

**Federal Transfer
Taxation:
A Study in
Social Cost**

By Richard E. Wagner



*Institute for Research
on the Economics
of Taxation.*

*The Center for the
Study of Taxation*

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Fiscal Issues

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***The Center for the
Study of Taxation***

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EXECUTIVE SUMMARY

The federal unified transfer tax on estates, gifts, and generation-skipping transfers may appear to be a tax borne solely by the wealthiest Americans. This view, however, is as misleading as the notion that the sun rises in the east and sets in the west. The transfer tax burdens everyone, not just the very wealthy. It imposes severe social costs that are borne by all Americans.

- The federal tax system hits saving and capital formation more heavily than consumption. The transfer tax is an especially strong source of this anti-saving bias. It also severely penalizes entrepreneurship and efficient intergenerational business transfers. Its adverse economic effects greatly outweigh the revenues it produces.
- By reducing saving and capital formation, the transfer tax reduces the productivity of labor. This, in turn, lowers wage rates, employment, and labor income, as well as capital income, throughout the economy, compared to levels that otherwise would be attained.
- By reducing Gross Domestic Product, the transfer tax reduces the tax revenues from other federal taxes, particularly the income and payroll taxes. The repeal of the transfer tax would, over time, lead to gains in these other tax revenues that would exceed the loss of the revenue from the transfer tax.
- State and local governments also suffer revenue losses because the transfer tax reduces their income tax and sales tax bases. Elimination of the transfer tax would increase total tax revenues at all levels of government.

- Although it is often alleged to be an important means for promoting equal economic opportunity, the transfer tax is a barrier to economic advance for people in all economic circumstances. It does nothing to advance the earning capacity of people with low incomes and wealth, while depressing the income and wealth levels of the nation as a whole.
- By penalizing the creation of wealth, the transfer tax erodes support for a wide range of philanthropic organizations and mediating institutions that have traditionally been important in spreading material progress throughout our society.
- Abolishing the transfer tax would be a major part of a program to create a flourishing society. Doing so would eliminate a significant barrier to the saving and capital formation on which economic progress substantially depends.

EXTENDED SUMMARY

The federal government levies taxes on transfers of property at death (the estate tax), property transfers during life (the gift tax), and transfers to grandchildren or more remote descendants (the generation-skipping transfer tax). Referred to, collectively, as "transfer taxes," these taxes attract little interest in the public policy forum. One reason for the lack of interest is that these levies produce little revenue — only one percent of annual federal tax revenues. Another reason is that most Americans do not make taxable property transfers, hence have no first-hand experience with transfer taxes. However, transfer taxes have significantly adverse economic effects, grossly disproportionate to the tax revenues they generate.

Transfer taxes are the last in the series of federal taxes that unduly burden private saving and investment compared with consumption uses of income. Because of this, transfer taxes impose especially high economic costs on the nation in terms of lost saving and capital formation. The resulting economic dissipation can be expressed as the difference between actual levels of employment, real wages, and total output and income and those that would have been realized in the absence of the transfer taxes. The econometric model developed by Fiscal Associates, Inc., of Arlington, Virginia, was used to simulate how the American economy would have performed had the transfer taxes been repealed in 1971. The simulation results show that by 1991 the nation's gross domestic product (GDP) would have been \$46.3 billion higher, there would have been 262,000 more full-time equivalent jobs, and the stock of capital would have been \$398.6 billion greater than the respective actual amounts in that year. Moreover, the repeal of transfer taxes in 1993 would produce significant economic benefits by the year 2,000: GDP would be \$79.22 billion greater, 228,000 more people would be employed, and the amount of accumulated saving and capital would be \$630 billion larger than projected under present law.

Transfer taxes impose particularly heavy burdens on smaller family-owned businesses which are widely thought to be critically important vehicles for the entrepreneurship on which economic progress heavily depends. The valuation of such businesses at the death of the owner is often difficult and arbitrary, resulting in extremely high real effective transfer tax rates. Moreover, because of the high statutory rates of these taxes (a maximum of 50 percent now, to be raised according to President Clinton's tax proposals to 55 percent), such businesses often must be sold to pay the transfer taxes that are imposed. This means that family-owned businesses are often shifted into less efficient patterns of ownership and management. Society as a whole carries the cost of the less efficient and productive use of the business's resources.

Transfer taxes significantly reduce the revenues from other federal taxes. As a result of the lower levels of employment, wages, output, and income that the transfer taxes cause, the federal government collects less revenue from its income and payroll taxes. Indeed, it is estimated that over the 1971-1991 period, total federal tax revenues would have been nearly \$21 billion greater than they actual were, had the transfer taxes been repealed in the former year.

Some people favor transfer taxes primarily as a means of promoting fairness and economic equality across generations and in society. Transfer taxes, however, have the opposite effect. By discouraging private saving and capital formation, these taxes depress labor productivity and real income. Transfer taxes, thus, impede labor's upward mobility. Moreover, because labor income represents so large a fraction of total income in the economy, transfer taxes keep GDP at lower levels than otherwise would be attained.

American society has always enjoyed a prolific array of privately-supported charities. Such charities provide numerous benefits for American society. Perhaps most importantly, they provide a diverse array of perspectives and sources of experimentation in a wide variety of areas in which such variety is especially valuable. These organizations are supported largely by gifts, both during life and at death, from individuals

and corporations. Transfer taxes reduce the total amount of wealth created in the first place, thus limiting the amount that can be left to both individuals and charity. Once this impact of transfer taxes is taken into account, it is likely that transfer taxes discourage private charitable giving.

Transfer taxes penalize success and the creation of wealth. The benefits of wealth are not confined to the individual who owns it; all of society is served by the enhancement of labor's productivity that depends critically on capital accumulation. The adverse effects of transfer taxes on saving and capital formation, therefore, are costs imposed on society as a whole.

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1. Introduction

The federal government's system of transfer taxation imposes a combined tax on the value of estates at death, gifts during life, and generation-skipping transfers. The federal government has taxed transfers of estates continuously since 1916 and gifts since 1924. In 1976, what had been separate taxes on estates and gifts were combined into a unified tax on wealth transfers. A credit of \$192,800 is allowed against tax liability, which exempts the first \$600,000 of taxable transfers from the tax. For taxable transfers over \$600,000 but under \$750,000, the marginal rate of tax is 37 percent. The unified tax contains six additional brackets, with a top marginal rate of 50 percent on the amount of taxable transfers over \$2.5 million.

The revenues raised under the transfer tax are comparatively modest, around \$12 billion annually, or, in recent years, roughly one percent of total federal revenues. To many, the value of the transfer tax lies not in the revenues it generates but as a means of wealth redistribution and as a vehicle for preventing undue concentration of wealth. Much of the support for the transfer tax doubtlessly derives from the belief that it is a tax paid by only the wealthiest members of society, perhaps coupled with a belief that in light of their spectacular success in our economic system it is only fair that they return some of the fruits of that success upon their exit from this world. Moreover, according to this view, the wealthiest members of society clearly have the greatest ability to pay taxes, and if they did not pay added transfer taxes, it would be necessary for others of more modest means with less ability to pay to carry greater tax burdens, assuming total tax revenues are to be maintained or increased.

Whatever credence one might be inclined to give to this view, transfer taxes, no less than other taxes, should be evaluated in the light of basic tax criteria. Transfer taxes fall far short of meeting these standards.

One of the traditional standards is that a tax should be equitable. The fundamental equity principle is that equally situated individuals should be taxed equally. In practical application, this horizontal equity standard is

highly elusive. What determines equality or inequality of situation in the case of transfer taxes, however, defies simple and straightforward exposition.

For example, suppose that Mr. A and Mrs. B each make gifts in a particular year of \$100,000 to their respective children. Mr. A's total wealth prior to the gift was, let us suppose, \$1,000,000 while that of Mrs. B was, say, \$10,000,000. Clearly, if wealth alone is the relevant attribute with respect to which equality or inequality of situation is to be determined for transfer tax purposes, Mr. A and Mrs. B are certainly not equals. To a first approximation, however, their transfer tax liabilities with respect to their gifts are the same. This seems to dictate that the amount of the property transfer, itself, is the relevant measure of equality of situation. The transfer tax statutes, however, take into account a substantial array of elements of the transferor's circumstances and of the transfers themselves in determining how much of a given amount of property that is transferred by gift or at death should be subject to the transfer taxes. Thus, Mr. A and Mrs. B are likely to pay differing amounts of tax on their gifts, and on their subsequent transfers, although the differences in their taxes will not necessarily reflect all or even most of the factors that should, presumably, be considered as relevant in determining their similarity or dissimilarity of situation.

Assessing the fairness of the transfer taxes against the horizontal dimension of equity, therefore, is virtually impossible. Assertions that the transfer taxes conform with this standard are not supportable.

A second dimension of equitable taxation is vertical equity — the requirement that unequals be taxed unequally. Whatever controversies might arise over the application of horizontal equity in actual tax practice pale in comparison with the controversies that arise over application of vertical equity. How the amount of transfer taxes should differ on transfers of differing amounts of property defies unambiguous determination. A wide variety of factors, in practice, affect the transfer tax liability incurred with respect to wealth transfers. Many of these factors have little to do with the amount of property that is transferred, confusing

the issue concerning the appropriate difference in transfer tax on a given amount of transfer and that on a smaller amount.

In contemporary tax policy, upward graduation of transfer tax rates is thought by many policymakers to be needed in the interests of reducing inequality in the distribution of income and wealth. Whether this is an appropriate or feasible function of any tax is debatable. Those who endorse the use of transfer taxes for this purpose cannot validate any particular degree of graduation as conforming with a vertical equity criterion, but must fall back on evaluation of the effectiveness of that graduation in accomplishing the ends they desire. In doing so, they should seek to determine as well the costs, measured in terms of shortfalls in the attainment of other policy objectives, incurred thereby.¹

Another tax criterion that is often cited but seldom implemented is simplicity. The concern here is that taxpayers are able to understand what the tax law requires of them and can comply with these requirements with little explicit or implicit costs. By the same token, the administration and enforcement costs incurred by the tax authorities should be modest in comparison with the tax revenues obtained. There is no question that the transfer taxes fail to satisfy this criterion but are, instead, extraordinarily complex.

