

**THE EFFECTS ON GOVERNMENT REVENUES FROM
REPEALING THE FEDERAL ESTATE TAX AND
LIMITING THE STEP-UP IN BASIS FOR TAXING CAPITAL GAINS**

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In recent years, repeal of the estate tax has become an increasingly prominent legislative topic. Currently, the tax is being phased out on a schedule that will result in its elimination in 2010, but it is scheduled for reinstatement in 2011.

In 2010, the so-called "step-up in basis" provisions will be repealed (with some accommodations to protect small estates). A permanent elimination of the estate tax would naturally lead to a decrease in government revenues from that particular tax. However, a permanent repeal of the tax and a new basis system for heirs would also stimulate certain adjustments in economic behavior from owners of large estates and their heirs that would generate offsetting increases in government revenues. To our knowledge, no previous study has estimated the increase in government revenues from imposing limits on the "step-up in basis" provisions over a ten-year period.

APPROACH

CONSAD Research Corporation has developed a computer model for estimating the changes in government revenues that will occur under proposals that, first, repeal the estate tax and, second, limit the degree to which a step-up in the basis for measuring taxable capital gains can be applied to the value of assets in estates. The analysis performed using that model indicates that there are several adaptations of economic behavior in response to such a change in tax structure that would offset most, if not all, of the revenues forgone by the repeal of the estate tax.

First, there would be a positive effect on the rate of capital gains realizations by older taxpayers who currently experience a "lock-in effect" as they age and plan for their demise. Estate planners generally advise their older clients to defer sales of substantially appreciated assets in order to allow a surviving spouse to inherit such assets (without tax because of the marital deduction), to take a new income tax basis, and then to sell them without paying any capital gains tax. If the existing step-up in basis for measuring taxable capital gains is replaced with a less generous one, older taxpayers with estates that are large in relation to the limited step-up in basis will likely realize gains at rates similar to those observed for somewhat younger taxpayers who have not yet succumbed to the "lock-in effect". These extra realizations by prospective decedents would be taxed at the capital gains tax rate, and would yield additional government revenues.

Second, as the heirs of currently taxable estates restructure the portfolios of assets that they inherit, they will realize the accrued capital gains in the assets as they are sold. For most inherited assets, these realizations will also be taxed at the capital gains tax rate after the limited step-up in basis allowance has been exhausted. This will generate substantial revenues as assets are sold.

Finally, when investment real estate and other depreciable property in an estate receive a stepped-up basis, the new basis established for the property can be depreciated by the heirs for income tax purposes, thereby reducing the income tax revenues received by the government. Imposing a limit on the step-up in basis will reduce the degree to which the new basis of the inherited property can be depreciated without first selling the property and thereby exposing it to the capital gains tax. Until such sale occurs, the limited step-up in basis will decrease the loss in income tax revenue that would have occurred if the property had received an unrestricted stepped-up basis.

METHODOLOGY

The computer model developed by CONSAD estimates the effects of these revisions to the tax structure and consequent changes in economic behavior on government revenues. The methods and evidence used to model each of these effects are discussed briefly below. The estimates developed for a specific tax reform scenario are then summarized briefly.

Realizations by Prospective Decedents

The empirical research literature indicates that under the current estate tax system the wealthy begin to experience a "lock-in effect" after age seventy-five. With the elimination of the tax at death and the limiting of the step-up in basis, people with sufficiently large estates will lose the incentive to retain the accrued capital gains in investments in anticipation of death. Instead, they will be free to exercise the opportunity to realize and re-invest accrued capital gains in ways similar to those that they were using earlier in life. Such behavior will generate additional capital gains tax revenues for the government.

