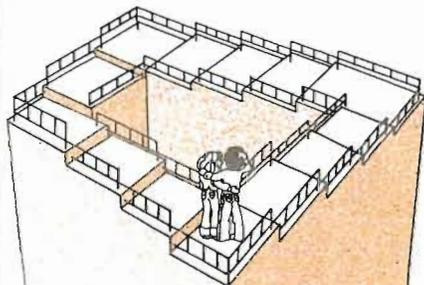


# BUSINESS REVIEW

ISSN 0007-7011

Federal Reserve Bank of Philadelphia

JULY • AUGUST 1983



## **TAX CUTS:** Reality or Illusion?

by Stephen A. Meyer (p.3)

## **DELAWARE MOVES TOWARD INTERSTATE BANKING:**

**A Look at  
the FCDA.**

by Janice M. Moulton (p.17)

# BUSINESS REVIEW

Federal Reserve Bank of Philadelphia  
Ten Independence Mall  
Philadelphia, Pennsylvania 19106

JULY/AUGUST 1983

## TAX CUTS: REALITY OR ILLUSION?

*Stephen A. Meyer*

This month, the final phase of the cuts in federal personal income taxes took place. By analyzing the changes that occurred in marginal tax rates and average tax rates, it is possible to see the effects of these cuts. The general conclusion is that, because of bracket creep and rising social security taxes, taxpayers are paying about the same proportion as they did before the tax acts.

## DELAWARE MOVES TOWARD INTERSTATE BANKING: A LOOK AT THE FCDA

*Janice M. Moulton*

Delaware has been among the leaders in transforming the character of interstate banking legislation. Its FCDA allows out-of-state bank holding companies to establish limited-purpose subsidiaries in Delaware, and provides incentives for them to do so. Now other states are joining the competition to attract business in financial services. As the interstate banking laws continue to evolve, their future direction requires careful consideration by both state and federal legislators.

The BUSINESS REVIEW is published by the Department of Research every other month. It is edited by Judith Farnbach. Artwork is directed by Ronald B. Williams, with the assistance of Dianne Hallowell. The Review is available without charge.

Please send subscription orders and changes of address to the Department of Research at the above address or telephone (215) 574-6428. Editorial communications also should be sent to the Department of Research or telephone (215) 574-3808. Requests for additional copies should be sent to the Department of Public Services.

The Federal Reserve Bank of Philadelphia is part of the Federal Reserve System—a System which

includes twelve regional banks located around the nation as well as the Board of Governors in Washington. The Federal Reserve System was established by Congress in 1913 primarily to manage the nation's monetary affairs. Supporting functions include clearing checks, providing coin and currency to the banking system, acting as banker for the Federal government, supervising commercial banks, and enforcing consumer credit protection laws. In keeping with the Federal Reserve Act, the System is an agency of the Congress, independent administratively of the Executive Branch, and insulated from partisan political pressures. The Federal Reserve is self-supporting and regularly makes payments to the United States Treasury from its operating surpluses.

# Tax Cuts: Reality or Illusion?

by Stephen A. Meyer\*

Proponents of the administration's economic policies argue that the tax cuts that resulted from the 1981 and 1982 tax acts will promote economic recovery by providing greater incentives to work and invest. Some critics claim that the tax cuts were too small to provide such incentives, and that further tax reductions are needed to speed economic recovery. Other critics of current tax policy argue that the tax cuts were too big and that they will slow economic recovery by producing large government budget deficits; these critics argue that taxes should be raised. To address these issues we must know whether the 1981 and 1982 tax acts will produce a substantial change in total tax rates levied on American families or businesses between 1980 and 1984 when the tax acts become fully effective. In other words, is there a tax cut, really?

---

\*Senior Economist in the Monetary and Macroeconomics Section of the Research Department of the Federal Reserve Bank of Philadelphia. He also teaches macroeconomics and international finance at the Wharton School, University of Pennsylvania.

To see whether the 1981 and 1982 tax acts provide greater incentives to work and invest, one needs to examine *marginal* tax rates—the *extra* tax incurred on an *additional* dollar of income. The marginal tax rate determines how much of the extra income generated by more work or more investment is left after taxes. So marginal tax rates play an important role in determining whether or not it is worthwhile to work more or to invest more (see Appendix 1: TAX RATES AND INCENTIVES.) To see if the 1981 and 1982 tax acts cause large budget deficits, one must look at *average* tax rates—the *share* of income going to pay taxes. For the same government expenditures, a cut in average tax rates would increase budget deficits. By comparing tax rates projected for 1984 with those that applied in 1980, before the Reagan administration took office and the 1981 and 1982 tax acts were passed, one can see whether the administration's tax program has changed incentives to work or to invest, and whether current and projected budget deficits are caused by tax cuts.

A careful look at the 1981 and 1982 tax acts shows that total marginal federal tax rates faced by

families with constant *real* incomes will not change much from 1980 to 1984. Consequently, tax policy will not have much effect on households' incentives. The two tax acts do produce a substantial reduction in the *effective* corporate income tax rate on additional profits generated by new investment in plant and equipment, however. So recent tax changes do provide greater incentives for corporations to invest.

For most families with constant real income, the share of income taken by federal taxes will *rise*, slightly, from 1980 to 1984. The share of corporate profits taken by the corporate income tax will fall from 1980 to 1984, but other taxes levied on businesses will rise more than enough to offset the revenue loss from corporate income tax cuts. As a result, the share of national income going to pay taxes will be the same in 1984 as it was in 1980.<sup>1</sup> Because average tax rates do not fall, one cannot reasonably claim that the 1981 and 1982 tax acts cause large government budget deficits.

The combination of the 1981 and 1982 tax acts does reduce taxes from what they would have been in 1984 if tax laws had remained unchanged since 1980. But only if the inflation rate remains much below 5 percent will there be any substantial reduction in tax rates in 1984 as compared to 1980.