Finally, tax neutrality is increasingly recognized as an important standard for taxation. Tax neutrality means that a tax should have the least possible effect in altering the incentives and constraints confronting individuals in the conduct of their economic affairs. Virtually every tax ever devised has an "excise" effect, that is, alters the relationships among costs and among prices compared with those that would be cast up by the

¹ A classic exposition of these alternative perspectives is Richard A. Musgrave, The Theory of Public Finance (New York: McGraw-Hill, 1959), pp. 61-115. For a cogent and influential opposition to progressive taxation in support of degressive taxation, see Walter J. Blum and Harry Kalven, Jr., The Uneasy Case for Progressive Taxation (Chicago: University of Chicago Press, 1953). A somewhat similar perspective is advanced in Robert E. Hall and Alvin Rabushka, Low Tax, Simple Tax, Flat Tax (New York: McGraw-Hill, 1983).

operation of the market system in the absence of taxes. These excise effects tend to make some economic activities less attractive compared with others, and these incentive effects tend to alter economic behavior. Unless those charged with making tax policy are also to be given responsibility for determining the kind of economic activities people undertake, minimizing these excise or incentive-disincentive effects should be given very high priority among tax criteria. Tax neutrality, therefore, is an essential goal in a free society, just as it is inconsequential in a command economy.

The existing federal tax structure is beset with features that violate the neutrality criterion. The payroll taxes — the second largest revenue producer in the federal tax system — are excise taxes on supplying and using labor services. The individual and corporate income taxes impose severe penalties — excise effects — on saving and investing and further differentiate these disincentive effects on the basis of the amount of income of the saver and investor as well as the form of the saving and investment. Although differing in form, transfer taxes are imposed on one's accumulated savings out of one's after-tax income; these taxes also may be identified as falling on the capitalized amount of the income the transferred property will produce. As a result, these taxes greatly accentuate the anti-saving, anti-investment biases of the tax structure.

An income tax discriminates against saving and in favor of consumption. The transfer tax is an additional source of bias against saving and capital formation, for it is a final tax on income that has been saved. All taxes on the value of service flows reduce the net return to the assets that generate those flows, and so weaken the incentive to save, which in turn lowers the stock of capital in the economy. The transfer tax, however, is an extraordinarily heavy tax in this regard, and results in an especially high economic loss — forgone saving and capital formation — per dollar of revenue collected. While the case for the transfer tax rests on elusive equity grounds, its negative economic effects are clear and strong.

The discussion that follows focuses first on the adverse effect of transfer taxation on incentives for saving and wealth accumulation. The discussion then turns to an explanation of the relationship of capital to the productivity of labor, hence to the role of wealth accumulation in expanding employment, real wage rates, total output and income. Following this analysis is an examination of the extent of the harm that the transfer tax inflicts on Americans generally, primarily through the reduction in earnings and income that results because the tax leads to a smaller stock of productive capital assets than would otherwise exist. The next subject of concern is just how much revenue the federal transfer tax truly collects, once allowance is made for the negative impact of the transfer tax on other sources of tax revenue. Following this is a critical examination of the question concerning the wealth redistribution objective of the transfer tax and whether the tax promotes more equal opportunity for all in our society. The final matter is the impact of the transfer tax on private sources of support for a broad array of philanthropic organizations that have been so vital to the maintenance of the American tradition of combining liberty and prosperity.

2. Transfer Taxation and the Cost of Saving

Capital — wealth — accumulation is universally recognized as an essential element in generating economic progress. In a free society, which relies on markets for the performance of basic economic functions, capital accumulation is undertaken by individuals or businesses acting for their owners. There should be no need, as a matter of public policy, to defend the accumulation of wealth by individuals. If they are not to accumulate wealth, who is to do so?

How much of their current income will people save and invest? Obviously, this will depend on the rate of return that they anticipate they will receive and, therefore, on how much current consumption they must forgo to obtain that return. The higher that rate of return, the stronger will be their willingness to save and invest, as against spending on current consumption. Taxes on the income derived from capital, as well as on capital itself, reduce the net rate of return to capital, which reduces

investment and leads to less wealth accumulation — to a lower stock of capital. The transfer tax is one particular form of tax on capital. By reducing the incentive that people have to save and invest, transfer taxation reduces capital formation which, in turn, reduces wages and job creation from what they would otherwise be.

As stated earlier, the transfer tax is the ultimate tax in a series of taxes in our present tax system that tax saving and the creation of capital assets more heavily than consumption. For one thing, a personal income tax that fails to exclude saving or the return on that saving from its base will tax saving more heavily than consumption. Income that is used for consumption is taxed only once, but income that is saved is taxed again, indeed repeatedly, when that saving yields income in the future.

To illustrate, suppose, to begin, a tax-free world in which a person might use \$1,000 of additional income either to buy \$1,000 worth of consumption goods and services or to purchase an asset, say a bond that will yield \$100 in interest each year forever. To have \$100 more income every year, the person has to give up \$1,000 of current consumption. In other words, the cost of each dollar of the future income is \$10 of forgone current consumption, and the cost of each dollar of current consumption is \$.10 per year of forgone future income.

With income taxes of the sort now widely used, the cost of saving — the forgone consumption needed to obtain any given amount of additional future income — is increased relative to the cost of using current income for consumption. Suppose an income tax at a rate of 35 percent is imposed. On the person's marginal \$1,000 of current income, an income tax of \$350 is due, leaving \$650 for current consumption or for the purchase of the bond that at the same 10 percent interest rate will provide \$65 of additional income each year. But that \$65 of income will also be taxed, in an amount of \$22.75, leaving \$42.25 in after-tax interest income. With the 35 percent income tax, each dollar of after-tax interest income requires forgoing \$15.38 of current consumption ($650/42.25$). The tax raises the cost of saving relative to the cost of current consumption by almost 54 percent.

The existing tax system imposes additional layers of tax on the returns to saving that further increase the tax bias against saving. One of these additional tax layers is that imposed by the corporation income tax.

Suppose the person used his or her saving to purchase shares of stock in a corporation earning 10 percent a year, before tax, on its equity capital, and that a 35 percent corporation income tax is also imposed on corporate profits. Then the person's investment of \$650 of after-tax current income in the corporation's stock will generate \$65 of corporate profits and \$42.25 after paying the corporate income tax. If the corporation distributes these after-tax earnings, the shareholder will pay individual income tax at 35 percent on the dividends, leaving \$27.46 after tax. By giving up \$650 of current consumption, the person obtains only \$27.46 in additional income every year. The cost per dollar of that additional income is \$23.67 ($650/27.46$) of forgone consumption. The combined individual and corporate income taxes increase the cost of saving by almost 137 percent.

The existing income taxes treat capital gains as income, which also entails the multiple taxation of saving. A capital gain is an increase in the value of an asset, reflecting the expectation of an increase in the flow of income the asset will produce in the future. Capital gains may result from increases in the demand for the products or service produced by the asset or from a decrease in the rate at which income streams are discounted to find their present or capitalized values. A substantial amount of capital gains are attributable to the retention and reinvestment of earnings by businesses. In the usual case, this leads to an increase in the businesses' earnings, the expectation of which is reflected in the market's valuation of ownership shares in the businesses.

Taxing capital gains — increases in the value of assets — is equivalent to double taxing the income streams the assets produce. In the case of capital gains reflecting a corporation's retained earnings, for example, the income retained by the corporation has already been taxed under the corporate income tax. Moreover, the income that will be produced in the future that is attributable to the reinvestment of the retained earnings will also be subject to income tax as these future earnings are realized.

Imposing an income tax on the capital gain reflecting those future earnings when the existing owner of equity shares in the corporation sells them clearly is taxing those earnings yet another time.

Taxing capital gains further increases the cost of saving and wealth accumulation. To illustrate, suppose the corporation in our example were to retain and reinvest its after-tax earnings instead of distributing them to its shareholders. Presumably, the corporation will do so if it can earn the same 10 percent (or more) on the assets it acquires with the reinvested earnings. The equity owner would not have to pay individual income taxes on the retained earnings but would accrue tax liability on the retained earnings, to be paid when the shares of stock are ultimately sold. Because the payment of that tax is deferred until the capital gain is actually realized, the present value of the tax the person must pay on the corporation's earnings is somewhat less than if those earnings were fully paid out each year. Nonetheless, the combined taxes raise the cost of saving relative to that of consumption by a substantial amount; in this example, the additional cost of saving is somewhere between 54 percent and 137 percent.

The arithmetic in this example shows that if the person were intent on having an additional \$100 of income every year, he'd need to save \$2,367 in the current year, given the individual and corporate income taxes that he confronts. To save that amount, he'd need \$3,641 in pre-tax current income. On the other hand, to be able to buy \$1,000 of additional consumption goods, he'd need \$1,538 in pre-tax current income. Reckoned this way, too, the combined individual and corporate income taxes hike the cost of saving relative to consumption by almost 137 percent.

The transfer tax is yet another layer of tax on saving, similar to the capital gains tax, imposing an anti-saving bias grossly disproportionate to the revenues it collects. To continue the illustration, suppose one wished to make a bequest of, say, \$50 million. With a marginal transfer tax rate of 50 percent, one would have had to accumulate \$100 million as of the time of the bequest. To do so, with the income tax rates assumed above,

one would have to have earned almost \$236.7 million (over and above the income devoted to consumption). In other words, each dollar of the \$50 million bequest required earning almost \$4.75 before taxes. In the absence of the transfer tax, each dollar of bequest would have cost only half that amount.

Other taxes further burden saving and wealth accumulation. Most states impose income taxes similar to if not identical with the federal income taxes, although at lower rates. Most local governments rely heavily on annual property taxes, which translate into heavy income taxes on the value of the services provided by the property. A wide range of additional, selectively applied taxes, such as franchise taxes, severance taxes, and so-called user fees, further burden either the taxed capital or the income the capital produces. All in all, the pyramid of taxes on saving and wealth accumulation greatly increases the cost of saving relative to consumption, to levels substantially greater than those suggested by the examples above.

The tax-induced increase in the cost of saving must surely reduce the amount of current income that is saved. It is axiomatic that the more something costs, the less of it people will buy. This is no less true of saving than it is of anything else.

No one has ever claimed that increased taxation is the way to encourage production of the item being taxed. It is the same with bequests. The transfer tax adds heavily to the tax disincentives to save and accumulate capital, hence reduces bequests. The smaller volume of bequests means smaller amounts of capital in the economy.

