

ON THE USE OF "DISTRIBUTION TABLES" IN THE TAX POLICY PROCESS

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INTRODUCTION

The distribution of tax burdens (and government expenditures) is a fundamental question in both public economics and public policy. Positive and normative analyses in public economics have focused on the incidence and effects of tax and expenditure policies on the distribution of economic well-being. Tax policy debates among policymakers are grounded in no small part in policymakers' perceptions of the effects of policy changes on the distribution of economic well-being. The study of incidence is an active area of research among economists, though the contributions of recent research are not always integrated in the distributional assessments presented to policymakers.

Since 1990, the preparation of "distribution tables" has been an area of increasing activity for staff economists in the administration and Congress and for economists in private organizations advising taxpayers (and for academic economists serving in the government, as I can painfully attest). While there are many reasons for this recent growth, two seem particularly promi-

nent: (1) the heightened concern over income inequality in the 1980s (with the attendant concerns that the federal tax system may have been partially responsible and, in any event, should be used to redress changes); and (2) the increasing ability of staff economists to prepare detailed tables quickly using modern computer technology and microsimulation models. Whatever the reason, the higher profile of distribution tables has aroused worries by economists in and out of government that the tables do not necessarily convey the appropriate information (or, in some cases, lack of information) to decisionmakers. In this paper, I argue that economic analysis has much to offer decisionmakers in forming their judgments about tax fairness.

On one level, economic analysis has made significant contributions to the study of distributional effects of government policies: it is well understood, for example, that the burden (or benefit) of a tax change is not necessarily borne by (does not necessarily accrue to) the groups that bear the legal liability to remit the tax. That is, changing the structure of taxes alters the economy's equilibrium by altering prices of goods, labor, and capital.¹ The concept of shifting the burden of the tax is incorporated in the distributional analysis presented by policymakers in the executive

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branch and Congress. There is much controversy, however, on *how* the economy's equilibrium changes in response to many taxes (for example, the corporate income tax or a broad-based consumption tax). Such controversy notwithstanding, I argue below that economic analysis contributes a framework for deciding the appropriate questions and for gathering information.

The paper is organized as follows. In the next section, I present some questions posed by economic analysis for the presentation of distribution tables and then review "answers" in practice. The following section illustrates some methodological issues in measuring the distribution of the tax burden in the context of proposals for a broad-based consumption tax at the federal level. The final section concludes by suggesting a strategy for bringing theory and practice closer together.

APPLYING ECONOMIC ANALYSIS

A basic methodological issue in distributional analysis is how to measure incidence. Economists' reflexive answer is to calculate the *compensating variation*, a monetary measure (in absolute terms or relative to lifetime resources) of the effect of a particular policy change on economic well-being. This answer is by no means a simple one in practice, since it requires the calculation of the extra resources needed to restore the individual to his or her initial level of well-being given a change in prices.² Most applied analyses do not attempt to calculate this measure, generally emphasizing effects of taxes on after-tax current incomes of individuals or households with different levels of pretax incomes.³

Economists' analytical approaches to studying incidence have generally used static computable general equilibrium (CGE) models⁴ or life-cycle overlapping generations models.⁵ These models permit the calculation of compensating variations for

different groups in the population at a point in time (in the case of the CGE model) and, in some cases, across different lifetime-income groups or generations (in the case of the life-cycle simulation models). As analytical devices, such models have been used to assess actual and potential tax reforms. They have not, however, been the principal guiding force in shaping distributional analysis presented to policymakers.⁶

Applied analyses of the distribution of the tax burden have been more heavily influenced by empirical studies that have proceeded in two steps: first hypothesizing the incidence of each principal tax and then using cross-sectional or panel data on households to estimate the distribution of the composite tax burden by income class (see, for example, Pechman and Okner, 1974; Browning and Johnson, 1979; and Pechman, 1985). Among academic economists, the results of such empirical studies have generated controversy both because of their reliance on *ad hoc* assumptions about the incidence of particular taxes⁷ and, relatedly, because tax collections may bear a poor relation to tax burdens.⁸

Rather than examining in more detail the controversy among alternative approaches to distributional analysis, I focus below on some questions suggested by economic analysis and on answers implemented in practice. The number of alternative answers (in principle) to central questions suggests, in my view, the desirability of substantially more sensitivity analysis (or at least discussion) in distribution tables than is the case under current practice.