Realizations by Heirs

People who inherit wealth can be expected to use that wealth in ways that are similar to the use observed for others in similar favorable financial circumstances. In addition, economic studies by Holtz-Eakin, Joulfaian, and Rosen (1993, 1994a, 1994b) suggest that inheritances provide windfalls that fundamentally change some people's economic behavior, such as their participation in the labor force and their willingness to become entrepreneurs. Indeed, estate planners report that heirs generally realize the entire value of their inheritances within a two-year period beginning three to five years after the death of the decedent. The heirs then redistribute the proceeds in accord with their consumption and investment objectives. The elimination of the estate tax will naturally increase the amounts bequeathed to heirs, which the heirs will then realize and redistribute. Limiting the step-up in the basis for measuring taxable capital gains will cause these actions and events to yield additional revenues for the government.

Depreciation of Inherited Investment Real Estate

When inherited investment real estate receives a stepped-up basis, the entire value of the real estate (excluding the land value) can eventually be “re-depreciated” by the heirs and deducted from their taxable income on their income tax returns, thereby decreasing the revenues to the government from the income tax. If the step-up in basis is limited, the model allots the limited step-up to investment real estate, to the extent feasible, so that this reduction in income tax liability can be obtained. In estates that have investment real estate with appreciated capital gains in excess of the allowable step-up, however, it will not be possible to claim depreciation deductions on that real estate. The income tax that otherwise would have been avoided through those depreciation deductions becomes additional revenue to the government. That additional revenue will cease, however, when the heirs sell the real estate and the buyers begin to claim depreciation deductions based on the sale value. The sale of an asset that has been depreciated is usually subject to a capital gains tax rate of up to 25 percent to the extent of the prior depreciation, instead of the standard tax rate of 15 or 20 percent. In this analysis, to be conservative, the higher tax rate has been ignored, and it has been assumed that all capital gains will be taxed at the standard tax rate of 20 percent.

RESULTS

The computer model described above has been used to estimate the effects on the tax revenues of the federal government that would result from immediate repeal of the estate tax and promulgation of specific limits on the step-up in the basis for measuring taxable capital gains. In particular, consonant with recent legislative proposals (scheduled to take effect in 2010), it has been assumed that, for an estate with a surviving spouse, a \$3.0 million step-up in basis will be available to the spouse and an additional \$1.3 million step-up will be authorized for the spouse or other heirs. For an estate with no surviving spouse, only the \$1.3 million step-up in basis will be available.

It has then been assumed that the heirs of an estate will, on average, begin to restructure the portfolios of inherited assets 36 months after the death of the decedent, and will complete the restructuring of those assets and the realization of the inherited capital gains within the ensuing 24 months (i.e., within 60 months after the death). This assumption accords with the general experience of estate planners whom we have interviewed.

Next, it has been assumed that, on average, 70 percent of the total value of the assets in large estates consists of accrued, unrealized capital gains. This percentage is slightly higher than the estimate of 56 percent that is reported in the study by Poterba and Weisbenner (2000). Several estate planners have indicated that, based on the collective experience of themselves and their colleagues, unrealized capital gains comprise a much larger proportion – often 90 percent or more – of the value of the assets in the estates. The intermediate value of 70 percent has therefore been used in the analysis.

Finally, the model has been calibrated to assure that, when parameter values that accurately describe the current phasing out of the estate tax are entered into the model, the results produced by the model correspond precisely to the estate tax revenues that are currently projected by the government through 2010, when the estate tax is scheduled to be eliminated. Thus, the computer

model implicitly incorporates the same assumptions that have been used in developing the government's projections of estate tax revenues, even though the precise assumptions adopted by the government have not been made public.

Estimated Increase in Tax Revenues

The results obtained when the assumptions and data described above have been implemented in the computer model are summarized in Table 1 on the next page. Those results demonstrate that immediate repeal of the estate tax and adoption of the specified limited step-up in basis will generate a cumulative net increase in government tax revenues equal to \$38.0 billion over the period from 2003 through 2012. That net increase will consist of \$231.2 billion in additional revenues from the capital gains tax and the personal income tax, which will more than offset the forgone \$193.0 billion in estate tax revenues.