There are numerous ways in which testators might respond to increased transfer taxes that would reduce the stock of capital in the economy. An increase on the taxation of wealth transfers will affect the economic plans of potential testators along many dimensions. There is no single or simple pattern that testator responses will take. One possible impact of the transfer tax is to shift saving away from accumulating for bequests, where it will be taxed on its corpus in addition to being taxed on its income flow

prior to bequeathal, toward providing for a longer or more lavish retirement, where only the income flow will be taxed because the corpus will be consumed during retirement. Another possible response to the tax is to devote less energy to entrepreneurial efforts for wealth creation and accumulation in the first place. To the extent those efforts are motivated by a desire to leave bequests, the tax will lead to a substitution of activities such as the pursuit of hobbies for the pursuit of business activity, even without any change in retirement plans.

All of these responses should be interpreted as costs of transfer taxation. Moreover, the saving that is forgone because of the imposition of the transfer tax is costly for the entire society, not merely for those directly affected by the tax. It is difficult to identify benefits produced by transfer taxation that warrant incurring its costs.

3. Capital, Income, and the Economic Process

The social costs of punitive taxation of saving may be identified in terms of the lower levels of productivity, employment, output, and income that result therefrom.

The initial impact of the multiple taxation of saving and capital, explained in the preceding discussion, is to reduce the rate of return received by the owners of capital assets. With lower after-tax returns on capital, people have less incentive to save and invest and will reduce their saving and their creation of capital. This reduction in capital will, in turn, reduce the earnings of labor because labor becomes less productive as the stock of capital with which it works becomes smaller.

The relationship between changes in the stock of capital and the productivity of labor is provided by one of the basic propositions of economics — the law of variable proportions (more popularly known as the law of diminishing returns). It is commonplace to think of production undertaken with varying combinations of production inputs, chiefly labor and capital, recognizing that both of these categories are highly

heterogeneous.² The law of variable proportions holds that the contribution to output made by a marginal unit of labor or capital service increases the greater the amount of the capital or labor service with which it is combined in the production process. Another way of stating this proposition is that the greater the amount of capital with which any given amount of labor is employed, the greater is the marginal product of that amount of labor. The corollary of this proposition is that the greater is the capital-labor ratio, the lower is the marginal product of capital.

A number of very important conclusions follow from the operation of the law of variable proportions. One is that increasing the capital-labor ratio results in an increase in the demand for the now more productive labor service. In an efficient market system, this increase in demand for labor services results, in turn, in an increase in employment and in real wage rates.

Other things, of course, also contribute importantly to determination of labor's productivity. Whatever weight one might put on one or another of these other factors, there is well-nigh universal agreement that one of the most significant, if not the most significant, determinants of labor productivity is the size of the stock of capital with which people work. The federal transfer tax affects the size of that stock for reasons to be explored more fully below. The transfer tax leads to a smaller stock of capital than people would accumulate in the absence of the tax; this results in a lower market price per unit of labor supplied within the economy. The lower the stock of capital assets within a society, the smaller will be the earnings of those who supply labor within that society.

The size of the stock of capital in a society is governed by the relationship between the net rate of return that can be obtained on that capital and the willingness of people to give up current consumption in order to have more income in the future. There is an enormous number

² For a cogent statement of the importance of heterogeneity and complementarity among capital goods, see Ludwig Lachmann, Capital and its Structure (London: G. Bell & Sons, 1956).

of influences that bear on this "time preference," few of which are significantly affected by public policies. But given the prevailing time preferences, it is clear that the greater is the cost of obtaining any given amount of future income — the greater is the amount of current consumption that must be forgone to obtain that future income, the less will be the amount of future income people will seek to obtain. Thus, taxes that reduce the return on saving and therefore raise the cost of future income will reduce the amount of their current incomes that people will save.

Some empirical research indicates that the long-term trend after-tax, real rate of return to capital in the American economy, reflecting the prevailing time preference, is about 3.3 percent.³ Should the after-tax real rate of return rise significantly above 3.3 percent, as would result from a reduction in taxes on capital, people increase their saving in additions to the stock of capital until the after-tax return falls back to about 3.3 percent. Alternatively, should the after-tax return fall significantly below 3.3 percent, as through an increase in taxes on capital, people save and invest less, thereby reducing the size of the stock of capital until the after-tax return rises to the vicinity of 3.3 percent.

The posttax rate of return to capital is determined primarily by people's time preferences, the terms on which they are willing to postpone current consumption for larger consumption in the future.⁴ The principle of time preference and its relevance for capital accumulation is well illustrated by the well-known childhood story of the three little pigs. The first pig had the highest rate of time preference, and made a house of straw. Little time was spent sleeping outside before he was able to move into his straw house. The second pig had a lower rate of time preference. He had to

³ Gary Robbins and Aldona Robbins, Capital, Taxes, and Growth (Dallas: National Center for Policy Analysis, 1992).

⁴ This could be stated alternatively as the extent to which they favor current consumption over future consumption. A fall in the rate of time preference would mean an increased willingness of people to transform present consumption into future consumption, something that would take place through an increase in saving.

spend more time sleeping outside while he was making his house of sticks. The third pig had the lowest rate of time preference of all. He sacrificed a great deal of current consumption so as to be able eventually to move into his house of bricks. Whereas the first pig might have had a time preference rate of 20 percent and the second pig one of 10 percent, the third pig's rate of time preference might have been, say, two percent. In any case, lower rates of time preference correspond to a stronger desire to transform current consumption into future consumption, and they correspond to a wealthier society because of the greater saving and capital formation that results.

Time preference is largely a matter of how people conduct themselves with respect to time, with lower rates of time preference corresponding to what people mean by being farsighted and thinking ahead.⁵ The extent to which time preferences might be influenced by policy measures is uncertain. Much is known, though, about how policy measures, given time preferences, affect the size of the stock of capital. An increase in capital taxation operates economically in the same way as an increase in time preference. Suppose under one tax system a 3.3 percent posttax rate of return to capital might correspond to a 6.6 pretax rate of return, while under an alternative tax system where capital is taxed more heavily, the 3.3 percent posttax rate of return might require a 9.9 percent pretax rate of return. There will be a whole range of capital investments that might yield more than 6.6 percent but less than 9.9 percent that will not be made under this alternative tax system. The increased tax burden reduces the size of the stock of capital in the same manner as an increase in rate of time preference would have done.⁶

⁵ For a trenchant examination of time preference and some of its social implications, see Edward C. Banfield, The Unheavenly City (Boston: Little, Brown, 1965).

⁶ It should also be noted that appropriate expenditure programs can operate equivalently to a reduction in rates of time preference. For instance, measures that promote security in titles to property would increase the size of the stock of capital, as compared with a setting where uncertainty and insecurity reigned, just as surely as would happen should time preference decline.

Changes in the stock of capital do not occur instantaneously. A decrease in the tax on the returns to capital, hence a reduction in the cost of saving, will result with little lag in an increase in saving, other things being equal. Translating that increase in saving into additions to the real stock of capital, however, takes time. New warehouses are not instantly built; new machinery and equipment are not instantly produced. Title to a warehouse may be transferred quickly, but the capacity of the warehouse can be expanded, or the warehouse converted into a gymnasium, only with the passing of time. The initial effect of the increase in saving may well be an increase in the market value of existing factories and machinery and equipment that induces the commitment of more production inputs to their creation. The increase in the capital-labor ratio with the attendant increase in demand for labor services, increases in employment, wages, capital income, and total output will be forthcoming only when the additions to the stock of capital are completed and put into production.

Hence, the full economic impact of changes in the stock of capital assets will be revealed only with some delay. Present economic conditions are largely a legacy of earlier choices concerning saving and capital formation. Tax policies that strengthen incentives for capital formation, such as a reduction in transfer taxation, will initially have a relatively small impact in raising income. As time elapses and new savings are transformed into capital assets, however, income will rise ever more strongly. Some research finds that changes in the stock of capital in response to changes in the after-tax rate of return are generally completed within five years, and that about 60 percent of that adjustment is completed within two years. By the same token, policies that weaken those incentives will depress the current flow of income by less than they will reduce future income.⁷

Economic examinations of tax policy tend more often to focus on the distribution of tax shares among income recipients, by level of income or

⁷ For an interesting historical illustration of capital consumption, see Fritz Machlup, "The Consumption of Capital in Austria," Review of Economics and Statistics 17 (January 1935): 13-19.

by source of income, than on the economic consequences of the sort discussed above. Data about the distribution of income or tax liability in terms of such economic categories as wages, interest, profits, and rent, or in terms of levels of annual income may provide useful information concerning the effects of various economic developments and policies. This focus on distribution, however, tends to induce a form of zero-sum thinking that holds that more income for one category necessarily entails less for another — that increases in one person's or one group's income and wealth are obtained at the expense of decreases in the income and wealth of others. In fact, however, an individual's income reflects the amount of the contribution by that person to the economy's total output and income. Because people do not earn their incomes in isolation, the things they do to enhance their own productivity, hence their own income and wealth, also increase the productivity and earnings of those with whom they work, as the law of variable proportions demonstrates.

As a simple matter of arithmetic, a larger share of a *given* amount of income for one income quintile or category must imply a smaller share for another. Thinking in terms of income shares can lead easily to a misleading view of the economy as a timeless snapshot, where more for one category implies less for another, and where economic life is construed as a zero-sum, competitive struggle among claimants over what is to be distributed.

In reality, the economy is a motion picture, not a snapshot, and the economic assessment of tax measures must go beyond a consideration of momentary, static distribution to a consideration of the generation of economic well-being through time. A tax measure that redistributes wealth toward the lower end of the income spectrum today might also reduce the general creation of wealth in the future, and result in a general reduction in economic well-being. Conversely, a tax change that has the immediate effect of reducing the share of taxes paid by those in the upper ranges might nonetheless lead to higher incomes for all as time passes, due to greater incentives to save and create wealth.

4. Transfer Taxation and Economic Dissipation

As the preceding discussion emphasized, the transfer tax adds significantly to the anti-saving bias of the federal tax system. The responses to the tax entail substantial social costs.

One might be inclined to discount the adverse economic consequences of tax provisions that raise as little revenue as the transfer tax, but as shown, the effect of the tax in increasing the cost of saving is belied by its modest revenue yield. It is useful, therefore, to assess the adverse economic effects of the tax in quantitative terms.

One way of showing these effects is to answer the question: How would the economy have performed over some given period of time if the transfer tax had not been in force? The effect of the tax as a source of economic dissipation is illustrated in Tables 1 and 2.