#### A BRIEF LOOK AT THE 1981 AND 1982 TAX ACTS

At first glance it appears that the 1981 tax act (the "Economic Recovery Tax Act") embodies a large tax cut, which is only partly offset by the 1982 tax act. The major provisions of the 1981 tax law include: (i) a 23 percent cut in personal income tax rates applied to all but the top tax bracket;<sup>2</sup> (ii)

indexing of tax brackets, personal exemptions, and the zero bracket amount in 1985 and later years;<sup>3</sup> (iii) a substantial speed-up of depreciation deductions used in calculating business taxes; (iv) "safe-harbor leasing" provisions that allow firms to sell unused tax credits to businesses which can use the credits to reduce their tax liabilities. These and other provisions of the 1981 tax act are estimated to have reduced federal revenues by a total of \$60 billion (in current dollars) from what they would have been otherwise during 1981 and 1982, and also to reduce revenues by \$250 billion more during 1983 and 1984.<sup>4</sup>

In 1982, the Congress came to see those revenue reductions as too large, so it adopted the "Tax Equity and Fiscal Responsibility Act." This 1982 tax act curtails safe-harbor leasing arrangements and reduces the tax advantages of accelerated depreciation, thereby raising business taxes. Some provisions of this act raise tax payments by individuals. But the 23 percent cut in personal income tax rates remains.<sup>5</sup> Overall, the 1982 tax act takes back, during 1983 and 1984, an estimated \$65 billion—or 26 percent—of the tax reductions enacted in 1981.

Adding up the revenue effects of the 1981 and 1982 tax acts, the net effect is a reduction in projected federal revenues by \$245 billion during 1981 through 1984, from what those revenues would have been otherwise. While this may appear

dollar income is thus equal to 23.05 percent of the 1980 tax rate.

<sup>3</sup>Each year from 1985 on, income tax brackets, the personal exemption, and the zero-bracket amount are to be increased by the percentage increase in prices that occurred during the year ending the previous September 30. This indexing will eliminate bracket creep in years beyond 1984.

<sup>4</sup>Estimates of changes in federal revenues caused by the 1981 and 1982 tax acts were provided by the U.S. Treasury Department and by Data Resources, Inc.

<sup>5</sup>In addition to cuts in tax rates, the 1981 tax act included several provisions which produce small tax cuts for some families. These non-rate provisions reduce federal revenues by an estimated total of \$15 billion during fiscal 1982 through 1984. Most provisions of the 1982 tax act affected business, but a few raised taxes on individuals. The cut in personal tax rates was not changed, however. The personal tax increases in the 1982 tax act raised estimated federal revenues by a total of \$14 billion during fiscal 1982 through 1984. Because the non-rate portions of the personal tax changes contained in the 1981 and 1982 act cancel each other, the analysis in this paper focuses on the 23 percent cut in personal tax rates.

<sup>1</sup>*National income* is the total earnings from production of goods and services by all individuals and enterprises in the country.

<sup>2</sup>Even though the President and Congress refer to a "25 percent cut" in personal income tax rates, the 1981 tax law actually provides a 23 percent cut in tax *rates* on a given dollar income, spread over three years. On October 1, 1981 tax rates were cut by 5 percent. On July 1, 1982 tax rates fell by a further 10 percent from their levels on June 30, 1982. Then on July 1, 1983 tax rates are scheduled to drop by 10 percent more, from their levels on June 30, 1983. Thus tax rates for 1984 will be equal to  $(.95) \times (.90) \times (.90) \times$  tax rates for 1980, or  $(.7695) \times$  tax rates for 1980. The cumulative reduction in tax rates on a given

to be a tax cut, in an important sense it really is not. The key point here is that taxes are cut only in comparison to "what those revenues would have been otherwise." If neither of the two tax acts had been adopted, the share of national income going to taxes would have *risen* because of continuing bracket creep, rising social security taxes, and increasing indirect taxes. On balance, the two tax acts simply offset automatic tax increases that result from continuing bracket creep and rising social security taxes.

### THE 23 PERCENT CUT IN TAX RATES IS UNDONE BY BRACKET CREEP AND SOCIAL SECURITY TAXES

Because the U.S. has a progressive income tax system, the *marginal* tax rate—the extra tax paid on an additional dollar of income—rises with taxable income. The tax code does not recognize the difference between nominal (current dollar value) and real (constant purchasing-power) income, however. As a result, inflation causes *bracket creep*: if incomes rise just fast enough to maintain constant purchasing power in the face of rising prices, families are pushed into higher tax brackets. Consequently their tax payments grow faster than their incomes. Bracket creep also means that the share of income going to taxes rises automatically with inflation. Bracket creep raises the real receipts of the government just as if Congress had voted a tax increase.

**Slower Inflation Means Less Bracket Creep.** . . . When the 1981 tax act was passed, prices were rising at a rate of 8.8 percent per year, and they were projected to keep rising nearly that rapidly through 1984. At those inflation rates, few families would have faced lower federal income tax rates in 1983 and 1984 than they did in 1980, and middle income families would have faced higher income tax rates.<sup>6</sup>

Inflation slowed down, however. During 1982 the cost of living rose by 6.0 percent, and most forecasters expect the rate of inflation to slow somewhat more in the next two years.<sup>7</sup> Because

dollar incomes won't have to rise as rapidly to keep up with rising prices, there will be less bracket creep than seemed likely when the 1981 tax act was passed. The result is that many, but not all, families will face somewhat lower marginal federal income tax rates in 1984 than they *did* in 1980, if their incomes just keep pace with inflation. Table 1 shows the current dollar incomes that would be required to maintain a constant real income, *before taxes*, for 1980 to 1984. (For ease of reference, Tables 1 through 5 are presented in a foldout beginning on page 12.) No family with a constant real income will see a 23 percent cut in its marginal federal income tax rate, however.

Table 2 presents estimates of marginal tax rates that apply to families with constant real incomes, based on the tax schedules legislated for 1981 through 1984, assuming current forecasts of inflation prove correct. (For details of the estimation procedure, see Appendix II: CONSTRUCTING TAX RATES.) Two sets of marginal tax rates are provided—one for households using the standard deduction, and another for families who itemize deductions. These estimates show the combined effect of the 1981 and 1982 tax acts.

