimated consumption equation.

Conclusion

The 1981-83 tax cut does not provide any evidence that households would increase their consumption prior to gains in disposable incomes, and therefore casts doubt on both forms of semi-rational expectations. Yet consumption did rise roughly in step with increases in disposable income as they actually materialized — ruling out full rationality. The data supports only the idea that households have adaptive expectations when making their consumption decisions.

Past experience therefore suggests that the current tax reform bill would have a contractionary effect on aggregate spending — and hence output and employment — in 1986 and 1987 because households would not take into account *future* increases in disposable incomes in making their consumption decisions. The reduction in investment spending resulting from higher user costs of capital therefore could not be fully offset by increased consumption spending until 1988. However, the likely effect on aggregate spending appears to be relatively small — equal to less than one-half of one percent of GNP — and would be spread over two years due to anticipatory reductions in investment spending this year.

Adrian W. Throop

Opinions expressed in this newsletter do not necessarily reflect the views of the management of the Federal Reserve Bank of San Francisco, or of the Board of Governors of the Federal Reserve System.

Editorial comments may be addressed to the editor (Gregory Tong) or to the author . . . Free copies of Federal Reserve publications can be obtained from the Public Information Department, Federal Reserve Bank of San Francisco, P.O. Box 7702, San Francisco 94120. Phone (415) 974-2246.

Alaska Arizona California Hawaii Idaho
Nevada Oregon Utah Washington

Research Department
Federal Reserve
Bank of
San Francisco

BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT
(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount	Change	Change from 9/11/85	
	Outstanding 9/10/86	from 9/3/86	Dollar	Percent ⁷
Loans, Leases and Investments ^{1 2}	201,458	- 1,739	4,715	2.3
Loans and Leases ^{1 6}	181,991	- 1,898	4,486	2.5
Commercial and Industrial	50,217	- 610	996	1.9
Real estate	67,325	60	2,727	4.2
Loans to Individuals	39,464	- 65	2,012	5.3
Leases	5,534	10	114	2.1
U.S. Treasury and Agency Securities ²	11,296	- 112	771	6.3
Other Securities ²	8,171	270	999	13.9
Total Deposits	207,000	- 3,966	6,529	3.2
Demand Deposits	52,720	- 3,457	4,312	8.9
Demand Deposits Adjusted ³	36,852	-14,593	7,527	16.9
Other Transaction Balances ⁴	17,598	- 162	3,336	23.3
Total Non-Transaction Balances ⁶	136,682	- 347	1,118	0.8
Money Market Deposit Accounts—Total	47,157	- 119	1,745	3.8
Time Deposits in Amounts of \$100,000 or more	34,271	- 305	3,814	10.0
Other Liabilities for Borrowed Money ⁵	24,462	- 608	806	3.1
Two Week Averages of Daily Figures	Period ended 9/8/86	Period ended 8/25/86		
Reserve Position, All Reporting Banks				
Excess Reserves (+)/Deficiency (-)	38	36		
Borrowings	51	25		
Net free reserves (+)/Net borrowed(-)	- 12	12		

¹ Includes loss reserves, unearned income, excludes interbank loans

² Excludes trading account securities

³ Excludes U.S. government and depository institution deposits and cash items

⁴ ATS, NOW, Super NOW and savings accounts with telephone transfers

⁵ Includes borrowing via FRB, TT&L notes, Fed Funds, RPs and other sources

⁶ Includes items not shown separately

⁷ Annualized percent change