

APPENDIX C

THE PROJECTIONS TO 2019

Chapter III provides an estimate of how much the tax advantages for qualified saving will raise retirement incomes for today's younger workers, and how the additions will be distributed among them in retirement. This appendix gives details of the estimation and considers its sensitivity to alternative assumptions.

The first step in making the estimate is to project retirement incomes for a sample of today's younger workers. This projection is based on current tax law and on current social and economic trends. The second step is to make a counterfactual projection in which the tax advantages for qualified plans and IRAs are repealed. Except for these changes in the tax law, the counterfactual uses the same social and economic trends. Thus, the counterfactual projects what retirement income would be in the absence of the advantages, assuming other things remain unchanged. The difference in retirement incomes between the current law and counterfactual projections provides the estimate of gains from the tax advantages.

This appendix describes major characteristics of the current law projection and enumerates the ways in which the counterfactual projection differs from it. Finally it considers how the results could differ under likely alternative projections.

METHODOLOGY OF THE CURRENT LAW PROJECTION

The current law projection was made by ICF Incorporated using their Pension and Retirement Income Simulation Model.^{1/} The model starts with a representative sample of the population in 1979 drawn from Census

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1. Documentation on the model and on the CBO projections is available in:

David L. Kennell, John F. Sheils, and John D. Gibson. "The CBO Pension Tax Expenditures Data Base: Methodology and Documentation," unpublished document available from the Congressional Budget Office (December 1984).

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Bureau surveys. The Census survey information is augmented with data from other sources, including a survey of employer plans. Also added are a projection of macroeconomic conditions and a host of predictions about how people's family status and work experience evolve as they age. The predictions are taken from conditions and trends in the late 1970s and early 1980s, and thus represent a continuation of recent experience. These projections and predictions are applied to the 1979 sample population to simulate future family changes, work experience, retirement incomes, and ages at death.

The model is particularly detailed in its representation of individuals' qualified plan accruals and retirement incomes. In the years a person is projected to participate in an employer plan, he or she is assigned to one of about 300 actual plans based on the industry of employment. Federal, state, and local government plans are included.

If a person's plan has defined contributions, the employer and any employee contributions for the year are calculated and deposited in the person's plan account. The year's interest earnings on previously accumulated assets are added. If the person leaves the plan before retirement, the unvested assets are subtracted and the vested remainder continues accumulating interest until retirement.^{2/} Seventy-five percent of married persons with annuities greater than \$3,772 (in 1984 dollars) select joint and survivor options.

1. (continued)

David L. Kennell and John F. Sheils, "Revised Documentation of the ICF Pension and Retirement Income Simulation Model," unpublished document available from ICF Incorporated, Washington, D.C. (February 1984).

Similar projections made by ICF Incorporated appear in:

Sophie M. Korcsyk, *Retirement Security and Tax Policy* (Washington, D.C.: Employee Benefits Research Institute, 1984).

"Future Retirement Benefits Under Employer Retirement Plans," unpublished document, ICF Incorporated, Washington, D.C. (June 1984).

The projection used in the latter publication is virtually identical to the CBO current law projection.

2. When a person leaves employment, vested accumulations are paid out as lump sums if (1) the person is under age 30, or (2) the person is under age 62 and the vested accumulations are less than \$2,200 in 1984 dollars.

If the plan has defined benefits, the retirement benefit accruing from that year's service is calculated and the employer contribution necessary to fund it is added to the individual plan account.^{3/} Interest on plan assets is added to the account annually. People dying or terminating employment before vesting forfeit their accrued benefits, while those continuing in service have their retirement accounts credited with a gain. At retirement the total accrued benefit commences as a life annuity. Because the employer's annual contribution is assumed to cover fully the value of benefits accruing in the year, the accumulated assets at retirement are generally just equal to the cost of a life annuity providing the accrued benefits. Couples choose joint and survivor options at the same rate as in defined benefit plans.

