SOME CHARACTERISTICS AND ENVIRONMENTAL SENSITIVITIES OF TAXPAYERS TAKING THE UNITED STATES POLITICAL CONTRIBUTION TAX CREDIT DURING 1979-1982

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The undersigned, appointed by the Dean of the Graduate Faculty, have examined a dissertation entitled.

> Some characteristics and environmental sensitivities of taxpayers taking the United States political contribution tax credit during 1979-1982.

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This dissertation is dedicated to Charles and Lola Bush and Lawrence and Florence Meyer, my grandparents. Charles and Florence died during the period in which the dissertation was written, Lola still lives. The dissertation is also dedicated to the glory of God, who gave me life in 1956 and in 1973.

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Dan W. Meyer

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ABSTRACT

This study was designed to determine characteristics of taxpayers taking the political contribution tax credit from 1979 to 1982. This work is similar to studies on the effectiveness of tax incentives in promoting positive externalities and studies on the effect of tax law provisions on economic behavior. The study might provide useful information to policy makers as well if tax incentives for political donations are reconsidered by Congress.

The study evaluates quantitative and indicator variables believed to influence the decision of the taxpayer to jointly make a contribution and claim the credit. Empirical data used in the study have been obtained primarily from the Arthur Young Tax Research Data Base tapes for 1979 to 1982. Final model variables were established through the use of logistic regression analysis.

Statistically significant models have been developed

developed for each period tested. The explanatory power of the models is low. Income level was associated with the credit for each period tested; several other variables were also associated with the credit for over half of the periods tested.

Taxpayers with income over $30,000 are clearly more likely to take the credit than those with AGI under $30,000. Although statistically significant models were also developed without income as a variable, the explanatory power of such models was greatly reduced. Classification accuracy of the various models developed, about 70%, is inferior to classification accuracy of a model assuming no taxpayers took the credit. The Arthur Young Tax Research Data Base is found to be representative of the American population for state of filing in 1979 and 1980.

The statistical significance of the model is encouraging both from the standpoint of understanding use of the political contribution tax credit and from the standpoint of developing demographic models of taxpayer behavior for other tax provisions. This encouragement should be tempered since the explanatory power of the models is low. Congress made a rational decision by eliminating the political contribution tax credit, because of ineffectiveness of the credit in increasing the base of political donors and because of

threats to vertical equity.

TABLE OF CONTENTS

LIST OF EXHIBITS

LIST OF TABLES

I. INTRODUCTION

Background

In the early decades of the United States of America, campaign finances were not a significant factor [Thayer, 1973]. By contrast, presidential campaigns in the 1980s cost in the tens of millions of dollars and annual campaign costs at all levels reached into the hundreds of millions of dollars, as television advertising, polling and other factors caused campaign costs to increase dramatically since the Second World War. Many commentators have called for a greater governmental role in campaign financing. During the 1970s, the Federal Election Campaign Act (FECA) and related legislation required disclosure of contributions of at least $100; limited the maximum annual contribution per individual; provided an opportunity for taxpayers to earmark one dollar of tax liability to a presidential campaign fund (often called the tax designation or checkoff provision) and provided tax incentives (also called tax expenditures, preferences or subsidies) for donations to political candidates or political parties. Many of these laws still exist. However, as part of the income tax base-broadening effort in the Tax Reform Act of 1986, the tax credit for political contributions was repealed. Nevertheless, this repeal came only as the result of a conference

committee report; the House reform bill modified but did not repeal the tax credit [Tax Notes, Rosen,ed., 1985a].