The Construction of Distribution Tables in Principle

It is instructive to begin by describing the essential elements of the typical tax burden distribution tables used by policymakers: (1) Which taxes are included? (2) What is the definition of income? (3) What are the underlying assumptions about incidence?

(4) What measure of the tax burden is used? (5) How are temporary tax provisions treated? "Correct" answers to these questions depend, of course, on both the professional judgment of staff economists and economic policymakers and on the purpose for which the table is used. While senior policymakers often use distribution tables to guide them in implementing "equity" goals, comparatively little review of these five questions takes place by officials, though the technical staffs of the Treasury's Office of Tax Analysis (OTA), the Joint Committee on Taxation (JCT), and the Congressional Budget Office (CBO) are keenly aware of their importance.

Which Taxes Are Included? A tax burden table may include all taxes (federal, state, and local), all federal taxes, or only a specific set of federal taxes. Criteria for inclusion depend on the purpose of the table, but in practice, judgments over how certain taxes are (or how well they can be) distributed are important.

What Is the Definition of Income? The way in which "incomes" are classified is in principle chosen to distinguish taxpaying units by their levels of economic well-being. At one level, there is interest by members of Congress and administration policymakers in very narrowly defined concepts, such as money income; at another level, economists have generally stressed broader definitions matching more closely conceptual notions of income. The common economist's measure of a household's economic income, the Haig-Simons measure of annual income, equals the annual change in the household's wealth plus the market value of consumption over the year.⁹

A second issue in defining income relates to the specification of an economic unit: income may be defined on a family basis (as a proxy for an economic unit) or on a tax return basis (which corresponds to current income tax reporting).¹⁰ Differences in

distributional estimates from different sources sometimes reflect this distinction.

A third issue relates to the time period under consideration. Generally, distribution tables produced for policymakers are based on *current annual income*, while many analysts have argued for greater emphasis on *permanent income*.^{11,12} The length of the period over which one analyzes the distributional consequences of a policy change is important for two reasons. First, the progressivity or regressivity of a tax change can be overstated in the short run to the extent that annual variations in income overestimate long-run or lifetime differences (see, for example, the discussion in Poterba, 1989; and U.S. Department of the Treasury, Office of Tax Analysis, 1992a,b).¹³ Abstracting from lifetime income differences, the consumption-smoothing feature of the familiar life-cycle model predicts that differences in annual income over the life cycle are larger than differences in annual consumption (which corresponds more closely to permanent income). Second, significant reforms entail periods of transition.¹⁴ For example, a switch from a wage tax to a consumption tax burdens the current elderly in the short run (who paid wage taxes and now in retirement must pay consumption taxes); the introduction of investment incentives reduces the value of old capital in the short run; and the introduction of an actuarially fair pay-as-you-go social security scheme benefits the first generation to participate relative to future generations.

What Are the Underlying Assumptions about Incidence? Staff economists rely on theoretical arguments and empirical evidence about the incidence of particular taxes. For many taxes (such as the individual income tax), there is broad professional agreement on incidence; for other taxes (notably the corporation income tax), there is considerably less professional agreement. Though not often scrutinized by consumers of the tables, alternative incidence assump-

tions can have a significant effect on tax burden distribution tables.

What Measure of Tax Burden Is Used? Tax burdens are measured in practice as the amount of taxes paid (or reduction in taxes paid); they do not incorporate notions of excess burden. The distribution tables attempt to convert "taxes paid" into indicators of the economic burden of taxes, including the effective tax rate (taxes divided by income), the percentage change in taxes, the percentage change in after-tax income, or the share of taxes paid. The choice of indicator is not innocuous: the indicators do not necessarily present the same answer regarding the progressivity of regressivity of current taxes or a change in taxes nor do they relate in the same way to theoretical measures of economic well-being.