Similar results have been obtained when different sets of plausible assumptions have been implemented in the model. The results from those scenarios have demonstrated that the size of the net increase in tax revenues will decline if the time period when heirs realize their inherited capital gains is deferred or prolonged, or if the percentage of the value of assets in estates that consists of unrealized capital gains is reduced, or if any of the pertinent tax rates are reduced. Conversely, opposite changes in those assumptions will cause the estimated net increase in tax revenues to rise. Overall, the results clearly show that, for a broad range of plausible assumptions, the immediate repeal of the estate tax and change in the step-up in basis provisions for inherited assets will result in a net increase or, at worst, a negligible net decrease in government revenues.

Related Cost Savings

In addition to the impacts on government tax revenues that will result from repealing the estate tax and limiting the step-up in the basis for taxing capital gains, professional literature has frequently reported that the costs incurred in collecting the estate tax are higher than the costs of collecting other taxes (See, for example, Aaron and Munnell, 1992). The excess costs include litigation expenses, appraisal costs, and wages of Internal Revenue Service and other Treasury Department personnel that otherwise would not have been incurred. Repealing the estate tax would eliminate these costs, whereas limiting the step-up in basis would not materially increase the costs of administering the taxation of capital gains. In effect, the change in tax policy would simultaneously generate additional revenues from an existing, relatively inexpensive tax collection process and abolish a relatively expensive tax collection process, thereby achieving an increase in net government revenues that exceeds the direct increase in tax revenues. Quantitative estimation of the decrease in tax collection costs is beyond the scope of this study, but the available empirical evidence indicates that it would be substantial.

Also, family business owners, farmers, and ranchers who plan for the transfer of their assets to succeeding generations often take steps while they are alive to prepare for payment of the estate

Table 1: Effects on Revenues to the Federal Treasury from Repeal of the Estate Tax and Limitation of the Step-up in the Basis for Measuring Taxable Capital Gains (Revenues in Billions of Dollars)

Maximum Allowable Step-up in Basis	Period When Capital Gains are Realized by Heirs	Year	Additional Capital Gains Tax Revenue from Elimination of Lock-in Effect	Additional Capital Gains Tax Revenue from Realization by Heirs	Additional Income Tax Revenue from Reduced Depreciation Deduction	Total Increase in Tax Revenues	Estimated Estate Tax Revenues	Net Gain (or Loss) in Tax Revenues
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
\$4.3 Million with Surviving Spouse, \$1.3 Million Otherwise	Beginning 36 Months and Ending 60 Months After Death of Decedent	2003	\$1.81	\$0.00	\$0.56	\$2.37	\$20.21	-\$17.84
		2004	\$2.04	\$0.00	\$1.16	\$3.20	\$23.38	-\$20.18
		2005	\$2.07	\$5.94	\$1.78	\$9.78	\$21.10	-\$11.31
		2006	\$2.09	\$19.41	\$2.42	\$23.92	\$23.21	\$0.70
		2007	\$2.12	\$24.15	\$2.54	\$28.81	\$20.75	\$8.06
		2008	\$2.16	\$24.43	\$2.69	\$29.27	\$21.17	\$8.11
		2009	\$2.19	\$25.20	\$2.86	\$30.25	\$23.00	\$7.25
		2010	\$2.22	\$26.90	\$3.06	\$32.18	\$0.00	\$32.18
		2011	\$2.25	\$29.12	\$3.27	\$34.65	\$20.21	\$14.44
		2012	\$2.34	\$30.29	\$4.19	\$36.82	\$20.21	\$16.61
		2003-2012	\$21.30	\$185.42	\$24.53	\$231.24	\$193.24	\$38.01

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tax. Resources are diverted from the operation of their businesses to procure estate tax planning services and to set aside reserves or purchase life insurance in anticipation of the eventual payment of the estate tax. If the estate tax were eliminated, these resources would become available for business purposes. Once again, quantitative estimation of the consequences of these behavioral adjustments is beyond the scope of this study, but the cost savings would doubtless be ample.