Time will tell whether Congress will remain committed to a comparatively comprehensive tax base in view of the political attractiveness, both in fund-raising and in vote-getting, of favoring specified activities with tax advantages. If tax incentives regain favor in Congress, it is plausible that any given incentive eliminated in 1986 could be reconsidered, including the political contribution tax credit. Since tax incentives reduce available tax revenues, sufficient public policy benefits must exist to justify the lost revenue. Such benefits could come in the form of positive externalities such as greater political participation or reducing pressure on political candidates to seek donations from wealthy benefactors. One step toward determining the public policy benefits of the credit is to determine characteristics of political contributors. This study is intended to determine characteristics of taxpayers taking the political contribution tax credit from 1979 to 1982.

Justification

This study is important for several reasons. First, knowing characteristics of taxpayers taking the political credit during 1979-1982 should improve the quality of debate if tax incentives for political

contributions are reconsidered. Decision-makers would be able to compare actual characteristics of those taking the credit with desired characteristics such as a broadened donor base [Peters, 1958], increased campaign fund availability [Iowa Law Review, Tharp, ed., 1970] and provision of outlets for political expression [Hensley and Jarrett, 1976]. Decision-makers could then determine whether the public policy benefits would outweigh the revenue loss from the credit. Moreover, present literature on the topic has tended to be either descriptive (terms of credit, decision rules for whether to take a credit or a deduction from 1972-1978) or normative (advocacy for either keeping the credit, modifying the credit or eliminating the credit). O'Neil, Cathey and Flesher [1988] encouraged use of mathematical modeling in tax research to make research as reliable as possible and greater use of existing data bases.

Second, the proposed study will continue in the spirit of four streams of literature: (1) this study will consider characteristics of political donors as did analyses by Alexander [1976,1979], Dawson and Zinser [1976], and Jacobson [1980], (2) this study will consider tax base erosion and tax progressivity based on theory of such authors as Surrey [1970] and Feldstein [1973], (3) this study will consider the effects of tax

incentives on socially desirable activities (positive externalities), like econometric studies by Feldstein [1975] and Rudney [1985] on charitable contributions, (4) this study will consider the effect of taxes on economic behavior, like studies by Gonedes [1981] and Zimmerman [1983] on corporate responses to tax law provisions.

The remainder of this paper will proceed as follows: Chapter II includes reviews of campaign finance reform history, tax policy issues related to the political contributions tax credit, the legislative history of tax credits for political contributions and related law, a summary of both favorable and unfavorable commentary on tax incentives and on federal campaign financing, and a review of related empirical results. Chapter III presents potential motives for political giving, develops the proposed model and related hypotheses, and discusses data analysis and collection procedures. Chapter IV covers the major results of data analysis, such as logistic regression models for each period, tests comparing giving between years, tests of multicollinearity, and tests of the logit models with an independent second sample. Chapter V states the conclusions, implications, assumptions and limitations and proposes some avenues for future research.

II. LITERATURE REVIEW

Campaign Finance History and Reform Strategies

During the middle of the nineteenth century, public campaigning became popular in the recently settled area between the Appalachians and the Mississippi Valley. Men such as Stephen Douglas of Illinois gained national prominence with their oratory. Likewise, campaign rallies of candidates like William Henry Harrison of Indiana, often flowing with hard cider, succeeded in attracting voters. Campaign funds were needed to pay for advertisements, refreshments and other costs.

Thayer [1973] called the period between the Civil War and the Great Depression "the Golden Age of Boodle" because of the overt and widespread corruption. Colorful political bosses such as Boss Tweed of New York and Simon Cameron of Pennsylvania and their exploits led to the first campaign finance regulations. These regulations included a prohibition on soliciting funds from government employees in the Civil Service Act of 1883, a ban of campaign donations from corporations and banks in 1907, laws requiring publicity of campaign receipts and disbursements in 1910 and the Federal Corrupt Practices Act of 1925 which regulated campaign finance reporting [Alexander and Denny, 1966]. The Hatch Act of 1939 (federal employees) and Taft-Hartley Act of 1947 (labor unions) restricted two sources of

campaign financing [Alexander and Denny, 1966]. Bloom [1956] and Schoenblum [1979] found that many of these laws and prior laws were easily circumvented. During the 1950s, Florida instituted a strict campaign finance reporting law [Alexander and Denny, 1966].