How Are Temporary Tax Provisions Treated? Both current federal tax law and proposed policy changes often incorporate measures that are temporary. (Such provisions may be included in a distribution table or given special treatment in an ancillary table.) An additional complication arises on account of provisions with a timing element. For example, Individual Retirement Account or Keogh contributions from pretax income reduce current tax payments while increasing tax payments in future years when withdrawals are subject to tax.¹⁵ Analysts must make decisions about how to treat such timing changes.

In addition to the questions raised above, a serious question arises as to which proposals merit the detailed distributional analysis found in distribution tables. At the risk of sounding simplistic, such analysis should be submitted only when it informs the debate. I would argue that such situations arise relatively rarely—for example, the submission of the President's *Budget* or a proposal to change significantly the structure of the tax system. I return to this issue in the conclusion.

The Construction of Distribution Tables in Practice

In part because of the flurry of interest created by the fashioning of the Omnibus Budget Reconciliation Act of 1990, the Treasury Department's Office of Tax Analysis has in the early 1990s prepared numerous distribution tables to explain current-law tax burdens and effects of tax policy changes on those burdens. As a rule, distribution tables are prepared for the use of administration officials and are not released publicly. The JCT and CBO do release distributional tables to congressional decision-makers.

The OTA, JCT, and CBO have offered answers to the five questions raised earlier.

Which Taxes Are Included? Following the work of the late Pechman (Pechman and Okner, 1974; Pechman, 1985), the CBO, OTA, and JCT staffs decided to include only federal taxes, including individual income and corporate income taxes, payroll (Social Security and unemployment insurance) taxes, and excise taxes.¹⁶ Customs duties are not incorporated. The JCT staff has not previously distributed the corporate income tax, though their (1993) pamphlet on distributional analysis suggests that they will try to do so in the future (at least for changes in elements of the tax); the CBO and OTA do distribute the burden of the corporate income tax.

What Is the Definition of Income? The OTA, JCT, and CBO use current annual income to define income. Each staff tries to approximate economic income. The JCT uses a very narrow definition, relying almost exclusively on items reported on tax returns. Specifically, the JCT adds back to adjusted gross income tax-exempt interest, workers' compensation, nontaxable Social Security benefits, deductible contributions to Individual Retirement Accounts (IRAs), employer contributions for health and life insurance, tax preferences under the alternative tax, and net losses in excess of mini-

imum tax preferences from passive business activities. In addition to the categories in the JCT definition, the CBO includes all government cash transfers, all cash pension benefits, the employer share of payroll taxes, and a portion of the corporate income tax.

The OTA uses the broadest annual income concept, called *family economic income* (FEI), which adds the following to adjusted gross income: a proxy for unreported and underreported income; deductible contributions to IRA and Keogh plans; nontaxable transfer payments (such as excludable income from Social Security and AFDC benefits); employer-provided fringe benefits; inside-buildup on private pensions, IRAs, Keogh, and life insurance; tax-exempt interest; and imputed rent on owner-occupied housing (Nelson, 1987).¹⁷ In contrast to the JCT and CBO, the OTA computes capital gains on an accrual basis, adjusted for inflation, to the extent permitted by reliable data. In addition, inflationary losses of lenders are subtracted and gains of borrowers are added. Finally, the FEI includes the value of food stamps received but excludes other transfers in-kind, such as the value of public housing and Medicaid payments.¹⁸

To represent income units, the JCT uses tax returns. The CBO uses families but, for some distributions, also adjusts for family size by dividing each family's income by the poverty level for a family of that size. The OTA's FEI is calculated on a family, rather than on a tax return, basis. The economic incomes of all members of a family unit are added to arrive at the family's income used as a classifier in the distributions.