Other sources of retirement income are also projected by the model. Income from IRAs is projected from assumptions about IRA contribution rates and an assumption that IRAs are used to purchase life annuities at retirement (but not before age 60). As the projection assumes 1984 tax law, IRAs are assumed to be fully deductible for all contributors throughout their working years. IRA contribution rates are based on experience through 1983. Social Security benefits are calculated in accordance with the 1983 amendments. The calculations use a person's projected work history, age, and family status. The model also projects an aggregate of other taxable income, such as interest and dividends. CBO reduced other taxable incomes for IRA withdrawals (as if they had been taxable savings accounts) to reflect the shifting of saving from regular savings accounts to IRAs.

Federal income taxes can be calculated in each year of the projection. The current law projection is based on 1984 tax law. Consequently, contributions to IRAs and employer contributions to qualified plans go un-

3. The contribution is calculated as the expected present value of accruing benefits where benefits are calculated as of the earliest permissible retirement date upcoming. The expectation is calculated over the probabilities of not dying in each year. This funding method is a variant of the unit credit funding method based on current pay.

Employers often fund according to the entry-age normal cost method or other forward-looking methods which have a more rapid buildup of plan assets than the unit credit method used here. However, when employers obtain waivers for their contributions because of economic difficulties, their funding can lag behind that used here. Faster or slower funding would not clearly raise or lower the size of the measured tax gains. Faster funding would increase the tax-free interest but decrease the gains from income shifting because tax rates are lower earlier in a person's working years.

taxed. Pension benefits and IRA withdrawals are fully taxed, except for the return of employee contributions. Half of Social Security benefits are taxed for taxpayers with incomes above the \$25,000 and \$32,000 thresholds. Indexing is expanded in the projection to include features of the law whose real value would change dramatically over the simulation period had they not been indexed. Thus, the IRA contribution limit and the limit on the two-earner deduction are both indexed. The Social Security income thresholds are not indexed, however, and by the year 2019 their real values decline to one-fourth their 1984 values. Finally, tax rate brackets, the zero bracket amounts, and the personal exemption are indexed to wage growth rather than price levels. This indexing is done to keep the income tax's share of total income constant.

The macroeconomic projection has the inflation rate leveling off at 4 percent per year by the late 1980s and wage growth averaging just over 5 percent per year. Thus real wage growth averages just over 1 percent per year. The interest rate is 7.1 percent which, when averaged over the period of higher inflation in the early 1980s and the 4 percent rate afterward, allows a 2.4 percent real rate of interest. Employment is projected to continue shifting from manufacturing to services, but the share of employment in other industries changes little. Plan participation in industries with low participation in 1979, like services and construction, grows from 43 percent in 1979 to 55 percent in 2019. Plan participation grows less rapidly in industries with higher coverage in 1979; for example, manufacturing participation grows from 76 percent to 86 percent and public-sector participation stays at about 90 percent over the whole projection.

THE COUNTERFACTUAL PROJECTION

The purpose of the counterfactual is to provide a standard against which the effects of the current tax advantages can be measured. The standard chosen is accrual taxation on plan and IRA participants--that is, all income is taxed in the year it is earned.

Accrual taxation is implemented by treating employer plan contributions as additional wages paid directly to the employee. The amounts remain the same; only their form of payment changes. This is based on the proposition discussed in Chapter IV, that the employees largely "pay" for their employer's plan contributions by accepting lower wages. Thus, in the absence of special tax advantages for employer contributions, workers would demand that the contributions be paid as wages.

As wages, the contributions are subject to tax in the year paid. IRAs are not allowed, so that no deposit in a savings account is deductible. The counterfactual assumes people continue to save for retirement a portion of their now taxable income. However, all interest earned by the savings is taxable in the year earned. At retirement, the available savings are used to purchase retirement annuities. Because the savings used to purchase the annuity have already been taxed, only that portion of the annuity representing postretirement interest is taxable.

The projection remains unchanged in all characteristics not directly altered by the tax change. Each person's projected family status stays the same. Years of work, other earnings, job changes, retirement dates, and death remain as projected. Interest rates and other economic conditions are unchanged. Consequently, all changes in retirement income are attributed directly to removal of the income tax deferral. Of course, some of these events could be different in the absence of the deferral and employer pension plans. People might change jobs more frequently and retire at different ages. Interest rates could rise. Thus the change in retirement income is the impact effect of the deferral, not the full measure after all ensuing adjustments.