Table 1 presents some of the results of an econometric simulation of what would have happened to the American economy between 1971 and 1991 had the federal transfer tax been eliminated in 1971.⁸

The elimination of the tax (without its replacement by other taxes) would have increased the after-tax rate of return on the then existing stock of capital. The higher net return would have induced an increase in private saving and investment above the levels that actually occurred, and these higher levels would have persisted until the after-tax rate of return had fallen back to its long-term trend value. The larger stock of capital would have increased the amount of capital used with labor services throughout the economy, thereby increasing the productivity of labor, hence the demand for labor services. In turn, this would have led to an increase in employment and in real wage rates, hence an increase in aggregate labor income.

⁸ The simulation was generated by Fiscal Associates, Inc., using their FAIM model. See Appendices I and II for a description of the model and the logic it employs.

Table 1
Economic Growth without Transfer Tax, 1971-91

Year	Change in GDP (\$bil. Nom.)	Change in Jobs (thous.)	Change in Capital (\$bil. Nom.)
1971	2.6	20	25.3
1972	7.7	72	72.9
1973	13.6	147	124.5
1974	17.7	215	170.2
1975	22.5	269	209.8
1976	25.9	316	229.3
1977	29.8	352	255.4
1978	33.1	375	277.4
1979	34.4	378	291.6
1980	34.2	353	305.5
1981	36.9	336	325.6
1982	35.4	308	333.1
1983	37.4	297	333.1
1984	39.3	299	329.5
1985	38.6	285	318.8
1986	38.0	268	311.4
1987	37.6	260	308.2
1988	39.2	252	318.9
1989	41.9	250	336.9
1990	44.3	248	366.5
1991	46.3	262	398.6
(Changes in GDP are annual; changes in jobs and capital stock are cumulative.)			
Source: Fiscal Associates, Inc.			

The net result of the elimination of the transfer taxes in 1971, according to the simulation, is that 262,000 more jobs would have been created by 1991 than actually were created, the stock of capital would have been \$398.6 billion higher, and the nation's gross domestic product (GDP) would have been \$46.3 billion higher in 1991 than it actually was.

To be sure, the past cannot be relived. Yet there is no need to duplicate yesterday's mistakes tomorrow. Table 2 shows the econometric simulation's of the economic consequences, over the remainder of this decade, of eliminating the federal transfer tax in 1993. The simulation shows that abolition of the tax in 1993 would lead to a stock of capital \$639 billion more than it is projected to be in the year 2000. The labor productivity enhancing effect of this larger stock of capital would result in 228,000 more jobs than if the transfer tax were to remain in place. The larger amounts of labor and capital services would increase production and GDP, which would be more than \$79 billion greater in the year 2000 than it will be with the tax. A more detailed explanation of the simulation results is provided in the Appendices.

These simulation results illustrate a basic and well-nigh universally accepted proposition, to wit: measures that reduce people's incentive to save and accumulate capital reduce the economic well-being of Americans generally. Problems of economic erosion through transfer taxation become particularly apparent in light of some of the problems of closely-held business and the tax treatment of unrealized appreciation at death. Every society contains people of widely differing talents and interests. At least since the work of Adam Smith, the central focus of the economics discipline has been to explain how a market economy tends to develop a division of labor and knowledge in which people generally engage in those activities that are best suited for their talents and interests, even though no one person or agency plans those activities. One of the more important ways in which people differ is their aptitudes for entrepreneurship and for

<p>Table 2 Economic Growth without Transfer Tax, 1993-2000</p>			
Year	Change in GDP (\$bil. Nom.)	Change in Jobs (thous.)	Change in Capital (\$bil. Nom.)
1993	6.6	12	64.5
1994	19.3	44	180.8
1995	33.2	84	301.4
1996	45.6	128	401.6
1997	57.5	171	492.6
1998	65.7	203	547.7
1999	73.0	225	595.8
2000	79.2	228	638.9
(Changes in GDP are annual; changes in jobs and capital stock are cumulative.)			
Source: Fiscal Associates, Inc.			

owning and managing assets.⁹ Assets do not inexorably and automatically generate an income return. Whether they do and, if they do, at what yield, depends on those entrepreneurial and managerial capacities.

Closely-held businesses surely contain a great deal of entrepreneurial capacity and managerial knowledge, specialized and specific to each such business, that has both propelled the development of the enterprise and has been acquired during that development. This specialized capacity, in its very nature, is not readily transferable to others. For this reason, the transfer tax imposes particularly heavy burdens on closely-held businesses.

⁹ See, for instance, the discussion in Pavel Pelikan, "Evolution, Economic Competence, and the Market for Corporate Control," Journal of Economic Behavior and Organization 12 (1989): 279-303.

For one thing, the valuation of such businesses is often highly arbitrary because there is no market trading of ownership shares. Furthermore, transfer tax liability often requires that the business be sold to provide the means to pay the tax. To the extent such businesses contain specialized entrepreneurial capacity and managerial knowledge, the new pattern of ownership and management that results after the business has been sold to pay the tax will be economically less valuable. The sale of the business in such circumstances has the same effect as a reduction in the stock of capital.

To illustrate, consider an estate valued at \$100 million that is taxed at 50 percent. Suppose that the specialized talent and knowledge of those who have created the specific assets that the business represents generate a 20 percent rate of return. Further suppose that the return on those assets would fall to 10 percent should the business have to be sold to pay the transfer tax. Without the transfer tax, those assets would generate an annual income flow of \$20 million. But after the forced sale, those assets would generate an annual net income of only \$10 million. This result is the same as that from maintaining the productivity of the assets but reducing their amount by half.

In the general case, moreover, this loss in the business's productivity results in lower levels of employment of labor and of other, less specialized capital services, as well. To the extent liquidity pressures exerted by the transfer tax lead to a shift of assets into less efficient patterns of ownership and management, therefore, general economic well-being is diminished. A shift in ownership from more efficient to less efficient owners, such as usually results from the forced sale of closely-held businesses, is economically equivalent to a reduction in the stock of capital. With marginal tax rates as high as 50 percent, forced sale is often the only viable course of action. In this way as well as in its adverse effect on saving and capital accumulation, the transfer tax imposes significant social costs.

5. Illusory Revenue from Federal Transfer Taxation

How much revenue does the transfer tax collect? As Table 3 shows, federal receipts under the transfer tax were \$11 billion in 1991, or just under one percent of total federal receipts of \$1.12 trillion. The record back to 1959 shows that transfer tax receipts have rarely exceeded two percent of federal revenues. While \$11 billion may seem at first glance like a lot of money, it is little more than a rounding error in relative significance to the federal treasury, and is substantially less than the customary annual increase in federal tax revenues that results from economic growth.

Some tax policy specialists assert that the transfer tax could be revised in various ways to generate substantially greater amounts of federal tax revenues.¹⁰ However, the projected revenue yields from the proposed revisions are economically erroneous, even if they might be accurate as static estimates. The static estimate is that the federal government collected \$11 billion from its taxation of wealth transfers in 1991. An increase in transfer taxes would be estimated as producing additional tax revenues equal to those generated by the increased transfer tax.

From an economic point of view, however, the revenue effects of any single tax can be gauged only after taking into account any collateral effects of that tax on revenues from other taxes. This is particularly the case if economic responses to one tax significantly affect the base of some other tax.

¹⁰ An argument for expanded transfer taxation is advanced in Henry J. Aaron and Alicia H. Munnell, "Reassessing the Role for Wealth Transfer Taxes," National Tax Journal 45 (June 1992): 119-43. Arguments in support of transfer tax abolition are presented in Charles O. Galvin, "To Bury the Estate Tax, Not to Praise It," Tax Notes (September 16, 1991): 1413-19; and Robert B. Smith, "Burying the Estate Tax without Resurrecting Its Problems," Tax Notes (June 29, 1992): 1799-1811.

Table 3
Transfer Taxes and Other Federal Government Receipts, 1959-91

Year	Total Federal Receipts (\$billions)	Transfer Tax Receipts (\$billions)	Transfer Tax as % of Total Federal Receipts
1959	90.6	1.4	1.55
1960	97.0	1.8	1.86
1961	99.0	2.0	2.02
1962	107.2	2.1	1.96
1963	115.5	2.2	1.90
1964	116.2	2.6	2.24
1965	125.8	2.8	2.23
1966	143.5	3.0	2.09
1967	152.6	3.1	2.03
1968	176.8	3.1	1.75
1969	199.6	3.6	1.80
1970	195.2	3.7	1.90
1971	202.6	4.6	2.27
1972	232.0	5.4	2.33
1973	263.7	5.1	1.93
1974	294.0	4.8	1.63
1975	294.8	4.9	1.66
See next page for continuation of table.			

Table 3 (continued)
Transfer Taxes and Other Federal Government Receipts, 1959-91

Year	Total Federal Receipts (\$billions)	Total Federal Receipts (\$billions)	Transfer Tax as % of Total Federal Receipts
1976	339.9	5.6	1.65
1977	384.0	7.2	1.88
1978	441.2	5.2	1.18
1979	504.7	5.5	1.09
1980	553.0	6.5	1.18
1981	639.0	6.9	1.08
1982	635.4	7.5	1.18
1983	660.0	5.8	0.88
1984	725.8	6.0	0.83
1985	788.6	6.4	0.81
1986	827.2	7.0	0.85
1987	913.8	7.2	0.79
1988	972.3	7.6	0.78
1989	1,059.3	8.9	0.84
1990	1,107.4	11.6	1.05
1991	1,122.2	11.0	0.98
Source: Department of Commerce, Bureau of Economic Analysis.			

Consider the revenues generated by an increase in the existing excise tax on gasoline. The present federal tax system also includes excise taxes on automobile tires, among others. If the gasoline excise tax were increased, the cost per mile of automobile usage would rise, and people would use their cars less than before the gasoline tax was raised. While

revenues from the gasoline tax would probably rise, those generated by the tax on tires would fall. The gasoline excise tax increase would also raise the cost of operations of virtually all businesses, with depressing effects on total output, employment, and income. The net effect on total federal tax revenues would be the increase in gasoline excise tax revenues minus the loss of income and payroll tax revenues as well as that from other excises. The correct measure of the revenue consequences of raising any tax must take account of effects of this tax increase on other production and activities that are subject to other taxes and the revenue consequences thereof.