I noted earlier that an additional question in deciding the appropriate income concept relates to the time horizon for analysis. One option is to shift from annual measures of economic income to lifetime measures. Indeed, Fullerton and Rogers

(1993) have produced an ambitious examination of lifetime tax burdens borne by groups in the population, and staff economists at the OTA and JCT are analyzing various measures of permanent income. Lifetime incidence calculations, while informative, are not likely to become the principal summary measures for policymakers for two reasons. First, on a conceptual level, lifetime income and incidence calculations assume perfect insurance and lending markets; recent research shows that for most groups in the population, consumption moves more closely with income than perfect-market models suggest (see, for example, Carroll, 1992; and Hubbard, Skinner, and Zeldes, 1993). Thus current income provides information about economic well-being not captured by permanent income. Second, since revenue estimates are presented for relatively short horizons (generally a five-year budget period), policymakers are likely to request distributional analysis for a comparable period.¹⁹ A related point is raised by the concern over "transition issues": To the extent that policymakers are concerned with the impacts of policies over short horizons, the incidence of the tax change may be different than that suggested by "long-run" calculations.

What Are the Underlying Assumptions about Incidence? The basic incidence assumptions used by the OTA are as follows: The individual income tax is assumed to be borne by payers, corporate income tax by capital income generally,²⁰ payroll taxes (employer and employee shares) by labor (that is, wages and self-employment income), excise taxes on purchases by individuals by the purchaser, and excise taxes on purchases by business in proportion to total consumption expenditures. The same incidence assumptions are used in distributing current-law burdens and proposed changes. With the exception of the corporate income tax, the OTA, JCT, and CBO follow very similar incidence assumptions.

The CBO has generally assumed that half of the corporate tax burden is borne by all capital income and half is borne by labor income. As of this writing, the JCT distributes neither the corporate income tax nor proposed changes in the corporate income tax. The JCT (1993) suggests, however, that the JCT will in the future distribute changes in the corporate tax burdens.

What Measure of the Tax Burden Is Used? Distribution tables prepared by the Treasury's OTA have traditionally measured tax burdens by the amount of taxes paid (or the reduction in taxes paid, for a tax reduction)—in absolute terms or in terms of an effective tax rate. While such measures provide a consistent means of distributing current-law taxes and proposed changes, they do not incorporate excess burden. The JCT and CBO economists have also traditionally measured direct tax burdens by tax payments or decreases in tax payments.²¹ According to their (1993) pamphlet, the JCT staff has now adopted as measures of the tax burden effective tax rates and the percentage change in taxes paid. The CBO and (if developments during my experience are continuing) OTA staff are emphasizing the percentage change in after-tax income as a (straightforwardly computable) measure of the tax burden and proxy for the change in economic well-being.

How Are Temporary Tax Provisions Treated? The OTA staff economists define as "permanent" the law at the end of the five-year budget period. The burdens of permanent tax changes are then distributed assuming *long-run* (end-of-budget-period) behavioral responses and *current* levels of income. Temporary tax changes are indicated in *short-run* distribution tables, which incorporate the effect of the first full year of the temporary provisions. Proposed policy changes involving "timing" effects (IRAs, for example) are evaluated by the OTA at long-run levels.²² Provisions with irregular effects on tax liabilities (such

as changes in the timing of depreciation allowances) are assessed using the present value of taxes (over the budget period). When I was at the OTA, I was not always certain of the CBO and JCT procedures for distributing burdens or benefits of temporary or timing tax provisions. Prospective JCT procedures are outlined in the (1993) pamphlet.

AN EXAMPLE: DISTRIBUTING THE BURDEN OF A CONSUMPTION TAX

A number of proposals over the past two decades have suggested fundamental restructuring of the federal (individual and corporate) income tax to be financed by the introduction of a broad-based consumption tax. For example, former Treasury Secretary Brady's (1992) proposal, developed within the Office of Tax Policy during my tenure, recommended the introduction of a broad-based business transfer tax (a tax on business gross receipts with expensing of purchases from other firms, including new investment)²³ to finance reductions in individual and corporate taxes. Claims that such a restructuring would improve economic efficiency are often countered with arguments that it would be regressive. The design of the Brady proposal was influenced by distributional considerations to ensure that the package did not reduce the progressivity of federal tax burdens; similar considerations have figured into the ongoing deliberation of a proposal for a broad-based consumption tax by United States Senators Boren and Danforth.²⁴

Economists generally argue that over the lifetime of a given individual, a flat-rate, broad-based consumption tax is equivalent to a flat-rate tax on wages plus a flat-rate tax on existing capital at the time the tax is introduced.²⁵ This equivalence arises because a consumption tax is likely to lead to price increases in the long run, reducing the purchasing power of wage income and income from existing capital. The returns

to new investment are untaxed under a broad-based consumption tax.