Among families who use the standard deduction (that is, those who do not itemize deductions), those with real incomes of \$17,000 (in 1978 \$) or less—or about \$26,000 in 1984 \$—generally will experience small declines in their marginal federal income tax rates. But those with somewhat higher real incomes, from \$19,000 to \$27,500 (in 1978 \$), will actually face slightly higher marginal federal income tax rates in 1984 than they did in 1980. For these families, bracket creep more than offsets the 23 percent cut in personal tax rates.

Of course, most families with real incomes of \$19,000 (in 1978 \$) and higher itemize their deductions. Among families who itemize, virtually every one will see a small reduction in its marginal federal income tax rate between 1980 and 1984.

---

The *Personal Consumption Expenditures (PCE) Deflator* provides a better measure of changes in the cost of living. Using the PCE Deflator as a measure, the cost of living rose by 9.0 percent from 1978 to 1979, by 10.3 percent from 1979 to 1980, by 8.5 percent from 1980 to 1981, and by 6.0 percent from 1981 to 1982. Data Resources, Inc. (one of the major economics forecasting services) predicts that the PCE Deflator measure of the cost of living will rise by 5.6 percent from 1982 to 1983, and by 5.5 percent more from 1983 to 1984.

<sup>6</sup>See S.A. Meyer and R.J. Rossana, "Did The Tax Cut Really Cut Taxes: A Further Note", this *Business Review*, (January/February 1982), and "Did The Tax Cut Really Cut Taxes", this *Business Review*, (November/December 1981).

<sup>7</sup>While the Consumer Price Index (CPI) rose by only 3.9 percent in 1982, the CPI provides a distorted measure of inflation.

Only those with real incomes of \$22,500 (in 1978 \$)—or roughly \$35,000 in 1984 \$—will see a slight increase.

On average, marginal federal income tax rates on a constant *real* income will fall by 8.6 percent from 1980 to 1984 for the families treated here, unless inflation speeds up again.<sup>8</sup> If inflation does accelerate, even this small reduction in marginal federal income tax rates will disappear.

**... But Social Security Taxes Continue To Rise.** . . . Income taxes are not the only federal taxes that apply to an additional dollar of income. Social security taxes are a large part of most families' tax bill, and for most families an additional dollar of earnings is also subject to social security tax. To understand what happens between 1980 and 1984 to incentives to work, families need to consider changes in social security taxes along with income tax changes.

While marginal *income* tax rates seem likely to fall somewhat from 1980 to 1984, the *payroll* (social security) tax rate will continue to rise. And the maximum wage subject to social security tax will continue to rise as well. As shown in the table below, the employee's share of social security tax

	Tax Rate, % Social Security (Employee's share)	Taxable Wage Base
1978	6.05	\$17,700
1979	6.13	22,900
1980	6.13	25,900
1981	6.65	29,700
1982	6.70	32,400
1983	6.70	35,700
1984	7.00 <sup>a</sup>	37,500 <sup>b</sup>

<sup>a</sup> As recommended by the Commission on Social Security Reform.

<sup>b</sup> Projected by the Social Security Administration.

will rise from 6.13 percent of wages in 1980 to 7.0 percent in 1984. Even more striking, the maximum level of wages subject to social security tax will rise by 45 percent from 1980 to 1984, increasing to

<sup>8</sup>8.6 percent is the weighted average cut in marginal federal income tax rates, when each income bracket in Table 2 is weighted by the share of taxpaying families in that bracket.

\$37,500. The scheduled increase in the social security wage base means that most families will pay social security tax on their entire wage and salary incomes by 1983 and 1984.

**... And Overall, Total Marginal Tax Rates on Real Income Barely Change.** Social security tax rates must be added to personal income tax rates to find *total* marginal tax rates, except for families whose incomes are higher than the social security wage base. Most families will find that their total marginal federal tax rate is seven percentage points higher than their marginal *income* tax rate in 1984.

Because the social security tax rate will rise from 1980 to 1984 while personal income tax rates fall, the *total* marginal federal tax rate on a constant real income will barely change for most families. Table 3 presents the results. Most families with constant real incomes of \$19,000 (in 1978 \$) and less will see almost no change in their total marginal tax rates between 1980 and 1984; many will see a reduction of one percentage point, but some will see increases. Families with real incomes close to \$22,500 (in 1978 \$, which will be roughly \$32,850 in 1983) will face substantially higher total marginal tax rates. Not only does bracket creep undo the income tax cuts for those families, but the rapid rise in the social security wage base means that additional earnings will be subject to both income tax and payroll tax in 1984; in 1980 additional earnings would have been subject to income tax only. So the total marginal tax rate faced by families with real incomes of \$22,500 (in 1978 \$) will be seven percentage points higher in 1984 than it was in 1980 for those who take the standard deduction, and eight percentage points higher for those who itemize. Only families in the highest real income groups studied will see appreciable cuts in their total marginal tax rates. Because their incomes are so high, they pay no social security tax on additional earnings. For these families, their *total* marginal tax rate equals their personal *income* tax rate, which will fall.<sup>9</sup>

<sup>9</sup>For the very highest income tax payers, the marginal tax rate on *wage and salary income* was not cut at all. Those with incomes greater than \$105,000 (in 1978 \$) face a 50 percent tax rate on an additional dollar of earnings in each year. So for these taxpayers, as for most others, the 1981 and 1982 tax acts offer no incentives to work more.

On average, the families studied here will find that their total marginal tax rates (for federal taxes) will be virtually the same in 1984 as in 1980. The combination of continuing bracket creep and higher payroll tax rates will offset the 23 percent cut in marginal personal tax rates. Because total marginal tax rates will be little different in 1984 than they were in 1980, the 1981 and 1982 tax acts will have little effect on incentives to work. For most families the real after-tax rewards from working additional hours change very little, so the two tax acts provide little in the way of new incentives for additional hours of work. Critics of current tax policy are correct on one point, at least: given current projections of inflation through 1984, the 23 percent cut in personal tax rates was not large enough to provide new incentives to work.

Are critics also correct in arguing that the 1981 and 1982 tax acts will cause large budget deficits? To find the answer to that question we need to look at *average*, rather than marginal tax rates.