The first fund raising campaign of modern style was run by Mark Hanna in the late 1800s for fellow Ohioan William McKinley. Hanna assessed businesses based on what he felt their stake in the economy was and used the proceeds for the first major advertising campaign. Thayer [1973] found him quite honest, no quid pro quos (contributions made expressly for legislative favors) were accepted and Hanna did not pocket any part of the proceeds. By the Great Depression, overt corruption was no longer generally acceptable [Thayer, 1973], so politicians increasing sought funds from the wealthy. Such funding led Thayer [1973] to imply and Nichols [1974] to assert that politicians are not independent of the multimillionaires.

In an attempt to broaden the base of political contributors, Democratic finance chairman Ruml tried a five dollar certificate plan in 1952 with only limited success [Heard, 1960]. Peters [1958] and Heard [1960] were disappointed with the negative attitudes towards political giving by the American public and urged public relation campaigns for a better image.

Bloom [1956] and Peters [1958] were among the first to support the use of tax incentives to promote small political donations. The Committee on Campaign Costs encouraged experimentation with tax incentives in 1962 and tax incentives enjoyed both public and legislative support during the 1960s [Alexander, 1972]. A proposed question among tax incentive supporters was whether to structure the incentive as a deduction or credit [Goldman, 1964].

Another concept with support was direct federal financing of campaigns. Proposed by Theodore Roosevelt in 1907 [Mortenson and Winkleman, 1969], the idea was considered by Heard [1960] as a means to protect candidates from overdependence on the wealthy. Among forms of public financing considered were direct subsidy [Heard, 1960], a plan to earmark taxes [Mortenson and Winkleman, 1969] and subsidies for media costs [Heard, 1960; Minow, 1969].

Direct mail appeals increased in popularity after the FECA. Polk [1975] believed that direct mail would help presidential candidates get funds to match Federal aid. Alexander [1984] noted that Republicans used direct mail successfully in 1980.

The AFL-CIO started the first political action committee (PAC) in the middle 1950s [Sorauf,1984]. A 1976 Supreme Court decision (Buckley v. Valeo, 96 S. Ct.

612 (West Publishing,1978)) made PACs more popular by declaring unconstitutional certain funding limitations of the FECA. Alexander [1984] observed that the number of PACs went from 608 in 1974 to 3371 in 1982. Adamany [1986] reported that the percentage of donors giving to PACs equalled the percentage giving directly to candidates and Forman and Malysa [1986] said that 31% of House receipts in one year came from PACs. PACs should not be viewed as homogenous; Alexander [1984] separated them as to funding source (corporate, union, trade association, other); and Sorauf [1984] by function (money channel, quasi-parties such as labor unions, issue brokers such as NCPAC and personal PACs of candidates).

Tax Policy Issues

Tax policy has been discussed as long as the United Stateshas been a country (Adam Smith proposed several tax policy criteria in The Wealth of Nations) but much modern day tax policy discussion originated from the comprehensive tax base (CTB) concept brought to America by Robert Haig and Henry Simons in the first half of the twentieth century. Simons [1938] defined income as the sum of consumption rights plus the increase in value of property owned. Under the CTB, income is taxed without use of tax subsidies such as deductions or credits. A modification by Andrews [1972] allows adjustment of

income for involuntary costs, such as major medical expenses, and spending on socially desirable activities such as charitable giving.

Revenue loss estimates from tax incentives date at least as far back as 1948 [Reams, Volume 50, 1979]. In 1974, revenue loss estimates became formalized in the federal budget as the tax expenditure budget (TEB) [Hanley and Bauerfiend, 1976].