This lifetime equivalence for a given individual does not imply that commonly produced distribution tables would generate identical answers under the two approaches. Since annual consumption exceeds measured annual income for very low-income individuals (because of transfers and unmeasured income), distributing the burden of a consumption tax proportional to consumption will make the tax appear regressive at low income levels.²⁶ On the other hand, distributing the burden of the tax to wage income and old capital income increases the progressivity of tax at low- and high-income levels relative to the previous case.²⁷

To the extent that tables showing the distribution of the tax burden by economic income class are to represent the short-run (or medium-run) incidence of tax changes, the JCT staff's decision to distribute the burden of a broad-based consumption tax to factor incomes (wages and returns to existing capital) is appropriate. During the period of transition from an income tax to a consumption tax, the burden borne by owners of existing capital enhances the current-annual-income progressivity of a flat-rate broad-based consumption tax.²⁸

The decision regarding the distribution of a broad-based consumption tax is not the only incidence assumption required in analyzing the distributional consequences of a policy change involving such a tax. For example, if a business transfer tax were used to reduce federal corporate income taxes and individual income taxes, incidence assumptions for those taxes would also be needed. If, on the one hand, the corporate income tax were borne by owners of capital, replacing corporate tax revenue with consumption tax revenue would be regressive on an annual income basis. If, on the other hand, part of the burden of the corporate tax were borne by workers and/or

consumers of corporate goods, the distributional consequences would be less regressive.²⁹

An additional complication is raised by distributional assumptions accompanying incremental reforms in the direction of a consumption tax. Suppose that a series of business income tax reforms were introduced gradually: expensing of investment, phasing out of interest deductions, and phasing out of deductions for compensation. At each step, the distributional analysis should be consistent with the distributional analysis of a broad-based consumption tax (the final result of the three steps). It would be inconsistent, for example, to distribute incremental reforms on the basis of factor incomes (wage and capital income) and to distribute the final result (a consumption tax) on the basis of consumption. The approach suggested by the JCT staff in their (1993) pamphlet—to distribute the burden of a broad-based consumption tax on wages and returns to existing capital—ensures greater consistency between distributional analysis of incremental and large-scale tax reforms.

To summarize, examining the distributional analysis of a broad-based consumption tax illustrates many of the issues surrounding the design of distributional information for policymakers, including assumptions about incidence and appropriate concepts of income and time horizon.

Conclusions

As with many areas in public economics, the gap between the theory and practice of distributional analysis is noticeable to economists and policymakers. Moreover, economic researchers and staff economists often want to present guarded and qualified answers to questions about the distribution of the federal tax burden to policymakers desiring much more specific answers. The temptation to satisfy policymakers' growing appetite for distribution

tables should be resisted in my view in favor of the following three-part strategy:

- (1) *Staff economists should continue their efforts to instruct decisionmakers on what one can and cannot learn from distribution tables.* The (1993) Joint Committee pamphlet and the (1987) Office of Tax Analysis *Compendium* are excellent examples of this educational process. Seminars for new legislators (particularly those on tax-writing committees) or administration officials could also devote time to the examination of assumptions and judgments lying behind the distributional analysis of specific proposals.
- (2) *Staff economists should stress that distributional analysis is most useful for examining the distribution of fiscal policies generally*³⁰ and much less useful in considering small changes in policy. Reporting of tax burden tables for the existing federal tax system, presidential budget packages, or significant reforms—accompanied by the caveats to which I referred earlier—informs the policy process. Producing such tables for a large number of individual proposals gives decisionmakers the (incorrect) appearance of exactitude and can cause confusion by drawing attention away from interactions of the effects of individual policies.³¹ Specific statements qualifying such distribution tables should become a part of staff economists' response to specific requests for distributional tables for individual policy changes.
- (3) *Economists engaged in research on incidence can help improve the quality of applied distributional analyses by working with staff economists in the administration and Congress.* Recent research on lifetime incidence, generational differences in tax burden, and burdens and benefits of public policies under imperfect insurance and capital markets can make potentially significant contri-