#### **THE SHARE OF FAMILY INCOME GOING TO TAXES RISES**

In contrast to marginal tax rates, *average* federal tax rates will *rise* slightly from 1980 to 1984, for almost all families. Because the personal exemption and the zero bracket amount (standard deduction) have not yet been adjusted to compensate for inflation, a larger fraction of families' incomes is becoming subject to federal income tax as those incomes rise just enough to keep pace with rising prices.<sup>10</sup> Also, rapid growth in the maximum level of earnings subject to social security tax between 1980 and 1984 means that many workers will be paying social security tax on a bigger fraction of their incomes. For most families the fraction of income subject to tax will rise enough so that if their real incomes remain constant they will pay a slightly larger *share* of their income to the federal government, even though their *marginal* tax rates change very little.

Table 4 shows the changes in *average* federal tax rates on constant real family incomes from 1980 to 1984. Families in every income group studied,

<sup>10</sup>The indexing provision of the 1981 tax law (see footnote 3) will prevent inflation from raising the share of family income subject to federal income tax, but not until 1985.

except the highest, can expect to pay a somewhat bigger share of their incomes in federal income and payroll taxes. Among the families studied, the share of income going to pay federal income and payroll taxes rises by 6.4 percent from 1980 to 1984, on average. The average federal tax rate for families with real incomes of \$40,000 (in 1978 \$) declines slightly from 1980 to 1984, but it remains higher than in 1978.

Table 4 also shows that the share of income going to pay federal income and payroll taxes will rise more for families in the lower income groups than for those in the higher income groups. This result arises because the tax acts do not increase the personal exemption and zero bracket amounts. As dollar incomes rise with inflation from 1980 to 1984, the fraction of families' incomes subject to federal income tax (that is, the fraction above the zero bracket amount plus personal exemptions) rises especially rapidly for those in the lower income brackets.<sup>11</sup>

Because the 1981 and 1982 tax acts increase slightly the share of family income going to pay federal taxes, the personal tax provisions of these two tax acts cannot be causing large budget deficits. Those critics who charge that the personal tax cuts contained in the 1981 and 1982 tax acts will cause large budget deficits are mistaken.

Federal taxes on personal incomes are not the only ones that matter for incentive effects, or for budget deficits. The marginal corporate profits tax rate affects firms' incentives to invest in new plant and equipment. And taxes levied on businesses raise more than one third of all federal revenues. To see whether the 1981 and 1982 tax acts improve incentives, or cause budget deficits, business taxes as well as personal taxes must be considered.

#### **CORPORATE INCOME TAXES ARE CUT, BUT OTHER BUSINESS TAXES RISE**

Unlike federal tax rates on personal incomes, taxes on *corporate* income were cut substantially by

<sup>11</sup>Families in the lowest income group studied (\$7,000 in 1978 \$) face the biggest increase in their average federal tax rates. Continuing inflation means that these families will no longer qualify for the earned income credit in 1983 and 1984, even though their pre-tax *real* incomes remain constant. This combines with the constant zero bracket and personal exemption amounts to raise dramatically those families' average tax rates.

the 1981 and 1982 tax acts. In particular, the marginal federal tax rate on the *additional* profits that corporations earn from investing in new plant and equipment was cut by 85 percent. The average tax rate—the share of corporate profits going to the federal government—also falls. But other federal taxes levied on businesses will rise enough from 1980 to 1984 to offset the tax reductions from corporate income tax cuts. Overall, the share of federal government revenues raised by taxes levied on business will be the same in 1984 as in 1980.

**The Marginal Tax Rate on Returns from New Investment Falls Sharply. . .**

The 1981 tax act cut corporate income taxes, and the 1982 tax act took back roughly one half of the cut. The net effect of the two tax acts is to cut marginal corporate income tax rates. A recent study by the Urban Institute estimates that the effective tax rate on *additional* corporate profits which come from new investment in plant (buildings) and equipment (machinery, tools, etc.) was cut from 33 percent in 1980 to 4.7 percent in 1981 through 1984, on average.<sup>12</sup> This reduction in the marginal tax rate is exactly what policymakers wanted; it was designed to raise the *after-tax* returns on new investment in order to give firms greater incentives to expand and modernize.

The cut in marginal corporate income tax rates comes primarily from allowing firms to use new accelerated depreciation rules when calculating their taxable profits. Using these new rules reduces the *effective* marginal tax rate on additional profits by reducing taxable profits relative to actual returns on investment. Because capital equipment gradually wears out and becomes obsolete, businesses are allowed to charge an annual depreciation allowance (based on the cost of their capital equipment) as an operating expense when they calculate their profits and their taxes. The new accelerated depreciation rules allow businesses to deduct *more* than was allowed under prior law in the first few years of an investment project's useful life. Doing so reduces reported taxable profits

<sup>12</sup>See Charles R. Hulten and James W. Robertson, "Corporate Tax Policy and Economic Growth: An Analysis of the 1981 and 1982 Tax Acts," Urban Institute Discussion Paper (December 1982). The numbers cited are averages for all investment by the nonresidential business sector, assuming that inflation remains at 6 percent per year.

from new investments in those early years, so firms pay less corporate income tax in the early years. In later years firms will have to pay the taxes they avoid today, because in later years the allowable depreciation deduction will be less than before, so taxable profits will be greater than before. But deferring tax payments for several years is equivalent to obtaining an interest-free loan. So deferring taxes reduces the *effective* corporate income tax rate on the returns to new investment in plant and equipment.<sup>13</sup> By reducing the marginal tax rate on profits from new investment, the 1981 and 1982 tax acts do increase incentives for firms to undertake new investment.

Does the cut in corporate income taxes contribute to large budget deficits? To answer this question we need to look at *all* taxes levied on businesses, not just at corporate income taxes.

**. . . And The Average Corporate Income Tax Rate Falls, Too. . .**

Not all corporate profits come from *new* investment, so the *average* rate of taxation on corporate profits remains higher than the 4.7 percent marginal tax rate for 1981 through 1984. Corporations will pay nearly 30 percent of their profits to the federal government in 1984, compared to 39 percent in 1980.<sup>14</sup> Still, the average federal tax rate on all corporate profits will fall by nearly one quarter from 1980 to 1984, as shown in Table 5.