Whenever one tax reduces the base of another tax, the revenue impact of the first tax can be gauged accurately only after taking into account the negative revenue impact of that tax on the second tax. The collateral effect of one tax upon collections from another tax is particularly significant for taxes on capital. Wealth is a tax base that is highly complementary with most other tax bases. Capital appears in all market transactions, and the value of those transactions depends directly on the amount of capital present. An increase in the stock of capital increases the earnings of people who work with that greater amount of capital. Conversely, a tax that reduces the stock of capital will reduce those earnings. These lower earnings will shrink the base of the personal income tax and the payroll tax for the federal government. Hence, any effort to portray accurately the net contribution to federal revenues made by the transfer tax must attempt to assess the reduction in other tax revenues that results because the transfer tax reduces the stock of capital.

In this respect, the econometric simulations reported above provide the basis for estimating the effect of an abolition of the transfer tax on total federal tax revenues. Table 4 presents the results of those estimates for the 1971-91 period; it shows what would have happened to other tax revenues had the federal transfer tax been eliminated in 1971. The increase in labor and capital inputs would have resulted in greater production, hence higher levels of income. In turn, the greater amounts of employment, output, and income would have expanded the bases of the income, payroll, and excise taxes in the federal tax system, and generated higher levels of tax revenues

Table 4
Changes in Federal Tax Revenues from Transfer Tax Abolition, 1971-91
(\$ billions)

Year	Transfer Tax	Soc. Sec. Tax	Corp. Inc. Tax	Personal Inc. Tax	Other Taxes	Total Tax Increases	Net Tax Change
1971	-4.6	0.2	0.1	0.3	0.0	0.6	-4.0
1972	-5.4	0.6	0.3	0.9	0.1	1.9	-3.5
1973	-5.1	1.1	0.4	1.6	0.2	3.4	-1.7
1974	-4.8	1.5	0.4	2.2	0.3	4.4	-0.4
1975	-4.9	1.8	0.6	2.7	0.4	5.4	0.5
1976	-5.6	2.1	0.9	3.1	0.4	6.5	0.9
1977	-7.2	2.4	1.1	3.5	0.5	7.5	0.3
1978	-5.2	2.7	1.1	4.0	0.5	8.3	3.1
1979	-5.5	2.9	1.0	4.2	0.5	8.5	3.0
1980	-6.5	2.9	0.8	4.2	0.5	8.5	2.0
1981	-6.9	3.1	0.9	4.5	0.6	9.0	2.1
1982	-7.5	3.0	0.8	4.4	0.6	8.7	1.2
1983	-5.8	3.1	0.9	4.5	0.6	9.1	3.3
1984	-6.0	3.2	1.2	4.7	0.6	9.7	3.7
1985	-6.4	3.2	1.1	4.6	0.6	9.5	3.1
1986	-7.0	3.1	1.2	4.5	0.6	9.4	2.4
1987	-7.2	3.1	1.1	4.5	0.6	9.3	2.1
1988	-7.6	3.2	1.0	4.7	0.6	9.6	2.0
1989	-8.9	3.4	1.1	5.0	0.7	10.2	1.3
1990	-11.6	3.7	1.0	5.3	0.7	10.7	-0.9
1991	-11.0	3.9	0.8	5.7	0.7	11.1	0.1
sum	-140.7	54.4	17.8	79.0	10.2	161.4	20.7

Source: Fiscal Associates, Inc.

from these taxes than otherwise would have been realized. This would have led to \$54.4 billion more in social security tax collections over 1971-91, as well as \$79 billion more in personal income tax collections. Corporate income tax collections would have aggregated to \$17.8 billion more over the two decades, and other federal taxes would have been \$10.2 billion more over those years. In short, the abolition of the federal transfer tax in 1971 would have increased other federal tax bases over the subsequent 20 years, resulting in \$161.4 billion more in tax receipts during those years. While the revenues lost from repeal of the transfer tax over the 21-year period 1971-1991 would have aggregated \$140.7 billion, total federal tax revenues would have been nearly \$21 billion more than the amount actually collected. The simulation also shows that state and local governments would have collected \$96.3 billion more in taxes as a result of the expansion of their tax bases.

These results should be seen as a major objection to proposals to increase revenues from the transfer taxes. Just as the economic growth-generating effects of abolition of the transfer taxes would result in more than offsetting increases in other tax revenues, efforts to increase revenues from transfer taxes would very likely result in net federal tax revenue losses.

We did not abolish the federal transfer tax in 1971, of course, so we have forgone the budgetary gains and the economic benefits we might have attained. However, we can abolish the federal transfer tax now and attempt to gauge the future pattern of economic benefits. Estimates of the revenue results in 1993-2000 of abolishing the transfer tax in 1993 are presented in Table 5. Because of differences in the federal tax structure in the projection period compared with the 1971-1991 period, the abolition of the transfer tax would result in a modest and decreasing loss in total federal tax revenues through the year 2000. Thereafter, net federal revenue gains might well emerge. State and local government tax revenues are estimated to increase by \$53.9 billion over the 1993-2000 period as a result of the expansion of income and wealth resulting from repeal of the transfer tax.

Table 5 Changes in Federal Revenues from Transfer Tax Abolition, 1993-2000 (\$billions, nominal)							
Year	Transfer Tax	Soc. Sec. Tax	Corp. Inc. Tax	Personal Inc. Tax	Other Taxes	Total Tax Increase	Net Tax Change
1993	-12.6	0.6	0.0	1.2	0.1	1.9	-10.7
1994	-12.6	1.6	0.1	2.3	0.3	4.3	-8.3
1995	-13.6	2.8	0.2	3.6	0.5	7.2	-6.4
1996	-14.6	3.9	0.4	5.1	0.7	10.0	-4.6
1997	-15.8	4.9	0.6	6.5	0.9	12.9	-2.9
1998	-17.2	5.6	0.8	7.7	1.0	15.1	-2.1
1999	-18.6	6.2	0.9	8.7	1.1	16.9	-1.7
2000	-20.1	6.7	1.0	9.2	1.2	18.2	-1.9
sum	-125.1	32.1	4.1	44.3	5.8	86.4	-38.7
Source: Fiscal Associates, Inc.							

One noteworthy feature of these simulations is the timing of these dynamic revenue changes. For instance, in Table 4, the column labeled "net tax change" shows that during the first four years — 1971-1974 — the elimination of the transfer tax would have lowered total federal tax collections. Starting in 1975, the increase in other forms of tax revenue exceeds the reduction in transfer tax revenues. This pattern of timing reflects the proposition discussed above about capital and time: on the one hand, the negative impact of a tax on capital will show up as reduced income only with a lag; on the other hand, an increased tax on capital will momentarily give a boost to revenues with the even greater harm coming

later.¹¹

It must be emphasized that the pattern of revenue losses and gains is not fixed; changing economic circumstances as well as changes in the tax structure may result in differences in the amount and in the time over which a given tax change generates offsetting revenue changes from other taxes.

There may be some tension between sound economics and sound politics, because the full consequences of measures that affect the after-tax return to capital will occur only with some delay. At any instant in time, tax policy often appears to be concerned primarily with the shape of the distributions of some given tax burden. A proper assessment of tax policy, however, must involve its impact on economic well-being over an extended period of time. To the extent the creation of tax policy is governed by political considerations, however, those considerations may operate to the eventual general economic detriment — at least without some display of statesmanship.

The initial impact of the repeal of the transfer tax is to reduce net tax revenues. It is only after a number of years, four years in the 1971-1991 simulation, as the stock of capital adjusts to the reduction in tax, that net revenues begin to increase. With Congressional elections occurring at two-year intervals, a reduction in capital taxes may encounter resistance because the bulk of the benefits from tax reduction will occur in the next election period. The dominant effect in the current election period, however, will be to depress tax collections, thereby making the deficit larger in the near term. To the extent budgetary politics focus on the near-term electoral cycle, this approach of increasing tax collections by abolishing the transfer tax requires statesmanship that is able to embrace a longer-run vision.

¹¹ A negative entry also occurs for 1990, and transfer tax collections increased sharply in that year. Much of this increase seems due to the incorporation of Employee Stock Ownership Plans (ESOPs) into the base of the transfer tax after 12 July 1989.

6. Equal Opportunity and Transfer Taxation

It might seem that the transfer tax has less to do with raising revenues than with securing fairness or equity across generations and wealth classes. It is sometimes claimed that a right of inheritance gives an unfair advantage to those who happen to be born into families where estates have been accumulated. In a commonly used analogy, the receipt of an inheritance is likened to the award of a head start in a foot race. Transfer taxation is thus portrayed as a means of promoting equal opportunity among people by assuring all people equal starting points based on their own talents.

Much of the allure of this analogy doubtlessly lies in its simplicity. No one would object to the proposition that it is unfair to let some racers start ahead of others. If economic life is then likened to a foot race, it would seem self-evident that bequests should not be allowed, at least to individuals even if they might be allowed to organizations. Close examination, however, shows that economic life is not reasonably analogous to a foot race.

Equal positions in a foot race do not indicate fairness and equal opportunity. If some people happen to be quicker than others by virtue of birth, those who are born naturally slow will not face an equal opportunity of winning the race should they be made to start at the same place as those who are born naturally fast. Fairness would seem to require a set of handicaps where those who are naturally quicker start further back. How much further back? So long as those who are handicapped by starting in the rear still finish in the front, it would seem as though the handicap were not sufficient to provide equal opportunity. Pursuit of the foot race analogy leads to a situation where equality of opportunity becomes identical with equality of outcome.

The foot race analogy is not applicable to economic life. In a foot race there is one winner and many losers. Moreover, those who are born naturally slow will seek to develop other talents and to enter other occupations. Placing a handicap on a projected winner increases the odds

that someone else will win. Increased odds of success for some racers come at the expense of reduced odds for other racers. While this zero sum character, where one person's gain is someone else's loss, characterizes foot races, it does not describe economic life. The central lesson of more than two centuries of economic scholarship is that economic life is positive sum because everyone gains from a successful economy. While an Isaac Singer may become wealthy through developing a sewing machine, millions of other people are able to become better clothed. Furthermore, those other people became more productive as a result of Singer's efforts and hence earned higher incomes. Samuel Johnson made the point well in the 18th century: "a man is seldom so innocently engaged as when he is making money." The foot race analogy construes economic life fundamentally as a matter of wealth redistribution. In fact, however, it is wealth creation that is centrally important to economic well-being.