butions to applied distributional analysis.³²

In short, economic analysis can best contribute to distributional analysis in much the same way as it can to other areas of public policy decisionmaking—by posing central questions for study, designing a framework for gathering information, and imposing basic tests for consistency of analyses communicated to policymakers. These contributions, sometimes ignored by decisionmakers, will serve those decisionmakers better than merely producing information of the type they demand.

ENDNOTES

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¹ For a survey of the academic literature, see Kotlikoff and Summers (1985); an excellent review of practical problems is presented in U.S. Congress. Joint Committee on Taxation, (1993).

² Another measure is the *equivalent variation*, which uses the after-tax-change level of economic well-being as the point of reference.

³ Another issue relates to the disposition of tax revenue. The distributional effect of a tax policy change depends in general on whether the revenue is used to finance changes in other (current or future) taxes or government spending. Some analyses of alternative tax reforms therefore focus on differential incidence, a comparison of the distributional consequences of alternative equal-revenue tax instruments.

⁴ See, for example, Ballard *et al.* (1985) and the survey in Shoven and Whalley (1984).

⁵ See, for example, Auerbach and Kotlikoff (1987); Hubbard and Judd (1987); and Hubbard, Skinner, and Zeldes (1992, 1993).

⁶ In another line of inquiry, research by Jorgenson and his collaborators has focused on money-metric individual welfare (incorporating compensating and equivalent variations in total expenditure by defining the concept as money measures of individual welfare corresponding to each policy, expressed in terms of a common price system; see Jorgenson, Lau, and Stoker, 1980; and Jorgenson, 1990) and money-metric social welfare (providing a complete ordering of economic policies by defining the concept as the difference between money measures of social welfare

corresponding to each policy, expressed in terms of a common price system; see Jorgenson and Slesnick, 1984). While day-to-day application to distributional analysis will probably not occur in the near future, these approaches offer valuable developments for decomposing impacts of proposed policy into "efficiency" and "equity" effects.