**. . . But Other Taxes Levied On Businesses Rise.** Although corporations will pay less profits tax as a result of the 1981 and 1982 tax acts, other taxes levied on businesses will rise more than enough to offset the tax savings. Indirect business taxes, such as excise taxes, are projected to rise by 32 percent (in real terms) from 1980 to 1984. And employer contributions for social insurance, such as social security and unemployment

<sup>13</sup>To find the effective tax rate, first calculate the present discounted value of the tax payments that will be due under the 1981 and 1982 tax acts on the *taxable* profits from an investment project. Second, calculate the stream of *actual* profits, net of actual depreciation, that will result from the investment project. The *effective* tax rate is the tax rate that, when applied to the actual profits, yields a stream of tax payments with the same present discounted value as the tax payments due under the 1981 and 1982 tax acts. (The Urban Institute study cited here uses a 4 percent real discount rate for these calculations.)

<sup>14</sup>These and the following forecasts of tax revenues are based upon projections by Data Resources, Inc.

compensation taxes, are projected to rise by 21 percent (after adjusting for inflation) during the same period. As Table 5 shows, revenue from these two sources will rise more than corporate income tax revenue falls. Despite the cut in the effective corporate income tax rate, total federal revenues from taxes levied on businesses will rise by 5 percent (in real terms) from 1980 to 1984.

As a result, 37.5 percent of federal revenues will come from taxes levied on businesses, compared to 37.4 percent in 1980. Indirect business taxes and payroll taxes levied on employers will become a much bigger share of total business taxes by 1984. Despite big cuts in the corporate income tax, there is a slight increase in total federal taxes levied on businesses. Overall, changes in business taxes are not the cause of large budget deficits.

### THE BOTTOM LINE

The 1981 and 1982 tax acts have the net effect of cutting federal revenues by a total of \$245 billion, *from what they would have been under prior law*, during 1981 to 1984. Despite these apparent tax cuts, there will be remarkably little real change in tax rates relative to those prevailing in 1980. The real effects of the tax cut will be undone by continuing bracket creep, rising social security taxes, and increasing indirect taxes.

Incentives for additional work will not increase because total marginal tax rates on a constant real family income will be much the same in 1984 as they were in 1980, if current inflation forecasts prove correct. Because inflation has slowed in the past two years, continuing bracket creep will not completely undo the 23 percent cut in marginal *personal* income tax rates. But rising social security tax rates mean that families with constant real incomes will find that their *total* marginal federal tax rate will be unchanged from 1980 to 1984, on average. The tax acts do increase incentives for new investment in plant and equipment, because they substantially cut the effective corporate income tax rate on the returns to new investment, namely to one seventh of its 1980 level.

Because in the aggregate the 1981 and 1982 tax

acts leave the average tax rate essentially the same in 1984 as in 1980, one cannot reasonably claim that the 1981 and 1982 tax acts are responsible for large budget deficits. Although the average federal tax rate on corporate profits falls from 1980 to 1984 as a result of the tax acts, total taxes levied on businesses will rise, even after adjusting for inflation. Unlike average tax rates on corporate income, the average federal tax rate on family income will rise, slightly, from 1980 to 1984, as a greater proportion of that income becomes subject to tax.

Another way to see that the 1981 and 1982 tax acts are not causing large deficits is to look at total tax payments as a share of total income earned in the United States. Doing so reveals that the share of national income going to pay federal taxes remains very nearly constant, at roughly 25 percent, from 1980 to 1984.<sup>15</sup> Because the 1981 and 1982 tax acts do not cut the share of total income going to federal taxes, they cannot be the cause of large budget deficits.

On balance, the 1981 and 1982 tax acts simply redistribute total tax payments. Direct taxes on income will raise a smaller share of total government revenues in 1984 than in 1980. Indirect taxes and especially payroll taxes will raise a larger share of revenues. The net effect of the 1981 and 1982 tax acts is to make taxes lower than they otherwise would have been in 1984. But there will be no real cut in taxes from 1980 to 1984, unless inflation slows even more than it already has. Further, any tax increases adopted in 1983 or 1984 would mean that the share of income going to taxes would rise from its 1980 level. Such tax increases may prove desirable in the context of an integrated macroeconomic policy, but their effect would be to raise total tax rates from 1980 levels.

<sup>15</sup>The share of national income going to pay federal taxes was 25.5 percent in 1980; it is projected to be 25.2 percent in 1984. Total government receipts (for all levels of government) were 39.6 percent of national income in 1980; they are projected to take the same share in 1984.

## Appendix I

## TAX RATES AND INCENTIVES

The debate about the economic effects of the 1981 and 1982 tax acts involves, among other issues, the likely impact of such policies upon incentives to work. Proponents of "supply-side economics" argue that cutting *marginal* tax rates will increase incentives to work, thus raising the labor supply available to firms. How does a tax cut do this?

One incentive that strongly affects people's willingness to work is hourly take-home pay. Cutting *marginal* tax rates increases the take-home pay one can earn by working *additional* hours. So cutting marginal tax rates increases the real quantity of goods and services that an extra hour of work will buy. That is, giving up an hour of leisure time (and working instead) allows a worker to obtain more goods and services, compared to the amount that he would obtain by sacrificing an hour of leisure when there is a higher marginal tax rate. When *marginal* tax rates are cut, some workers respond to the opportunity to get more consumption than before by working extra hours. And other people, who were not working, choose to enter the labor force to try to take advantage of the increased after-tax wages.

But a tax cut can increase hourly take-home pay in two ways, which have very different effects on the incentive to work extra hours. If *only* the *marginal* tax rate is cut (leaving unchanged the amount of taxes a worker pays on his *initial* income), then the incentive to work extra hours is strong. One can take advantage of a cut in the marginal tax rate only by working extra hours; working the same hours as before leaves one's after-tax income unchanged. No one has an incentive to work less, and some would be willing to put in more hours, so the total labor supply would *rise*. However, if *average* tax rates are cut (so that taxes due on a worker's initial income fall), but marginal tax rates are left unchanged, then total labor supply would *fall*. Cutting the average tax rate means that a worker's spendable income rises if he works the same number of hours as initially. He can work fewer hours (have more leisure time) and still end up with a somewhat higher after-tax income than before taxes were cut. Some people will choose to work less, but no one is induced to work more when only the *average* tax rate is cut, so the total labor supply would decline.