References

- Henry J. Aaron and Alice H. Munnell (1992), "Reassessing the Role for Wealth Transfer Taxes", *National Tax Journal*, 45(2), June, pp. 119-143.
- Gerald Auten and David Joulfaian (2000), "Bequest Taxes and Capital Gains Realizations", *Journal of Public Economics*, 81(2), August, pp. 213-229.
- Douglas Holtz-Eakin, David Joulfaian, and Harvey S. Rosen (1993), "The Carnegie Conjecture: Some Empirical Evidence", *Quarterly Journal of Economics*, 108(2), May, pp. 413-435.
- Douglas Holtz-Eakin, David Joulfaian, and Harvey S. Rosen (1994a), "Entrepreneurial Decisions and Liquidity Constraints", *Rand Journal of Economics*, 23(2), Summer, pp. 334-347.
- Douglas Holtz-Eakin, David Joulfaian, and Harvey S. Rosen (1993), "Sticking it Out: Entrepreneurial Survival and Liquidity Constraints", *Journal of Political Economy*, February, pp. 53-75.
- Barry W. Johnson and Jacob M. Mikow (1999), "Federal Estate Tax Returns, 1995-1997", in Internal Revenue Service, *Statistics of Income Bulletin*, Summer 1999, Publication 1136 (9-99), pp. 69-130. <http://www.irs.gov/taxstats/article/0,,id=96442,00.html>
- Barry W. Johnson and Jacob M. Mikow (2002), "Federal Estate Tax Returns, 1998-2000", in Internal Revenue Service, *Statistics of Income Bulletin*, Spring 2002, Publication 1136 (Revised 5-02), pp. 133-186. <http://www.irs.gov/taxstats/article/0,,id=96442,00.html>
- James M. Poterba and Scott Weisbenner (2000), *The Distributional Burden of Taxing Estates and Unrealized Capital Gains at the Time of Death*, Working Paper 7811, <http://www.nber.org/papers/w7811> Cambridge, MA: National Bureau of Economic Research, July.
- U.S. Department of the Treasury, Internal Revenue Service, Statistics of Income (SOI) Division (2003), *Estate Tax Returns Filed in 2001: Gross Estate by Type of Property, Deductions, Taxable Estate, Estate Tax and Tax Credits, by Size of Gross Estate*. SOI Unpublished Data, Excel version 4. April. <http://www.irs.gov/taxstats/article/0,,id=96442,00.html>

TECHNICAL APPENDIX

This Technical Appendix summarizes the data, the analytic methodology, and the core assumptions that CONSAD Research Corporation has used in the computer model that it has developed for estimating the changes in government revenues that will result from repealing the estate tax and limiting the step-up in the basis for taxing capital gains.

Data Sources

The primary data source used in developing the model is the *Statistics of Income Bulletin* published by the Internal Revenue Service (IRS). Pertinent issues of the *Statistics of Income Bulletin* have published data summarizing the estate tax returns filed for estates in different size categories for the years between 1995 and 2000. Unpublished data for 2001 have been obtained from the IRS website. These data provide detailed descriptions of the asset composition of bequeathed estates with gross valuations in excess of \$600,000. The baseline projections for each year between 2003 and 2012 have been calculated from the data reported by the IRS for the earlier years, and have been calibrated to yield the same estate tax revenues that are projected by the government. Thus, the computer model implicitly incorporates the same assumptions that have been used by the government in developing its projections of estate tax revenues. The model calculates precisely the same estate tax revenues that are projected by the government through 2010 under the current provisions for phasing out the estate tax.

In addition, estate planners report that discounts allowed by the IRS for estate tax purposes on the values of certain assets cause the values reported for such assets on estate tax returns to understate their actual market values appreciably. In particular, estate planners indicate that the IRS routinely accepts discounts of 35 percent on the reported values of closely held businesses, family limited liability companies, and family partnerships. Discounts of 15 percent are allowed on fractional interests of real estate and certain other assets such as art and jewelry. When such assets are sold, however, they realize their actual market values. The values of the corresponding asset categories in the estate tax data have therefore been adjusted to account for this discrepancy between reported values and market values. Indeed, discounts can even be obtained on marketable securities and cash by using a new planning technique called Restrictive Management Accounts (RMAs). Since the typical size of such discounts is not known, however, no adjustment has been made in the values reported for those asset categories.