- ⁷ The incidence of the corporate income tax is particularly controversial.
- ⁸ For example, a high rate of tax on realized capital gains may raise little revenue, but generate a significant tax burden for holders of assets.
- ⁹ As discussed later, this concept of economic income is difficult to measure. Staff economists for policymakers have used different sets of approximations of economic income.
- ¹⁰ For a discussion of the distinctions among these concepts, see Nelson (1987) and U.S. Department of the Treasury, Office of Tax Analysis (1992a, b).
- ¹¹ Advocates of a permanent income measure argue that it removes transitory fluctuations in annual income and better reflects long-run well-being; advocates of a current annual income measure argue that it is better (or, at least, less controversially measured) and corresponds to man-in-the-street notions of income.
- ¹² A still broader question is whether to consider *intergenerational* redistribution of the tax system (see, for example, Auerbach, Gokhale, and Kotlikoff, 1993; and Auerbach, in this issue).
- ¹³ Fullerton and Rogers (1993) conclude in their study, however, that, in practice, lifetime and annual-income incidence of the United States tax system are not markedly different.
- ¹⁴ Transition effects are discussed in Bernheim (1981), Chamley (1981), Auerbach and Kotlikoff (1987), and Hubbard and Judd (1987).
- ¹⁵ The net tax benefit of such tax-favored savings schemes is, of course, the sheltering of accumulated earnings from taxation (plus a gain upon disbursement of funds if the tax rate is lower at that time).
- ¹⁶ For a description of taxes included by the three groups, see U.S. Congressional Budget Office (1987), Nelson (1987), and U.S. Congress, Joint Committee on Taxation (1993).
- ¹⁷ In earlier work, Pechman and Okner (1974) and Pechman (1985) also incorporated in "income" imputed rent on owner-occupied housing, measures of accrued rather than realized capital gains, and noncash transfer payments. Gale (1992) reviews issues in deciding upon the appropriate income concepts.
- ¹⁸ The difference between the OTA and JCT approaches to defining economic income essentially represents differences in judgments about whether existing data permit the development of information about some components of Haig-Simons income relative to the OTA's family economic income. Some of the data sets used by JCT staff for other purposes described in the pamphlet could have been applied to the construction of a more comprehensive measure of economic income. Whether imperfections in such data make more comprehensive measures less meaningful is, of course, an open question with reasonable positions on either side.
- ¹⁹ A compromise approach taken by the JCT staff is outlined in U.S. Congress, Joint Committee on Taxation (1993).
- ²⁰ For a review of the issues surrounding the incidence of the corporate income tax, see U.S. Department of the Treasury (1992).
- ²¹ A notable exception is the JCT staff's measurement of the burden of the capital gains tax as the "static" revenue loss (the change in revenue by income class, assuming no behavioral response to changes in the tax).
- ²² For the case of tax-favored savings vehicles such as IRAs, the long-run effect could be characterized by the tax savings from the earnings from one year's deposits in a steady-state year. I believe that the OTA follows this procedure.
- ²³ The business transfer tax is a variant of a subtraction-method value-added tax. There is no reason to believe that the incidence of a subtraction-method value-added tax and the more familiar (in practice) credit-invoice value-added tax are different. For discussions of this point, see Bradford (1986); U.S. Congressional Budget Office (1992); U.S. Congress, Joint Committee on Taxation (1993); and McLure (1993).
- ²⁴ In estimating the distributional impact of the plan, the OTA used the most conservative assumptions (to satisfy the Secretary's request that the proposal not reduce overall progressivity of the federal tax system): the consumption tax was assumed to raise prices, so that its burden was distributed across households according to their consumption. Taxes on corporate capital income (which were reduced in the plan through corporate tax integration) were assumed to be borne by owners of capital. Distributional analysis for the Boren-Danforth plan is (as of this writing) being provided by JCT staff economists. As discussed later, the JCT assumes that the burden of the tax is borne by wages and old capital as the income is earned.
- ²⁵ This equivalence is true in a benchmark case in which credit and insurance markets are perfect.
- ²⁶ This assumes that prices rise because of the tax and that not all transfer payments are indexed. [Evidence in Sabelhaus (1992) suggests that consumption taxes are likely to be less regressive than previously believed when distributed this way. This is because the traditionally used Consumer Expenditure Surveys overstate dissaving by very low-income households and saving by very high-income households. Sabelhaus and the JCT staff have used the Federal Reserve's Survey of Consumer Finances data on saving rates to impute consumption. These data suggest that income is higher relative to consumption for very low-income households and lower relative to consumption for very high-income households.] The Brady proposal provided a refundable tax credit for low-income households rather than specifically indexing individual transfer programs.

- ²⁷ See, for example, U.S. Congress, Joint Committee on Taxation (1993, p. 55).
- ²⁸ This distributional approach does suggest different burdens for holders of nominal and real claims on existing capital. Nominal bondholders will not be affected by the reduction in returns to existing capital. Owners of real physical capital bear this burden.
- ²⁹ See, for example, the discussions in U.S. Congress, Joint Committee on Taxation (1993) and Fullerton and Rogers (1993). While I understand the spirit of the exercise, the JCT staff's decision that the incidence of the existing corporate tax is not well understood, but that the distribution of straightforward changes is easily accomplished, puzzled me on a technical level.
- ³⁰ I use the term "fiscal policies" to underscore the need for more effort to report to policymakers the distributional consequences of federal expenditures.
- ³¹ My former Treasury colleague Michael Graetz told me on more than one occasion that the flurry of distribution tables produced for "1990 Budget Summit" conferees at Andrews Air Force Base crossed the border between sublime and ridiculous early in the game.
- ³² One example is the discussion of intergenerational differences in federal tax burdens in President Bush's Fiscal Year 1993 Budget. That informative description built on research in Auerbach, Gokhale, and Kotlikoff (1993), with assistance from those authors.

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