Tax expenditure analysis, advocated by Surrey [1970] and others, argues that most deductions, exemptions and credits would be better cast as direct governmental expenditures. These tax incentives are said to distort marketplace choices, favor high income taxpayers, constrict the federal tax base and defy Congressional scrutiny while failing to promote private decision making or reduce government red tape. Bittker [1969,1972, and 1973a] and others countered by arguing that tax expenditure is not a clearly defined term, that many tax expenditures benefit Americans who do not earn high incomes and that deductions and credits can encourage private choice.

From 1972 to 1978, political donors had the choice of a tax credit or a tax deduction. This choice of benefit put tax incentives for political contributions within the tax policy debate of whether tax credits or tax deductions are preferable.

Kahn [1960] wrote that deductions should be used to define taxable income; credits should be used to promote public policy goals or positive externalities. Gottschalk [1976] raised two issues for the deduction/credit debate: (1) based on the marginal tax rate, tax credit and tax deduction amount, does deduction or credit provide more benefit to a given taxpayer?, (2) is vertical equity (preventing high-income taxpayers with qualifying expenses from receiving a greater tax break because of higher marginal tax rates) or horizontal equity (having taxpayers with equal disposable income pay the same tax) more important?

Advocates of the use of tax credits emphasized vertical equity and the greater potential of the credit to set the price of a positive externality to beneficiaries equal to the subsidy to the contributor [Hochman and Rogers,1977]. Opponents of tax credits included Hoff [1982] who disliked the increase in complexity created by credits and Brannon and Morss [1973] who said that tax credits often overemphasized vertical equity at the expense of horizontal equity. On deductions, Bittker [1973b] asserted that tax deductions were appropriate if ability to consume is limited. However, Surrey and McDaniel [1979] found that deductions favor high marginal rate taxpayers, generally high-income individuals, in a progressive tax system.

Improved vertical equity and increased progressivity often were cited by authors as a reason to support tax credits over tax deductions. However, support for a progressive tax system has been uneasy since Blum and Kalven [1953], and even more uneasy during the flat-rate tax movement of the 1980s. Feldstein [1973] and Slemrod [1983] both argued that supporting tax rates over 50% requires a great desire for egalitarianism and potentially unrealistic assumptions about the effect of tax rates on work behavior. Slemrod also wrote that efficiency costs of excessive marginal rates would exceed equity gains. However, Parker [1985] said that progressive taxation could be justified under social contract theory and the Tax Reform Act of 1986, although reducing the number of tax brackets, did not eliminate progressivity.

The title of the Treasury report on tax reform [P-H, 1984] bore mute testimony to the significance of tax simplicity. Milliron [1985] found that tax law complexity was inversely related to taxpayer perceptions of equity. Karlinsky and Koch [1987] stated that two types of complexity existed--content (the rigor of the concept) and readability (understandability of specific written text). They concluded that better readability was preferable to changing content as a means to decrease complexity. Peel [1985] concluded that repeal

sharing venture with the Federal Treasury; the credit approach was used to minimize benefits to the very wealthy. Once again, the bill was passed by the Senate but not the House (of Representatives) [BNA Primary Sources, 1971].

Prior to the 1970's, political donors seeking tax favors found the IRC quite daunting. Section 276 of the 1954 Code denied deductions of direct or indirect aid, and Section 271 prohibited deduction of bad debts from political donations. The IRS ruled in 1959 that large political contributions were taxable gifts [Revenue Ruling 59-57, 1959-1 C.B. 626].

1971 was a significant year in campaign finance reform. The FECA limited large contributions from candidates to their own race and tightened disclosure requirements [Alexander,1976]. Moreover, the Revenue Act of 1971 provided for a tax checkoff and tax incentives (deductions and credits). Senate Amendment 692 to H.R. 10947, offered on the floor, provided taxpayer a choice of a maximum credit of $25 or a deduction of $100. Senator Bentson (D-TX) claimed that incentives would broaden the donor base, pointing out that 90% of contributions came from less than one percent of the population. Senator Pastore (D-NJ) at one time criticized the deduction part of the incentive as being too favorable to the rich; however, the credit,

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adjusted by Senator Buckley (R-NY) to halve the deduction or credit for unmarried taxpayers (singles), passed unanimously.