It is sometimes argued that earned wealth is morally superior to unearned, inherited wealth. This argument presumes that wealth, once acquired, can be maintained indefinitely without effort. Asset ownership that produces a perpetual income stream without effort is a stereotype of the idle rich, but such effortless perpetuity is not to be found in real economic life. Someone may inherit a company that manufactures breakfast cereals. Regardless of the company's value at the time of inheritance, if it rests on past accomplishments and fails to change in response to changes in consumer concerns regarding such things as nutrition it will lose out to competitors. In a market-based economy, all asset positions are continually subject to challenge through competition, whereby wealth, once earned, must be re-earned continually or else it will be lost. Claims that there is some natural tendency for the rich to get richer, which are based upon compound-interest analogies, do not reflect the properties of a competitively organized economy.¹²

The transfer tax imposes penalties on families that are successful in

¹² This point is explored more fully in Richard E. Wagner, Inheritance and the State: Tax Principles for a Free and Prosperous Commonwealth (Washington: American Enterprise Institute, 1977).

accumulating wealth, but only a zero-sum logic would hold that those penalties promote the well-being of everyone else. Without doubt, many people enter life with obstacles to their economic well-being. For instance, being born into a broken or dysfunctional home presents a clear disadvantage. A positive program for a flourishing society, however, would seek for ways to remove those obstacles, rather than seeking to penalize those who did not face such obstacles.¹³ Everyone gains in a progressive economy, but we have many programs and institutions in our society that work against economic progress. A positive approach to fairness and opportunity would seek to reform those institutions that restrict opportunity, rather than to curtail those institutions, like family, private property, and inheritance, that foster it.

To be sure, any such positive approach would have to recognize that people in roughly the same circumstances do make markedly different choices, and these choices will affect distributive outcomes. Some equally talented people may opt for quick gratification while others defer such gratification to build up their talents and capital assets. At age 30 there may be little difference in economic circumstances among such people, but by age 50 those who chose quick gratification will generally lag economically behind those who did not. Any effort to promote some program of equalization among similarly talented people will fail because of different choices that those people subsequently make.¹⁴

¹³ Such scholars as Charles Murray — Losing Ground (New York: Basic Books, 1984) and In Pursuit of Happiness and Good Government (New York: Simon and Schuster, 1988) — have shown how public assistance promotes child neglect, thereby fostering a culture of poverty. Other scholars have shown how public education, in conjunction with minimum wage legislation and laws that restrict youth employment, reinforce that culture. [Relevant references to such scholarship are provided in Richard E. Wagner, To Promote the General Welfare (San Francisco: Pacific Research Institute, 1989).]

¹⁴ This theme is developed clearly in Milton Friedman, "Choice, Chance, and the Personal Distribution of Income," Journal of Political Economy 61 (August 1953): 277-90.

With respect to different choices, 70 percent of the top one percent of wealth holders were self-employed, according to the 1989 Survey of Consumer Finances.¹⁵ Among the population as a whole, about 15 percent are self-employed. The top one percent take on much greater risk in society, holding a relatively larger share of their wealth in closely-held businesses and nonresidential real estate, and relatively less in stocks and bonds. Moreover, inheritances received by the top one percent of wealth holders accounted for less than 10 percent of their wealth, with less than half of the top one percent receiving any inheritance at all.

It is tempting to fall back upon the snapshot view of economic life and to assess issues concerning opportunity from a static perspective. This occurs whenever statistics about the distribution of income are presented. One notable thing about these distributional statistics is how stable they appear. The distribution of reported family income by quintiles, for instance, shows this general stability. The lowest 20 percent of families generally receive around 5 percent of reported family income, the second quintile around 12 percent, the third around 18 percent, the fourth around 24 percent, and the highest quintile around 42 percent.

Any widening of the gap between the lowest and the highest quintile, even if only a percentage point or two, is often characterized as representing increased inequality and is taken to imply that opportunity is being restricted or limited. Yet such static distributional measures say nothing at all about opportunity. Opportunity is a dynamic concept that can be assessed only through time and not at some instant in time. In a static or caste society, people's relative positions would be stable through time. Those in the lowest fifth would stay there throughout their lifetimes, and their children would follow them.

In the real world, however, people do not remain fixed in the income distribution. There is an important distinction between a static view of income or wealth distribution and a dynamic perspective focused on

¹⁵ Reported in Lawrence B. Lindsey, "Why the 1980s Were Not the 1920s," Forbes 400 (October 19, 1992): 78 ff.

mobility of people over time, even though that static distribution may remain roughly unchanged.¹⁶ One of the notable features about American society is the fluidity or mobility of people within the income scale. Table 6 characterizes income mobility over the ten-year period, 1979-88.¹⁷ Of those who were in the bottom income quintile in 1979, only 14 percent were in the bottom quintile in 1988. Nearly 18 percent of those in the bottom quintile in 1979 were in the top quintile in 1988. Of those who occupied the top quintile in 1979, more than 35 percent had moved to a lower quintile by 1988, with over five percent moving into the bottom two quintiles.

<p>Table 6 Income Mobility, 1979-88</p>					
Status in 1979	Status in 1988				
	Top	Second	Third	Fourth	Lowest
Top Quintile	64.7	20.3	9.4	4.4	1.1
Second Quintile	35.4	37.5	14.8	9.3	3.1
Third Quintile	15.0	32.3	33.0	14.0	5.7
Fourth Quintile	11.1	19.5	29.6	29.0	10.9
Lowest Quintile	17.7	25.3	25.0	20.7	14.2
<p>Source: Joseph H. Haslag and Lori L. Taylor, "A Look at Long-Term Developments in the Distribution of Income," <u>Federal Reserve Bank of Dallas Economic Review</u> (First Quarter, 1993): 22.</p>					

¹⁶ See, for instance, Alan S. Blinder, "Inequality and Mobility in the Distribution of Wealth," Kyklos 29 (No. 4, 1976): 607-38; and Bradley R. Schiller, "Relative Earnings Mobility in the United States," American Economic Review 67 (December 1977): 926-41.

¹⁷ Table 6 is taken from page 22 of Joseph H. Haslag and Lori L. Taylor, "A Look at Long-Term Developments in the Distribution of Income," Federal Reserve Bank of Dallas Economic Review (First Quarter, 1993): 19-30.

An alternative though similar illustration of this same point is provided by the recently released studies of income mobility over a ten-year period by the Treasury's Office of Tax Analysis and the Urban Institute.¹⁸ Both showed the same striking fluidity that other scholars had noted earlier. About two-thirds of those in the bottom quintile move up at least two quintiles in ten years. Much of this movement is due to aging and job-market experience because wage and salary income comprise nearly 90 percent of the total income received by those who leave the bottom quintile. Between 1977 and 1986, average family income increased 18 percent in real terms for those adults who were between ages 25 and 54 in 1977. The average real income of those who occupied the top quintile in 1977 increased by only 5 percent over the decade, indicating downward mobility. For those who were in the bottom quintile in 1977, average income increased by 77 percent, and it increased by 37 percent for those who occupied the second quintile. Average income for those who occupied the fourth quintile in 1977 increased only 10 percent over the decade. This dramatic mobility takes place within a context in which the static distribution of income by quintile changes very little.

When the economy is viewed in dynamic perspective, particularly once it is recognized that the bulk of income is received through wages and salaries, an opportunity-based society is one that nourishes the capital formation that provides the basis for high and growing labor incomes. In a nation dedicated to the flourishing of the citizenry, deliberations about tax policy would focus not on some static distribution of the tax burden among income brackets but on the contribution of the tax system, positive or negative, to economic progress.

7. Transfer Taxation and Private Philanthropy

What is the best way to educate children, to nurture deprived children, or to fathom the mysteries of cancer? There may well be one best way in some such cases, though often there is not. Even if there is one best approach, it typically will not be obvious what it is. Many people might

¹⁸ As discussed in "Income Dynamics," Wall Street Journal 16 June 1992, p. A12.

claim to know or at least to have some relevant insight. In the face of contending, conflicting claims, economists generally acknowledge that the best approach to some ultimate resolution is a competitive one that involves multiple, independent sources of support and experimentation. To the extent better ways can be said to exist, it is because they are selected over other approaches through a process of competitive experimentation.¹⁹

There need not be anything wrong with government involvement in such areas. The danger comes about if such involvement becomes dominant. The competitive process of search and experimentation will typically become more narrowly focused to reflect the beliefs, values, and interests that are dominant within the government agency that provides the support. Inevitably, some official agency view will come to dominate which approaches get explored and which are rejected. Many possibly fruitful options will never get explored because they clash with the particular outlooks and interests that necessarily dominate government agencies. Although this point has been demonstrated in great detail for cancer research by both Edith Efron and Ralph Moss, the central point is valid generally.²⁰

For instance, is cancer better approached through research into drugs or into diet? The answer, of course, lies in the future. The recent flourishing of interest concerning the relation between diet and heart disease was inspired by developments outside the standard channels of medical research which were, and remain, highly oriented toward surgery and drugs. Alternatively, chiropractors claim that many medical conditions result from spinal maladjustments, a claim that is strongly opposed by the medical establishment. Where does the truth lie? Without a crystal ball, we can't tell. What we can say with a reasonable degree of confidence is

¹⁹ This theme is stated nicely in Michael Polanyi, The Logic of Liberty (Chicago: University of Chicago Press, 1951). Also see Gordon Tullock, The Organization of Inquiry (Durham, NC: Duke University Press, 1966).

²⁰ Edith Efron, The Apocalypitics: Cancer and the Big Lie (New York: Simon and Schuster, 1984). Ralph W. Moss, The Cancer Industry: Unraveling the Politics (New York: Paragon House, 1989).

that a society with many independent sources of sponsorship for such inquiries will tend more quickly and more surely to move toward correct answers than will a society that practices a generally monopolistic, bureaucratic approach to inquiry.

The failures of central planning that have been so firmly documented throughout the world apply just as well to the organization and delivery of the services mentioned here. The best way to organize the discovery of new knowledge is through a competitive process that contains many people seeking such knowledge and many independent sources of support for such searches. Traditionally, those who have acquired large sources of wealth have been at the forefront in creating a decentralized network of foundations and other institutions that have supported a wide variety of charitable, educational, cultural, and scientific activities. There is little doubt growing government spending in some of these areas has crowded out what alternatively would have been private support.²¹

What effect does the federal transfer tax have on private sources of philanthropic support?²² It is sometimes presumed to be almost self-evident that the transfer tax, in conjunction with a deduction for charitable bequests, increases private support for philanthropic organizations. The logic of such a presumption is straightforward. Testators can do three things with their wealth: leave it to heirs, give it to philanthropies, or let the government take it. Suppose all bequests to heirs are taxed at 50 percent, with bequests to philanthropy being tax deductible. Consider the position of a testator with \$100 million to bequeath. If bequests are scaled in \$1,000 units, the testator has 100,000 units to bequeath. How many

²¹ With respect to charitable contributions in particular, see Russell D. Roberts, "A Positive Model of Private Charity and Public Transfers," Journal of Political Economy 92 (February 1984): 136-48.