Finally, it is assumed in the model that a specific percentage of the total value of the assets in large estates consists of accrued, unrealized capital gains. On the basis of estimates reported by Poterba and Weisbenner (2000) and the collective experience of estate planners surveyed, that percentage has generally been assumed to be 70 percent, on average, in the analysis. Several plausible alternative values have also been used to evaluate the sensitivity of the conclusions of the study to this assumption.

Realizations by Prospective Decedents

To estimate the effect that elimination of the estate tax will have on capital gains realizations by older taxpayers who currently experience a lock-in effect, empirical evidence reported in a study by Auten and Joulfaian (2001) have been used. That evidence shows that people who are older than 75 years of age realize less of their accrued capital gains per year than younger people realize. In particular, the results from the study indicate that, if the estate tax is eliminated and older people then behave like people who are between 64 and 75 years of age, people between the ages of 75 and 84 will realize an additional 0.525 percent of their accrued capital gains annually, and people over the age of 85 will realize an additional 0.842 percent of their accrued capital gains annually.

To utilize this evidence, the projected distributions of the sizes of taxable estates have been combined with projected mortality rates at different ages to estimate a distribution of estate sizes in relation to the ages of the owners. It then applies the percentages cited above to produce estimates of the additional realizations of capital gains that will occur if the “lock-in effect” is eliminated. These additional realizations will be taxed at the current capital gains tax rate, resulting in additional revenue to the government if the estate tax is eliminated.

Realizations by Heirs

Heirs of currently taxable estates will naturally receive larger inheritances if the estate tax is repealed. Accordingly, as they realize and redistribute the values of their inherited assets within the two-year period generally reported by estate planners, larger amounts of capital gains will be realized and larger capital gains tax revenues will be received by the government. In the computer model, it is generally assumed that heirs will completely rebalance their portfolios of bequeathed assets within a two-year period beginning three years after the death of the decedent.

In addition, the model accounts for the separate limits that have been set on the step-up in basis for bequests from estates with surviving spouses and for bequests from other estates. Specifically, for an estate with a surviving spouse, the model includes a \$3.0 million step-up in basis for the spouse, with an additional \$1.3 million step-up authorized for the spouse or other heirs. For estates without surviving spouses, only the \$1.3 million step-up in basis is available.

Depreciation of Inherited Investment Real Estate

It is assumed in the computer model that, if the estate tax is not repealed, heirs will re-depreciate investment real estate, real estate partnerships, and their share (estimated as 20 percent) of limited partnerships that they inherit to the extent that the accrued, unrealized capital gains on the property exceed the authorized step-up in the basis for taxing capital gains. For any year when the estate tax is not imposed, the model calculates the depreciation deductions that would have been claimed on the income tax returns of the heirs of currently taxable estates. The model applies the straight-line depreciation method over 25 years, and only estimates tax deductions for the years before the heirs sell the assets.

Sensitivity of Results to Alternative Assumptions

To evaluate the degree to which the quantitative estimates produced by the computer model change if different sets of plausible assumptions are used in the model, the model has been implemented for numerous alternative scenarios that incorporate different assumptions about the time period when heirs realize their inherited capital gains, the percentage of the value of assets in estates that consists of unrealized capital gains, and the tax rate applied to capital gains. The results obtained for four of those alternative scenarios, for the entire ten-year period between 2003 and 2012, are presented in Table 2 on the next page. To facilitate comparison with the results presented previously in Table 1, Table 2 includes in its top row the aggregate results reported in the bottom row of Table 1 for the basic set of assumptions discussed in the body of the report.

Each of the alternative scenarios in Table 2 has been formed by modifying one of the assumptions in the basic set. Specifically, the time when heirs are assumed to begin restructuring their portfolios of inherited assets is first decreased from 36 months to 24 months in the second row of Table 2, and then increased to 48 months in the third row of the table. In the next row, the portion of the total value of the assets in currently taxable estates that represents accrued, unrealized capital gains has been reduced from 70 percent to 60 percent. Finally, in the last row of the table, the value that has been assumed for the capital gains tax rate has been decreased from 20 percent to 15 percent.