The checkoff provision was quite another story, this provision barely survived (46-49) an attempt by Republicans to kill it in the Senate [Congressional Record, 1971]. The House accepted the amendment in conference committee (92-1 H.R. Report 708, 1971). H.R. 10947 became Public Law (P.L.) 92-708 in December 1971 [P-H, 1987] creating Internal Revenue Code (IRC) Section 41 for the credit and IRC Section 218 for the deduction.

In 1974, the Senate Finance Committee moved to expand the credit by allowing taxpayers to take a credit or deduction for contributions to political newsletters and by permitting a deduction or credit for donations given to declared candidates the year before the election (93-2 Senate Report 1357, 1974). Reasons given for the expansion were continued broadening of the donor base and improvement of information flow from legislator to constituent [BNA Primary Sources, 1974]. A floor amendment by Senator Kennedy (D-MA) advocated doubling the maximum deduction or credit to encourage donor base broadening and to provide for a wider range of candidates [Congressional Record, 1974]. Both the original Senate amendment and the doubling of the maximum incentive were accepted into H.R. 421 in

conference (93-2 H.R. Report 1642) and H.R. 421 became P.L. 93-625 [P-H, 1987].

The House sought to repeal Section 218 in 1978 (95-2 H.R. Report 1445, H.R. 13511). Complexity was the major reason given; the deduction required extra lines on tax forms and extra space for instructions. In addition, some taxpayers with marginal tax rates between 25-50% had to compute both credit and deduction to see which was more favorable. Finally, the committee felt the credit alone would be enough to insure participation [P-H, 1978]. On the other hand, the Senate (95-2 Senate Report 1263) sought to double the credit (no change for deduction) to expand tax incentive participation estimating an incremental revenue loss of $16 million for 1980-1983 [P-H, 1978]. The conference committee report (95-2 H.R. Report 1800) compromised; eliminating the deduction and doubling the credit. In November 1978, H.R. 13511 became P.L. 95-600 [P-H, 1978]. The remaining tax credit, which was a maximum of $50 for singles and $100 for MFJ by 1984, was recodified as Section 24 by P.L. 98-369 [P-H,1987].

In 1984, the Treasury Department submitted a major tax reform report to the President [P-H, 1984]. Included in the proposal were provisions to eliminate both the tax credit and the checkoff provision. Reasons given for eliminating the credit included added

complexity, administrative inconvenience for the IRS and benefits skewed toward high-income taxpayers [P-H, 1984]. Initially, the House Ways and Means Committee agreed with the Treasury [Tax Notes, Rosen, ed., 1985b]. However, a floor amendment providing a 100% tax credit for contributions made within the donor's home state was proposed by Representative McHugh (D-NY) [Tax Notes, Rosen, ed., 1985a] and the amendment was included in H.R. 3838 as passed by the House in 1985.

EXHIBIT 1

HISTORY OF TAX INCENTIVE LEGISLATION

1955-56	First bills proposing tax deductions or credits were introduced in committees.
1964	Section 214 of Revenue Act of 1964 was first tax incentive passed by Senate.
1971	Public Law 92-708 provided both a tax deduction (IRC Section 218) and a credit (IRC Section 41) for political contributions.
1974	Public Law 93-625 doubled both the maximum credit and deductions and made donations to newsletters eligible for tax incentives.
1978	Public Law 95-600 doubles the tax credit and eliminated the deduction.
1986	Public Law 99-514 eliminated the tax credit for political contributions.