These two offsetting influences on labor supply suggest that Congress should be careful about how it cuts taxes, if the objective of a tax cut is to induce people to work more. Giving each taxpayer a tax cut by allowing him to calculate his income tax and then subtract \$500 from the taxes due would lower the average tax rate without affecting the marginal tax rate. This would reduce labor supply. On the other hand, marginal tax rates applicable to each income bracket could be reduced, and the personal exemption or zero-bracket amount could be lowered at the same time so as to leave the average tax rate on a worker's initial income substantially unchanged. Doing this would provide a strong incentive to work additional hours, so labor supply would rise.

The net effect of the 1981 and 1982 tax acts is to produce almost no change in total *marginal* tax rates for most families with constant real incomes, coupled with a small increase in *average* tax rates. How will this affect labor supply? This combination should *increase* labor supply, unambiguously. But the empirical evidence suggests that we should expect only very small changes in labor supply, because tax rates will change very little.<sup>4</sup> If this extra labor supply were put to work by employers, then real GNP would rise a bit.

There is one other way in which the 1981 and 1982 tax acts might affect labor supply. If workers previously had expected marginal tax rates to keep rising because of continuing bracket creep, some might have decided not to pursue advanced training and promotions because their future incomes would be taxed too heavily. If the two tax acts led workers to expect constant rather than rising marginal tax rates, some workers might respond by working harder than before to increase their skills and to obtain promotions. It is difficult to gauge the overall influence of the tax acts on people's expectations, however. During the past 25 years, Congress has periodically cut tax rates to offset bracket creep (usually in election years), so presumably workers had come to expect some such cuts. If the 1981 and 1982 tax acts were, in the main, expected, then they would have little effect on workers' expectations about the behavior of marginal tax rates in the long run.

Should the marginal tax rates that are relevant for a worker's labor supply decisions include the employee's

<sup>4</sup> See A. Protopapadakis, "Supply-Side Economics: What Chance for Success?" this *Business Review*, (July/August 1981), for a discussion of empirical estimates of labor responses to changes in tax rates.

share of social security taxes? It could be argued that higher social security taxes won't reduce incentives to work, because those taxes buy higher benefits when a worker eventually retires. In reality, however, the social security benefits that any individual stands to receive in the future are not closely related to the social security taxes he pays today. Rather, future benefits are determined by what Congress chooses to enact at that time. Today's social security taxes pay for today's benefits. Because there is no direct link between social security taxes paid today and the future level of benefits, today's social security taxes affect labor supply decisions in the same way as today's income taxes. Thus, the relevant wage for deciding whether or not to work an additional hour is the after-tax wage, net of both income and social security taxes.

Marginal tax rates are important not only for labor supply decisions, but also for investment decisions. A cut in the effective tax rate on the additional profits generated by new investment would raise the *after-tax* returns to such investment, thus stimulating more investment. The substantial drop in the effective corporate income tax rate on returns to new investment, combined with nearly constant marginal tax rates on personal income, means that after-tax returns to new investment, *as seen by shareholders*, will rise as a result of the 1981 and 1982 tax act. This increase in after-tax returns to shareholders is likely to promote more new investment than would otherwise take place as the U.S. economy recovers from recession in 1983 and 1984. There is some evidence to suggest that the cut in the effective tax rate on the returns from new investment has already spurred some new investment; the amount of investment undertaken during the recent recession was higher than predicted by models based on historical relationships of investment to GNP.

#### Appendix II

### CONSTRUCTING INCOME TAX RATES

Constructing marginal and average personal income tax rates requires detailed information on taxes paid, deductions, and adjusted gross income (AGI) for U.S. households. The last year for which such data are available is 1978. This information is provided by the Internal Revenue Service in *Individual Income Tax Returns, 1978 Statistics of Income*, Publication 79 (3-81).

Choosing ten AGI classes where husbands and wives filed joint returns, the AGI of the typical households in each group is taken to be the mid-point of the AGI range for that class. For example, AGI is assumed to be \$13,000 in 1978 for households in the \$12,000-\$14,000 AGI class. Exemptions claimed per return averaged 3.7, so for simplicity assume that each household claims four exemptions.

For a household of four that does not itemize deductions, taxable income (TI) is computed using the formula: (1)  $AGI - 4 \times (\text{Dollars per Exemption}) = TI$ .

Given TI, one can refer to the tax table to obtain the relevant marginal, statutory tax rate. Dollars per exemption were \$750 in 1978 and \$1,000 in 1979 and beyond.

For those who itemize, the 1978 *Statistics of Income* are used to find deductions per itemized return (D) in 1978. TI is derived using the formula: (2)  $AGI - (D - ZB) - 4 \times (\text{Dollars per Exemption}) = TI$ , where ZB is the zero bracket amount (the amount of taxable income at the zero percent rate). For joint returns, zero bracket amounts are \$3,200 in 1978 and \$3,400 for 1979 onward.

To calculate TI for years following 1978, AGI and D are increased at the inflation rate (actual or forecast) for each year, and then formulas (1) and (2) are applied. The estimates presented in this paper are based on the Personal Consumption Expenditures Deflator measure of the cost of living. Prices rose by 9.0 percent from 1978 to 1979, by 10.3 percent from 1979 to 1980, by 8.5 percent from 1980 to 1981, and by 6.0 percent from 1981 to 1982, according to this measure. Recent economic forecasts made by Data Resources, Inc., project that the cost of living will rise by 5.6 percent from 1982 to 1983, and by 5.5 percent more from 1983 to 1984, using the same measure.

Finally, to compute marginal and average income tax rates, actual or projected TI figures are mapped into the tax tables that accompany IRS form 1040. Tax tables for 1982, 1983, and 1984 are contained in the 1981 tax legislation, which was provided by the Treasury Department. Marginal tax rates can be read from the tax tables directly. Average tax rates are calculated by computing the total tax due and dividing by adjusted gross income.

The estimates of marginal and average personal tax rates contained in this article do not include state and local income taxes. The reported tax rates on families with various levels of constant real income are for federal taxes alone. Including state and local taxes would raise total tax rates faced by workers in all years.