No Change in Consumption

The counterfactual assumes that employees continue to save all of the after-tax portion of their employer plan contributions and of their own IRA contributions. Further, all interest earned by the savings--after payment of the income tax--is left in the account. For example, suppose under current law an employer contributes \$1,000 to a plan fund for an employee who is in the 28 percent tax bracket. In the counterfactual, the employer pays the \$1,000 to the employee as wages, \$280 is taken out in taxes, and the employee saves the remaining \$720. If the savings earn \$43 interest in the first year, 28 percent is paid in taxes and the remaining \$31 is saved, bringing the balance to \$751. The assumption that people save the after-tax remainder of their employer plan contribution and their own IRA contribution means that they keep their after-tax saving unchanged in the absence of the deferral.

The constant after-tax saving assumption is analytically convenient as well as plausible. The plausibility of this assumption is based on empirical studies evaluated in Chapter IV; its convenience is discussed here. As long as working people continue to save all of the after-tax portion of retirement contributions in the absence of the tax advantage, their con-

sumption in their working years remains unchanged. This means that the full effect of the deferral is reflected in retirement income. Consequently, the full effect of the deferral can be captured by comparing its effect on one year's retirement income. In the immediately preceding example, keeping the employee's after-tax saving at \$720 meant that working year consumption neither rose nor fell in response to the tax change. The only change is that the saving accumulates less by the time of retirement and will therefore buy a lower retirement annuity.

Shift in Retirement Savings

The distribution of savings in the counterfactual diverges somewhat from that projected under current law. Because employer plan contributions are paid directly to employees as wages, savings from these funds become the personal property of employees. They cannot forfeit the funds by leaving before being vested or dying before retirement. Furthermore, in defined benefit plans, continuing employees receive no survivor gains that under current law mirror the losses of terminating employees. The net effect is to shift retirement savings and hence retirement income toward people failing to vest under current conditions and away from those continuing in service until retirement. Consequently, a person working under several plans but failing to vest can receive a higher retirement income under the counterfactual in spite of the increased taxation.

ALTERNATIVE ASSUMPTIONS

Very specific assumptions must be made in order to project future conditions, although much uncertainty surrounds many of these assumptions. Alternative courses of events are quite plausible, and these could lead to changes in retirement incomes and in the importance of the tax deferral. This section considers how such alternative assumptions would affect the findings.

Including Payroll Taxes and State and Local Income Taxes

Most state and local income tax systems defer tax on employer plan accruals in the same way the federal income tax does. Most of them also defer taxes on IRAs. Therefore, the full effect of the tax deferral should include the deferral of state and local income taxes. Further, if employer plan contributions were treated as additions to wages, they would be subject

to payroll taxes as well. Contributions to IRAs are already subject to payroll taxes.

The estimated benefit of the deferral would be larger and its tilt toward higher-income retirees more pronounced if state income taxes were included in the counterfactual. The additional taxes on contributions and interest accruals would reduce retirement saving and retirement incomes even further than in the counterfactual. Because most state income taxes are progressive, the reduction would be greater at higher incomes.

The estimated benefit from the deferral would not change on average if the counterfactual subjected employer contributions to payroll taxes, because Social Security benefits would rise equally. However, the tilt in the Social Security formula means that lower-wage people would show even less gain from the tax deferral than currently calculated. Those just under the taxable maximum wage would show a bigger gain while those earning above the maximum would have the same gain as currently calculated.

Revenue Neutrality

A broader tax base that included contributions to and earnings of employer plans and IRAs would raise total revenues. Higher payroll tax revenues would be accompanied by greater future Social Security obligations, resulting in no long-run surplus. Income tax revenues, however, would rise with no offsetting fiscal obligation. Thus, income tax rates could be lower in the counterfactual.

For simplicity, the counterfactual has been constructed using the same income tax rates as in the current law projection. Lower rates would increase after-tax retirement incomes in the counterfactual and reduce the estimated gain from the tax advantages. The magnitude of this distortion appears to be small on the basis of aggregate calculations. A revenue-neutral counterfactual would reduce the average gains estimated above by roughly one-twentieth, assuming the tax reduction would match the existing distribution of taxes paid.^{4/} That is, the average gain estimated for retired couples of 21 percent would be 20 percent.