For the first three alternative scenarios summarized in Table 2, the results indicate that repealing the estate tax and limiting the step-up in the basis for measuring taxable capital gains will still yield an increase in government revenues under the alternative assumptions. Only in the final scenario, where the assumed tax rate on capital gains is reduced to 15 percent, do projected government revenues decline slightly after the estate tax is abolished and the step-up in basis is limited. Moreover, even that small decline in revenues would likely be reversed if the higher capital gains tax rate on depreciated property and the lower costs of collecting the capital gains tax instead of the estate tax were taken into account in the study. Similar results have been obtained when two or more of the principal assumptions in the model have been adjusted simultaneously. Thus, it can confidently be concluded that, for a broad range of plausible assumptions, the immediate repeal of the estate tax and change in the step-up in basis provisions for inherited assets will result in a net increase or, at worst, an inconsequential net decrease in government revenues.

**Table 2: Summary of Alternative Estimates of Effects on Revenues to the Federal Treasury
from Repeal of the Estate Tax and Limitation of the Step-up
in the Basis for Measuring Taxable Capital Gains
(Revenues in Billions of Dollars)**

Scenario		Capital Gains Tax Rate	Additional Capital Gains Tax Revenue from Elimination of Lock-in Effect	Additional Capital Gains Tax Revenue from Realization by Heirs	Additional Income Tax Revenue from Reduced Depreciation Deduction	Total Increase in Tax Revenues (2003-2012)	Estimated Estate Tax Revenues (2003-2012)	Net Gain (or Loss) in Tax Revenues (2003-2012)
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
36 months	70%	20%	\$21.30	\$185.42	\$24.53	\$231.24	\$193.24	\$38.01
24 months	70%	20%	\$21.30	\$218.59	\$24.53	\$231.24	\$193.24	\$71.18
48 months	70%	20%	\$21.30	\$153.98	\$24.53	\$199.80	\$193.24	\$6.57
36 months	60%	20%	\$21.30	\$147.58	\$24.53	\$193.40	\$193.24	\$0.17
36 months	70%	15%	\$15.97	\$146.64	\$24.53	\$187.14	\$193.24	-\$6.10

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Wilbur A. Steger, Ph.D., is President, Chairman of the Board, and founder of CONSAD Research Corporation, an independent, national private-sector think tank that he launched in 1963 as a spinoff of the RAND Corporation. He is a consultant and advisor to several federal, state, regional, and local executive agencies. He also serves as an economics, policy, and systems analyst consultant to a number of corporations. Dr. Steger received his B.S. in economics from Yale University and his M.S. and Ph.D. in economics from Harvard University [Ph.D. dissertation: “Taxation of Fluctuating Income (including Capital Gains and Losses, Realized and Unrealized)”]. He was a teaching fellow at Harvard from 1952 through 1955, an Adjunct Professor at the University of Pittsburgh from 1963 through 1993, and is currently an Adjunct Professor of Policy Sciences at Carnegie Mellon University (since 1985), and at the University of Pittsburgh, School of Public Health. He has been an advisor to several public sector Task Forces on Federal tax policy, health care reform, regulatory reform, environmental and energy issues, technology assessment, substance abuse, and other critical public policy matters. He has performed policy analysis and advised U.S. Presidents since the early 60’s (Presidents Kennedy and Johnson) on Federal tax policy issues and, then, with special focus during the Reagan, George H.W. Bush, and Clinton administrations, as well as the George W. Bush Administration, primarily on regulatory matters.