**Table 1**  
**INCOMES MUST RISE WITH INFLATION TO MAINTAIN CONSTANT**  
**REAL PURCHASING POWER**

Adjusted Gross Income (\$)					
1978	1980	1981	1982	1983	1984
\$ 7,000	\$ 8,415	\$ 9,130	\$ 9,680	\$10,220	\$10,785
9,000	10,820	11,740	12,445	13,140	13,865
11,000	13,225	14,350	15,210	16,060	16,945
13,000	15,630	16,960	17,975	18,980	20,025
15,000	18,035	19,565	20,740	21,900	23,105
17,000	20,440	22,175	23,505	24,825	26,190
19,000	22,845	24,785	26,270	27,745	29,270
22,500	27,050	29,350	31,110	32,855	34,660
27,500	33,060	35,875	38,025	40,155	42,365
40,000	48,090	52,180	55,310	58,405	61,620

**NOTES TO THE TABLES**

To find the tax rates on 1983 dollars in Tables 2-4, locate the closest adjusted gross income figure in the 1983 column of Table 1; then find the number on the same line in the 1978 column. For example, taxpayers who earn \$22,000 in 1983 will look at the tax rates associated with \$15,000 (in 1978 \$) in Tables 2-4.

*Table 1.* This table shows the current dollar value of adjusted gross income required to maintain constant, pre-tax, real purchasing power. Changes in cost of living are measured by the Personal Consumption Expenditures Deflator. 1983 and 1984 estimates are based upon forecasts by Data Resources, Inc. By this measure the cost of living rose by 9.0 percent from 1978 to 1979, by 10.5 percent from 1979 to 1980, by 8.5 percent from 1980 to 1981, and by 6.0 percent from 1981 to 1982. It is projected to rise by 5.6 percent more from 1982 to 1983, and by 5.5 percent from 1983 to 1984.

*Table 2.* The extraordinarily high marginal income tax rates which apply from 1978 to 1982 for families with a constant real income of \$7,000 (in 1978 \$), and in 1978 for families with a \$9,000 (in 1978 \$) real income, reflect the *earned income credit* provision of the tax code. Families with low incomes are allowed a refundable tax credit equal to 10 percent of the first \$5,000 of *earned* income. But that credit is reduced by 12.5 percent of the amount by which Adjusted Gross Income exceeds \$6,000, regardless of its source. (So the earned income credit drops to zero when Adjusted Gross Income reaches \$10,000.) If a family earns more than \$6,000 but less than \$10,000, its true marginal tax rate includes not only the statutory income tax rate, but also the reduction of the tax credit. For example, if in 1980 a family with \$7,000 (in 1978 \$) real income were to have earned an additional \$100, that family would have owed \$14 more federal income tax and received \$12.50 less earned income credit. That family's *true* marginal income tax rate would have been 26.5 percent. Once inflation pushes that family's pre-tax income above \$10,000 (in 1983) the 12.5 percent implicit tax rate no longer applies, because the family no longer qualifies for the earned income credit. The family's marginal tax rate drops, but its real after-tax purchasing power will be less in 1983 and 1984 than it was in 1980.

**Table 2**  
**MARGINAL TAX RATES FROM FEDERAL INCOME TAX FALL,**  
**BUT NOT MUCH, FOR MOST FAMILIES**  
**MARGINAL INCOME TAX RATES %—FEDERAL INCOME TAX ONLY**

Adjusted Gross Income (1978 \$)	Family of Four With One Wage Earner, Taking Standard Deduction						% Change in Marginal Tax Rate, 1980 to 1984
	1978	1980	1981	1982	1983	1984	
\$ 7,000	26.5 <sup>a</sup>	26.5 <sup>a</sup>	26.4 <sup>a</sup>	26.5 <sup>a</sup>	13.0	12.0	-54.7%
9,000	28.5 <sup>a</sup>	16.0	17.8	16.0	15.0	14.0	-12.5
11,000	19.0	18.0	17.8	16.0	17.0	16.0	-11.1
13,000	19.0	18.0	20.7	19.0	17.0	18.0	0.0
15,000	22.0	21.0	20.7	22.0	19.0	18.0	-16.7
17,000	22.0	24.0	23.7	22.0	23.0	22.0	-8.3
19,000	25.0	24.0	27.7	25.0	23.0	25.0	+4.0
22,500	28.0	28.0	31.6	29.0	26.0	28.0	0.0
27,500	32.0	32.0	36.5	33.0	35.0	33.0	+3.1
40,000	42.0	43.0	48.4	44.0	40.0	38.0	-11.6
Family of Four With One Wage Earner, Itemizing Deductions							
\$ 7,000	26.5 <sup>a</sup>	12.5 <sup>a</sup>	12.5 <sup>a</sup>	24.5 <sup>a</sup>	11.0	11.0	-12.0%
9,000	27.5 <sup>a</sup>	14.0	15.8	14.0	13.0	12.0	-14.3
11,000	17.0	16.0	17.8	16.0	15.0	14.0	-12.5
13,000	19.0	18.0	17.8	16.0	15.0	16.0	-11.1
15,000	19.0	18.0	20.7	19.0	17.0	16.0	-11.1
17,000	22.0	21.0	20.7	19.0	19.0	18.0	-14.3
19,000	22.0	24.0	23.7	22.0	19.0	22.0	-8.3
22,500	25.0	24.0	27.7	25.0	23.0	25.0	+4.0
27,500	28.0	32.0	31.6	29.0	30.0	28.0	-12.5
40,000	39.0	43.0	42.5	39.0	40.0	38.0	-11.6

<sup>a</sup> includes "earned income credit" reduction

**Table 3**  
**MARGINAL TAX RATES FROM FEDERAL INCOME**  
**PLUS SOCIAL SECURITY TAXES CHANGE LITTLE, FOR MOST FAMILIES**  
**TOTAL MARGINAL TAX RATES %—FEDERAL INCOME AND PAYROLL TAXES**