4. An aggregate approximation of the distortion from not using a revenue-neutral counterfactual is developed here. One main revenue loss from the tax advantages arises from not taxing the interest earnings of retirement saving. The tax on contributions is repaid in present value terms when the savings are withdrawn in retirement, except for any reduction in rates in retirement. Assets in employer plans, IRAs, and Keoghs were about \$1 trillion in 1982, and probably 70 percent of this repre-

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A revenue-neutral counterfactual would also redistribute consumption in the working years between those doing above- and below- average amounts of retirement saving. People saving more than average would have their tax burden raised because the broader base would more than offset the lower tax rates. Consumption in their working years would be reduced as well as in retirement. Below-average users of retirement savings would have their taxes reduced, allowing them to increase consumption in their working years. The amount of the redistribution would be small as long as the rate reduction was small, as indicated above. If the tax reduction was designed to keep the relative burden among income classes constant, the redistribution would occur only among the above- and below- average savers in the same income class. In summary, the tax advantage for retirement saving has required income tax rates to be higher than they otherwise have to be. These higher rates have redistributed consumption from those making little use of the deferral to those making above-average use of it.

Greater Sharing Between Spouses

The current law projection finds many single women receiving small gains from employer plans and IRAs. One reason for this outcome in the projection is that a noticeable fraction of husbands will continue to eschew survivorship options. The projection assumes that one-fourth of married people with pensions in excess of \$3,772 (1984 dollars) take the individual option. Furthermore, the projection does not split future pension benefits among divorcing couples. Recent trends, especially as evidenced by the Retirement Equity Act, may lead to more common use of joint and survivor options and greater sharing of pension assets among the divorced. If these trends continue, retirement incomes of some elderly singles will be raised, and the gains of the tax advantages will be more evenly spread than in the estimate. Other factors contributing to the economic hardship of elderly women are the lower pay and less regular work pattern of women, and the shorter life spans of men. These would also need to change to eliminate the disadvantage faced by elderly women.

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sented after-tax saving by individuals. These assets would earn no more than 10 percent in taxable income in the year, or \$70 billion. Total taxable income of individuals in 1982 was \$1,446 billion, so adding the asset income from employer plans, IRAs, and Keoghs would raise the tax base by at most 5 percent. Thus tax rates could be reduced by about 5 percent in a revenue-neutral counterfactual. This means that 95 percent of the tax rate increase on retirement savings in the counterfactual presented would remain in a revenue-neutral counterfactual. Because gains are roughly proportional to the tax rate increase, a revenue-neutral counterfactual would show gains equal to about 95 percent of those estimated in this paper.

Reduced Pension and IRA Participation

The projection assumes plan participation continues to grow in the next 40 years. In the early 1980s, however, participation declined. Also, provisions of the Tax Reform Act of 1986 could discourage plan formation among small employers, as discussed in Chapter V. If these recent changes imply lower future growth than projected, the gains from the tax advantage will be less widely spread, and their distribution will be tilted more toward upper incomes. Future growth in employer plan coverage must come disproportionately from the lower paid because coverage is already so extensive among the higher paid. If this growth fails to occur, gains will decline most for the lower paid.

Projected IRA usage is very uncertain because of the large changes in IRA provisions in 1981 and 1986. The size of future contributions could decline dramatically from that projected in the simulation because of restricted deductions, or if IRA limits either remain fixed at current levels or rise less rapidly than inflation. Slower growth of IRAs would lead to smaller average benefits from the deferral, with the bigger losses coming among the higher paid who are projected to use IRAs the most. On the other hand, the projection omits the rapid growth in salary reduction plans that has occurred in the last few years. If contributions to these plans continue to grow, their growth could more than offset the effects of slower IRA growth. So far, 401(k) contributions appear to come more evenly from all income groups than do IRA contributions.

Other Alternatives

Higher rates of interest would lead to greater estimated gains from the tax advantage because one key component of the gain is tax-free interest. Lower rates of interest would have the opposite effect. Slower economic growth would lead to lower wages, lower pensions, and, therefore, lower average gains. In percentage terms, however, the tax advantage would not be affected much by slower wage growth.