Dr. Steger’s personal, professional perspective on the issue of family business legacies and taxation and death relates to the economic research he has conducted on the effects of the estate tax and related treatment of realized and unrealized capital gains, beginning with his Harvard Ph.D. Economics dissertation almost a half-century ago, as well as numerous professional journal articles written since then. Dr. Steger and his colleagues at CONSAD have been and are currently involved in various ongoing research projects on this topic. Methods have typically involved the design, implementation, and interpretation of policy analysis models, the results of which are utilized by parties involved and interested in these specific tax policy subjects – most recently, Hearings before the Senate Finance Committee’s Subcommittee on Taxation and IRS Oversight on “Preserving and Protecting Family Business Legacies”. Dr. Steger was selected by both political parties to testify before the Senate Finance Committee Subcommittee on Taxation and IRS Oversight on “Preserving and Protecting Family Business Legacies” (March 13, 2001), which drew upon an earlier Final Report, “The Federal Estate Tax: An Analysis of Three Prominent Issues” (February 7, 2001), prepared by CONSAD for the Food Marketing Institute.

At CONSAD, Dr. Steger has headed policy analysis efforts for the U.S. Departments of Energy, Interior, Labor, Transportation, Treasury, Health and Human Services, Commerce, Housing and Urban Development, and Defense, as well as the Environmental Protection Agency, the National Science Foundation, the U.S. Postal Rate Commission, and others focusing on: the economic basis of relevant cost benefit, cost analysis, and cost methodology issues; designing policy analysis systems and economic impact analysis models for evaluating energy, economics, and environmental tradeoffs; and implementing other policy analysis related research management projects.

Dr. Steger has published more than one hundred research papers, monographs, reports, and books.

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Frederick H. Rueter, Ph.D., is Vice President of CONSAD Research Corporation, a private, profit-seeking, public policy research organization located in Pittsburgh, Pennsylvania. Dr. Rueter earned a B.S. in Industrial Management and a M.S. in Industrial Administration from Carnegie Institute of Technology and a Ph.D. in Economics from Carnegie Mellon University. He was an Assistant Professor of Economics at Virginia Polytechnic Institute and State University from 1968 through 1971 and at Clemson University from 1971 through 1973. He has served as an Adjunct Professor of Economics at Carnegie Mellon University continuously since 1988, where he has taught courses in the economics of natural resources, the economics of the environment, and benefit-cost analysis.

At CONSAD, he is primarily responsible for the company's microeconomic analysis, statistical and econometric analysis, simulation modeling, and policy design studies. Since joining CONSAD in 1973, he has been involved, substantively and administratively, in a wide variety of research efforts for a broad range of public and private clients. His public sector clients have included federal, state and local agencies such as: the Departments of the Interior, Energy, Commerce, Labor, Health and Human Services, Housing and Urban Development, Defense, and Transportation, Environmental Protection Agency, Nuclear Regulatory Commission, National Science Foundation, U.S. Postal Service, Pennsylvania Department of Environmental Protection, Pennsylvania Commission on Crime and Delinquency, Allegheny County Office of Property Assessment, Allegheny County Area Agency on Aging, and Bermuda Ministry of Finance. His private sector clients have included trade associations, profit-seeking and not-for profit corporations, and foundations, such as: the National Association of Manufacturers, National Federation of Independent Business, Business Roundtable, American Iron and Steel Institute, National Mining Association, Global Climate Coalition, Food Marketing Institute, American Family Business Institute, Alcoa, USX Corporation, Geneva Steel Company, University of Pittsburgh Medical Center, American Drug Stores, Inc., Walgreen Company, Concurrent Technologies Corporation, Pittsburgh Foundation, Heinz Family Foundation, and Jewish Health Care Foundation.

The topics analyzed and research methods applied have included: economic impact analyses of behavioral consequences of tax policies such as the federal estate and gift tax, capital gains taxation, carbon and energy taxes and related permit trading programs, and business tax incentives for investment, research and development, energy development, and pollution control; benefit-cost, cost-effectiveness, and regulatory impact analyses of environmental and occupational health and safety regulation, federal labor standards and policies, health insurance and health care policies, and technological research and innovation programs and policies; multivariate statistical analyses and quantitative risk assessments of environmental, industrial, and public health risks; risk communication; computer simulation modeling of national donor liver allocation policy, responses to bioterrorist attacks, and Air Force manpower and personnel, and training policies, procedures, and practices.

Dr. Rueter has published numerous research papers, monographs, and technical reports.