Family of Four With One Wage Earner, Taking Standard Deduction

Adjusted Gross Income (1978 \$)	1978	1980	1981	1982	1983	1984	% Change in Marginal Tax Rate, 1980 to 1984
\$ 7,000	32.6 <sup>a</sup>	32.6 <sup>a</sup>	33.1 <sup>a</sup>	33.2 <sup>a</sup>	19.7	19.0	-41.7%
9,000	34.6 <sup>a</sup>	22.1	24.5	22.7	21.7	21.0	-5.0
11,000	24.1	24.1	24.5	22.7	23.7	23.0	-4.6
13,000	24.1	24.1	27.4	25.7	23.7	25.0	+3.7
15,000	27.1	27.1	27.4	28.7	25.7	25.0	-7.7
17,000	27.1	30.1	30.4	28.7	29.7	29.0	-3.7
19,000	30.1	30.1	34.4	31.7	29.7	32.0	+6.3
22,500	28.0	28.0	38.3	35.7	32.7	35.0	+25.0 <sup>b</sup>
27,500	32.0	32.0	36.5	33.0	35.0	33.0	+3.1
40,000	43.0	43.0	48.4	44.0	40.0	38.0	-11.6

Family of Four With One Wage Earner, Itemizing Deductions

\$ 7,000	18.6 <sup>a</sup>	18.6 <sup>a</sup>	19.2 <sup>a</sup>	31.2 <sup>a</sup>	17.7	18.0	-3.3%
9,000	32.6 <sup>a</sup>	20.1	22.5	20.7	19.7	19.0	-5.5
11,000	22.1	22.1	24.5	22.7	21.7	21.0	-5.0
13,000	24.1	24.1	24.5	22.7	21.7	23.0	-4.6
15,000	24.1	24.1	27.4	25.7	23.7	23.0	-4.6
17,000	27.1	27.1	27.4	25.7	25.7	25.0	-7.7
19,000	27.1	30.1	30.4	28.7	25.7	29.0	-3.7
22,500	24.0	24.0	34.3	31.7	29.7	32.0	+33.0 <sup>b</sup>
27,500	28.0	32.0	31.6	29.0	30.0	28.0	-12.5
40,000	37.0	43.0	34.5	39.0	40.0	38.0	-11.6

<sup>a</sup> includes "earned income credit" reduction

<sup>b</sup> This large increase reflects the rapid climb in the social security taxable wage base. An additional dollar of earnings would not have been subject to social security tax in 1980 for these families. In 1984 it will be subject to social security tax.

**Table 4**  
**AVERAGE TAX RATES RISE, FOR ALMOST ALL FAMILIES**  
 AVERAGE TAX RATES %—FEDERAL INCOME AND SOCIAL SECURITY  
 TAXES AS A SHARE OF ADJUSTED GROSS INCOME

Adjusted Gross Income (1978 \$)	Family of Four With One Wage Earner, Taking Standard Deduction						% Change in Average Tax Rate, 1980 to 1984
	1978	1980	1981	1982	1983	1984	
\$ 7,000	2.7 <sup>a</sup>	5.5 <sup>a</sup>	8.1 <sup>a</sup>	9.2 <sup>a</sup>	9.9	10.6	92.7%
9,000	9.4 <sup>a</sup>	10.8	12.1	12.2	12.3	12.8	15.6
11,000	12.0	13.1	14.4	14.1	14.0	14.4	9.9
13,000	13.9	14.8	16.1	15.8	15.5	15.7	6.1
15,000	15.3	16.4	17.6	17.2	16.8	17.0	3.7
17,000	16.7	17.7	19.1	18.6	17.9	18.2	2.8
19,000	17.9	19.0	20.3	19.9	19.2	19.4	2.1
22,500	19.4	20.9	22.6	22.0	21.2	21.4	2.4
27,500	21.2	22.8	24.6	23.9	23.3	23.5	3.1
40,000	26.3	28.2	30.1	29.0	27.7	27.4	-2.8
Family of Four With One Wage Earner, Itemizing Deductions							
\$ 7,000	2.3 <sup>a</sup>	3.8 <sup>a</sup>	5.5 <sup>a</sup>	6.5 <sup>a</sup>	7.2	7.7	102.6%
9,000	7.5 <sup>a</sup>	8.3	9.2	9.2	9.2	9.7	16.9
11,000	9.9	10.4	11.3	11.1	11.0	11.3	8.7
13,000	11.5	12.1	12.9	12.5	11.3	12.5	3.3
15,000	13.2	13.7	14.6	14.2	13.8	14.0	2.2
17,000	14.4	15.0	15.9	15.3	14.5	15.0	0.0
19,000	15.6	16.1	17.1	16.5	15.8	16.0	-0.6
22,500	16.9	17.7	19.1	18.4	17.6	17.8	0.6
27,500	18.1	19.1	20.5	19.8	19.2	19.3	1.0
40,000	21.7	23.3	24.7	23.7	22.6	22.5	-3.4

<sup>a</sup> includes "earned income credit" reduction

**Table 5**  
**TOTAL FEDERAL TAXES LEVIED ON BUSINESSES RISE,**  
**IN REAL TERMS**

	1978	1980	1981	1982	1983 <sup>a</sup>	1984 <sup>a</sup>
Effective Marginal Corporate Income Tax Rate (Federal), %	31.4	33.1	4.7	4.7	4.7	4.7
Corporate Income Taxes (Federal) as a Share of Corporate Profits, %	37.1	38.7	35.3	29.0	27.9	29.3
Real Federal Revenues From Taxes Levied on Business (1978 \$ Billion):						
Corporate Income Tax Receipts (1978 \$ B)	71.3	58.5	51.6	34.4	35.7	40.9
Indirect Business Tax and Non-Tax Receipts (1978 \$ B)	28.1	32.4	44.8	36.2	41.0	42.8
Employer Contributions For Social Insurance (1978 \$ B)	74.3	77.3	82.8	82.4	83.7	93.3
Total Business Tax Receipts (1978 \$ B)	173.7	168.1	179.2	153.0	166.6	177.0
Corporate Income Tax Receipts as a Share of Total Federal Revenues, %	16.5	13.0	10.7	7.7	8.0	8.7
Total Business Tax Receipts as a Share of Total Federal Revenues, %	40.2	37.4	37.2	34.4	36.0	37.5

<sup>a</sup> Based on projections by Data Resources, Inc.