²² A nice survey of these issues is contained in the report of the Commission on Private Philanthropy and Public Needs, Giving in America: Toward a Stronger Voluntary Sector (Washington: U. S. Department of the Treasury, 1977). A massive amount of supporting evidence and argumentation is presented in the accompanying five volume set of "Research Papers."

units will he transfer to heirs and how many to philanthropies? Obviously, this depends on various circumstances concerning the testator's values and preferences, which will differ among testators.

Nonetheless, the transfer tax and the charitable deduction will generally influence that choice in a systematic fashion. The donor must use \$2,000 per unit of bequest left to heirs, while he need use only \$1,000 per unit transferred to philanthropies. With a tax rate of 50 percent, personal bequests are twice as expensive as philanthropic bequests. A reduction in the tax rate would lower the price of leaving bequests to heirs relative to leaving bequests to philanthropy and, therefore, would reduce the cost advantage possessed by philanthropic bequests. If the tax rate were 40 percent, a personal bequest would cost the testator \$1,667 per unit, with the tax being \$667. The reduction in rate of tax lowers the testator's cost of personal bequests relative to charitable bequests. An increase in the rate of tax would operate in reverse fashion, and would lower the relative price of charitable bequests. The higher the marginal rate of tax, the lower the price of leaving charitable bequests relative to personal bequests.²³ With a marginal rate of tax of 10 percent, a charitable bequest would be 90 percent as costly as a personal bequest. Should the marginal rate of tax be 90 percent, charitable bequests will be only 10 percent as costly as personal bequests. This effect, taken alone, suggests that the transfer tax in conjunction with a charitable deduction encourages charitable bequests.

This does not mean, however, that the transfer tax promotes the flourishing of private philanthropy. An increase in the tax rate does lower the relative cost to testators of leaving charitable bequests. However, it also reduces the total volume of bequests that testators will leave in the first place. The tax advantage the charitable deduction appears to give may be swamped by the negative effect on wealth creation of the transfer tax. To compare a testator with a given amount of wealth to apportion between personal and charitable bequests under alternative rates of tax is

²³ The general relationship is $P = 1 - t$, where P is the price of charitable bequests and t is the marginal rate of tax.

highly misleading. The higher the rate of tax, the less wealth the testator will leave in the first place, as explained above.

In the limiting case of a 100 percent rate of tax, the only reason people would accumulate wealth would be to leave philanthropic bequests. At least this would be so in principle, though it is doubtful that personal bequests would be eliminated in practice. Taxable bequests as we now know them would be eliminated, but personal bequests would still exist, only they would take on nontaxable forms and would not be called bequests. An increased use of gifts might be one possible response. If gifts were similarly restricted, those transfers could be accomplished in various ways through closely-held businesses, as through super-normal compensation in place of gifts. The central point in any case is that potential donors would surely be ingenious in seeking ways to leave bequests should such desires be thwarted by confiscatory transfer taxation. Indeed, the higher the rate of tax the stronger will be the inducement to leave bequests in alternative, disguised, or otherwise nontaxable forms. In any case, without an ability to provide for heirs it is unlikely that there would be much left for either the payment of transfer tax or charitable bequests. Even the wealth that might be left because of the uncertainty of the timing of death could be dissipated through the purchase of annuities. Wealth would come to be created increasingly for life cycle purposes only as the bequest motive was strangled.

As noted above, the transfer tax is an excise tax on bequests. If the marginal rate of tax is 20 percent, it takes \$125,000 to leave \$100,000 for heirs, which is a 25 percent rate of excise tax. If the marginal rate of tax is 75 percent, it takes \$400,000 to leave \$100,000 to heirs, which amounts to a 300 percent rate of tax. Empirical work by Michael Boskin finds that the demand for charitable bequests is price elastic, so that a fall in price leads to increased spending on charitable bequests.²⁴ It is also plausible that the demand for personal bequests is price inelastic. This situation would correspond to the common sense notion that people who leave

²⁴ See, for instance, Michael J. Boskin, "Estate Taxation and Charitable Bequests," *Journal of Public Economics* 5 (February 1976): 27-56.

estates will initially place their heirs first. An interest in supporting philanthropic organizations would strengthen as the size of an estate rises. An increase in the rate of transfer tax makes personal bequests more expensive, so testators will leave fewer bequest units the higher the rate of tax. However, if the demand for personal bequests is inelastic, the testator will spend more in total in making those bequests.

The limiting case of an inelastic demand for personal bequests arises when testators have a desired or target level of wealth they wish to transfer to heirs, with charitable bequests receiving the residue. Consider the case of a testator who has created an estate valued at \$50 million and who wishes to leave his heirs \$20 million. In the absence of a transfer tax, the testator would transfer the \$20 million to heirs, and the remaining \$30 million would be transferred to philanthropic organizations. Suppose alternatively that a transfer tax of 50 percent is imposed. In this case each dollar of tax revenue crowds out one dollar of philanthropic bequest. The testator will now have to use \$40 million of his wealth to leave \$20 million to heirs, which leaves only \$10 million for transfer to philanthropic organizations.

Because the transfer tax reduces the incentive to create capital assets, each dollar of tax revenue will reduce philanthropic bequests by more than one dollar. Suppose that in the presence of the 50 percent transfer tax the testator created an estate of \$40 million, instead of the \$50 million estate he would have created in the absence of a transfer tax. In this case the entire estate is dedicated to transferring the \$20 million to heirs. With heirs and the government each collecting \$20 million, nothing is left for charitable bequests. To be sure, to postulate a target level of desired bequest is to assume that the demand for bequests has zero elasticity. While this is unlikely, the conclusion that the transfer tax reduces

philanthropic bequests more strongly than it reduces individual bequests requires only that the demand for personal bequests be less elastic than the demand for philanthropic bequests.²⁵

8. In Closing

It is easy to believe what appears to be intuitively obvious, no matter how wrong that belief may be. One of the starkest illustrations of this is the belief held for millennia, and found in our language to this very day, that the sun rises in the east and sets in the west. Only after the Copernican revolution did we recognize just how wrong this intuitively obvious proposition is.

In tax policy, it seems intuitively obvious to most people that transfer taxes are paid only by the very rich in our society. How could it be otherwise when transfer tax liability begins only after accumulated transfers exceed \$600,000? The corollary belief is that a reduction in the transfer tax would require an offsetting increase in the taxes paid by the rest of society. This proposition, however, is as wrong as the proposition that the sun revolves around the earth.

The key to escaping the trap of the intuitively obvious about the transfer tax lies in identifying the adverse economic effects of the tax on capital accumulation. We now recognize that capital accumulation, with the knowledge that undergirds it, is the primary source of growth of labor's productivity, employment, and real wage rates. The accumulation of capital, moreover, doesn't just happen or occur automatically; it results only to the extent that people are willing to incur the cost of saving in order to earn a return on the capital their saving creates. Transfer taxes increase the cost of capital creation, and this cost increase is vastly

²⁵ This conclusion is consistent with Boskin's findings, even if they are expressed differently. Boskin argues only that the increase in charitable bequests that would arise from a decrease in the tax rate would be less than the reduction in charitable bequests that would result from an elimination of the charitable deduction without any change in the tax rate.

disproportionate to the revenues these taxes raise, especially once the negative effect of transfer taxes on other tax revenue sources is taken into account.

Indeed, the taxation of wealth transfers truly imposes a social cost. The tax imposes costs on everyone without any offsetting gain. Unlike some other social costs, this one is easy to avoid. All that is necessary is to abolish the transfer tax.

Repeal of the federal transfer tax would strengthen the incentive people have to create capital, and would thereby lead to higher wages, greater employment, and larger tax collections from income, payroll, and other federal taxes. Abolition of the transfer tax would expand opportunities for all by enhancing the conditions for economic flourishing throughout our society. All that is necessary to seize these opportunities is to see through the seductive appeal of the intuitively obvious and to acknowledge that taxes that penalize saving and capital formation harm everyone. The common prosperity can never be promoted by penalizing people's efforts to be enterprising and to create wealth, for that prosperity is founded on such efforts. The abolition of the transfer tax is an important element in a program that would seek to promote economic progress throughout our society.

APPENDIX I: Assessing the Economic Impact of Transfer Taxation

To show that the federal transfer tax is a source of economic loss to American society generally, and not just to those who amass estates or receive inheritances, various empirical illustrations were used concerning the impact of transfer taxes on such things as tax revenues, labor income, employment, and GDP. The point of this appendix is to show how those computations were derived from an economic model developed by Fiscal Associates, Inc. (FAIM), the logic of which is described in Appendix II.

The initial impact of the transfer tax is to reduce the net return to that portion of the capital stock that is created for transfer as against life cycle purposes; however, the impact of the tax is diffused over all capital and throughout the economy. Saving and capital formation are reduced by the transfer tax. With this decrease in the supply of capital, the pre-tax return on capital rises. At the same time, the return to labor services falls as a result of the decline in the stock of capital assets with which labor works. With labor being less productive because of the decline in the capital stock, wage rates are lower, jobs are fewer, and aggregate national output is less.

These impacts of the federal transfer tax are qualitative consequences of the tax based on the simple logic of a market economy. Development of empirical estimates of the associated magnitudes requires an effort to estimate a relevant economic model. FAIM represents such an effort. In FAIM the aggregate production of economic output is described by a Cobb-Douglas production function. If aggregate output is denoted by X and the amounts of labor and capital denoted by L and K respectively, a Cobb-Douglas production function would express aggregate output according to the following relationship:

$$X = cL^aK^b,$$

where c is a constant and where a and b are exponents that denote the respective shares of labor and capital in aggregate output.

This production function illustrates cogently the complementarity between labor and capital, and how an increase in the stock of one input increases the marginal productivity of the other. Consider the earnings of labor where the return per unit of labor is equivalent to the marginal productivity of labor. Within this Cobb-Douglas illustration, the marginal productivity of labor is

$$MP_L = acL^{a-1}K^b.$$

The wage rate earned per unit of labor, MP_L , varies directly with the size of the capital stock, as illustrated by K^b . Increases in the stock of capital increase the value of labor's marginal product, which increases employment and the earnings per unit of labor. This is because an increase in the stock of capital goods increases the productivity of those who are able to work with that increased, more valuable stock of capital goods.

This simple, Cobb-Douglas formulation shows the logic of how the transfer tax reduces labor earnings, aggregate output, and employment. What it doesn't show is actual empirical magnitudes. To show these it is necessary to develop estimates of such things as the actual magnitudes represented by the Cobb-Douglas equation and the responsiveness of labor and capital to changes in net returns.

FAIM estimates that the exponents on L and K in the Cobb-Douglas equation are two-thirds and one-third respectively, which means that aggregate output can be represented by

$$X = cL^{2/3}K^{1/3}.$$

The tax on capital that the transfer tax represents reduces the desired capital stock sufficiently to increase the pretax rate of return to a level that would restore the desired after-tax rate of return. FAIM estimates that a complete adjustment of the desired capital stock to a change in tax will occur within five years, with 60 percent of that adjustment occurring within two years.²⁶ This adjustment will occur through diminished investment that will continue until the after-tax rate of return returns to its long run value, which FAIM estimates to be 3.3 percent. Given values for c, L, and K, the impact of the transfer tax on aggregate output, X, can be calculated.

This reduction in the stock of capital also reduces the wage rate received by labor. This can be seen from the equation above, which shows that the marginal productivity of labor varies directly with the stock of capital. This fall in net return to labor will reduce the amount of labor supplied according to the elasticity of the supply of labor. FAIM estimates this elasticity to be 0.3, which means that a one percent reduction in the net return to labor will decrease the amount of labor supplied by three-tenths of one percent. Should the transfer tax thus lower

²⁶ This conclusion is derived from an empirical analysis of the time it takes for the after-tax rate of return to capital to return to its long run level after a change in the rate of tax on capital.

the net return to labor by five percent, it will reduce the amount of labor supplied by 1.5 percent.

Relationships such as these can be used to construct empirical estimates of the actual impact of transfer taxation. The first step is to gauge the actual impact of the transfer tax in reducing the net return to capital. When this information is combined with information about the speed with which the capital stock adjusts to tax-induced changes in the after-tax rate of return, the impact of the transfer tax on the stock of capital assets can be estimated. This reduced stock of capital can then be run through the Cobb-Douglas equation to determine the impact on aggregate output (X), jobs (L), and wages (MP_L).

APPENDIX II:

The Logic of the Fiscal Associates' Model

The Fiscal Associates' Inc. Model (FAIM) characterizes the U.S. economy through four major blocks of relationships that describe (1) the production sector, (2) the household sector, (3) the marginal tax rates on the factors of production and consumption, and (4) expectations about the future. A fifth set of equations assure that demand and supply balance.

A. The Production Process

Total output, GDP, consists of private domestic output plus government output plus net exports (including the rest-of-world). FAIM separates private domestic output into three distinctly different types of goods and services: (1) private nonfarm business output, (2) farm output, and (3) imputed output on owner-occupied housing. Government output is an exogenous fiscal policy variable set by the budget process. Rest-of-world activities also are exogenous.

The production sector follows the standard economic assumptions in the theory of the firm. Businesses organize their production process to maximize net worth. There is a technical relationship between the level of factor inputs — capital and labor — and output. Because factor and output markets are competitive, each producer takes factor prices as given at any point in time.

FAIM treats technology in the conventional way. The production function assumes constant returns to scale, neutral technical change, and diminishing marginal productivity. The production sector contains a system of derived factor demand schedules that satisfy wealth maximizing conditions, given the levels of the other factors. These schedules are the marginal value product (MVP) functions for the factors. The position of a particular MVP function depends upon the level of other inputs or, equivalently, upon the entire set of factor prices and output. Given the supply schedules from the household sector, the equilibrium price and quantity of each factor occurs at the point where the supply price equals the marginal value product. Because factor supply schedules are upward sloping, there is a unique set of equilibrium prices that satisfy the wealth maximization conditions. The equilibrium quantity of output follows directly from the equilibrium quantity of the various factors.

Three types of labor in the FAIM model follow the same disaggregation as

output: (1) private nonfarm business labor, (2) farm labor, and (3) government labor. Following Commerce Department conventions, the labor associated with the imputed output on owner-occupied housing is zero. There are two separate price schedules for labor. The first relates after-tax wage rates to the willingness of workers to supply labor. The second is the pretax wage rate that producers must pay for labor. The difference between the labor price faced by producers and the labor price received by workers is the marginal tax paid on one additional unit of labor.

There are five distinct types of capital in the FAIM model: (1) producers' durable equipment, (2) nonresidential structures, (3) residential structures, (4) inventories, and (5) land. FAIM assigns each type of capital to the three production sectors and further divides each category by form of legal ownership, i.e., corporate and noncorporate. Certain categories of capital are, by definition, zero, such as household producers' durable equipment. Thus, there are 20 capital classifications in the FAIM model.

FAIM computes capital stocks according to estimated economic depreciation schedules for a disaggregated matrix of investment flows over the period 1865-1991. This matrix consists of 74 industries and 40 specific capital assets, e.g., furniture in chemical manufacturing. The 20 capital classifications in FAIM are aggregations of these approximately 5,000 individual investment series.

B. The Household Allocation Process

FAIM assumes households maximize their welfare by adjusting the factors that affect household satisfaction now and in the future. These factors consist of the amount of free time available to individuals and the level of goods and services available for consumption. Capital is the productive resource which provides a measure of the value of future consumption and leisure.

The household sector in the FAIM model is a series of equations that allocates total household time among leisure and labor supplied to the three production sectors. The willingness of households to supply labor depends upon after-tax wage rates. The FAIM household sector also determines the household demand for the outputs of the three production sectors and the allocation between consumption and investment, subject to the constraint that factor income equals total consumption plus investment.

C. The Tax Model

Taxes on labor income consist of personal income taxes, payroll taxes, and labor's share of such indirect business taxes as sales and excise taxes. FAIM contains historical information on personal income, including its labor component, from the *Statistics of Income* for 72 income classes over the period 1954-87. This level of disaggregation is necessary because relative prices can vary considerably among the individual economic units due to changes in the tax and transfer system. FAIM separates individuals into groups that are homogeneous with respect to the after-tax prices they face, and computes an effective average relative price using group population weights.

The method is qualitatively the same as that used by the Treasury Individual Tax Model. Several hundred representative taxpayers, representing broad income and demographic classes, are constructed from IRS data. The constructed tax information for each individual is used to calculate the average and marginal tax rates for the cell representative. The weight of the cell is then used to calculate an economy-wide, weighted-average for marginal and average tax rates. Marginal rates for specific types of income are constructed using income as well as population weights. Average rates are used to calculate the revenue effects of individual income tax changes. The changes are calculated in the aggregate and are distributed by base-year income classes. In this way, FAIM combines income data with historical tax regimes to compute marginal income and payroll tax rates on labor. FAIM computes the employer's portion of payroll taxes based on the wages of the employee and apportions indirect business taxes based on labor's share of output.

Taxes on capital consist of property taxes on the value of capital, capital's share of indirect business taxes, and taxes at the corporate and individual levels on income net of tax depreciation. Analogous to the labor situation, taxes represent the difference between capital's cost to business and the return to the household investor. The tax treatment for the 20 capital classifications in the FAIM model is the average of the 5,000 specific assets, weighted by their capital stocks.

D. The Expectations Process

An important influence in the household allocation process is future expectations, particularly expectations about asset returns. The current-versus-future

consumption decision relies on expectations about future consumption-good prices and investment returns. Further, because tax rates rise with the level of income, expected marginal returns depend on expected income levels. Expected capital gains and risks are also important determinants of future asset values.

The nominal rate of return to any investment is the return necessary to divert one more unit of consumption to investment, plus the cost (positive or negative) of maintaining the principal of the investment, plus a premium for incurring the risk of potential losses, plus taxes on the investment. The return necessary to give up one more unit of consumption for investment is the discount rate. The expectations equations, in concert with other parts of the FAIM model, build up the interest rates consistent with the real after-tax rate of return to capital.

FAIM splits the historic yield data on six constant-maturity federal issues into four components: (1) taxes, (2) the return on real capital assets, (3) expected inflation, and (4) risk due to the difficulty of forecasting inflation. FAIM first estimates the tax component. The return on real capital comes from determining the internal rate of return on production assets.

FAIM estimates price expectations indirectly from the following two pieces of information. First, investors predicting future prices at a point in time implicitly make a forecast based on prior information. Second, the risk due to forecasting difficulties involves estimating the error of prior forecasts. FAIM obtains a consistent estimator of this process by including as explanatory variables those factors that would be used to predict prices in addition to the lagged prices themselves. This mimics the price level equation described in section E.

E. Balance Equations

Accounting Identities

FAIM imposes several accounting identities to assure that demand and supply are equal in all the various product and factor markets.

- Total goods produced are equal to the demand for goods at the market price. Investment equals output less consumption less government purchases of goods less net exports.
- The sum of labor supplied plus leisure equals the amount of time available to the household sector.

- Total capital equals capital at the beginning of the period plus investment less economic depreciation.

The Allocation of Capital

FAIM allocates aggregate capital among its 20 categories based upon a rate of adjustment in each asset's share of total capital. The rate of adjustment depends upon the required changes in the marginal value product of each specific asset compared with the average change of all assets. Because of diminishing marginal productivity, assets that require higher-than-average marginal value products will receive smaller allocations to bring them into balance.

Dynamic Determination of Taxes

FAIM allows changes in aggregate economic performance to affect the marginal and average tax rates on labor and capital income based upon a rate of adjustment in their share of total output. The dynamic adjustment in marginal rates determines the marginal value product of each factor of production relative to the average change for all factors. At final equilibrium, new average and marginal tax rates are brought into balance with the historical economy-wide supply and demand relationships.

F. Calibration of FAIM Model

Assessment of the economy's performance in response to a specific tax change is accomplished with a "dynamic" simulation. In this statistical technique, only exogenous tax and spending variables are allowed to change. A baseline solution is constructed by calibrating the model to an official government forecast — generally the most recent administration budget forecast. This is accomplished by transforming the estimated behavioral relationships into percent difference form. Terms used to capture the effects of technological change and shifting household behavior are recalculated to be consistent with the baseline path. Only the response parameters such as elasticities of supply and demand are relevant to a particular policy simulation. All results are calculated as percent deviations from a constant base path but retain the same behavioral characteristics as the original, untransformed model.