Section 112 of the Senate bill (99-2 Senate Report 313) was less kind to the credit. The Finance Committee

felt that removal of the credit would broaden the tax base, eliminate the effective bias towards high-income taxpayers of the existing credit and ease verification problems for the IRS. In addition, committee members estimated that eliminating the credit would provide an additional $300-400 million per year in revenue from 1988-1991 [P-H, 1986]. Support for this position came from a 1984 Treasury study (often called Treasury I) which stated that the political contributions credit produced a revenue loss of $270 million in 1982, was most heavily used by the affluent (3% of taxpayers with adjusted gross income (AGI) under $10,000 used the credit while 38% of those with AGI over $100,000 claimed the credit), and provided tax benefits to taxpayers who would have given with or without a credit [P-H, 1984]. The House agreed in conference to the total elimination of the credit (99-2 H.R. Report 841, 1986) and the amended H.R. 3838 became P.L. 99-514 [P-H, 1986].

IRC Sections Related to the Political Contribution Tax Credit

The section of the Internal Revenue Code most closely related to the political contribution tax credit was Section 218. The section permitted taxpayers to take deductions for political contributions up to $50 for singles and $100 for MFJ for 1972-1974 and $100 for singles, $200 for MFJ from 1975-1978. This deduction

quickly lost favor for reasons related to complexity and vertical equity and was eliminated in 1978.

Another IRC section becoming law at the same time as the tax credit for political contributions and also designed to provide Federal support for campaign financing is Section 6096. This part of the Code allowed taxpayers with at least one dollar of tax liability per taxpayer to earmark one dollar per taxpayer for a Presidential Election Campaign Fund [CCH, Volume 8A, 1987]. This designation provision has been used by 25-35% of taxpayers annually since 1975 [Alexander, 1979; Adamany, 1986]. Republicans have been critical of the provision; both for reasons of ideological opposition to unnecessary governmental intervention [Sorauf, 1984] and pragmatic reasons--Thayer [1973] and Cohen [1978] found Republicans to be more effective than Democrats at fund-raising.

Taxpayers seeking to claim the credit were allowed to give to federal, state and local candidates at primary, general or special elections under the original law. Corporations, estates and trusts were not allowed to claim credits. Donations had to be verifiable and the credit was limited by such credits as the foreign tax credit and the credit for the elderly [Congressional Record, 1971; Feinschrieber, 1972a]. Payments had to be in cash or check and to support a candidate rather than

to oppose one [Oelbaum, 1972]. 1974 legislation clearly made appreciation on donated property taxable gain while political donors were clearly absolved of gift tax [Elder,1975].

During the 1979-1982 period, one tax provision available to politically interested taxpayers was a 50% credit on political contributions of up to $200 for MFJ and $100 for singles. The other tax provision allowed the taxpayer to designate one dollar (two for MFJ) to a Presidential Election Campaign Fund.

Evaluation of Campaign Financing Sources and Strategies

Tax incentives have been both praised and criticized by commentators. Peters [1958] and Goldman [1964] applauded tax incentives for the potential extension of the donor base. Hensley and Jarrett [1976] praised the concept for encouraging overall political participation. Two articles [Iowa Law Review, Tharp, ed., 1970; Iowa Law Review, Fribley, ed., 1973] stated that the credit would increase the amount of resources available for candidates. Reuben [1985] and Wertheimer [1986] saw these extra resources as being a useful way to diminish financial domination by PACs. Heard [1960] and Minow [1969] recommended tax incentives for small donations as a means to improve the public image of political giving.

A 1984 Treasury study found that the proportion of

taxpayers claiming a political credit increased as income increased [P-H,1984]. Steurle, McHugh and Sunley [1978] found a similar relationship for income averaging sufficient reason to call for its repeal. Harper [1978], Boehm [1967] and Alexander [1976] had previously criticized tax incentives for continuing inequality in campaign funding participation by rich and poor. Moreover, incentives were opposed for being unusable by taxpayers with no tax liability [Hoff, 1982; Harper, 1978; Adamany and Agree, 1975]. Boehm [1967] and Alexander [1972] argued that tax incentives unnecessarily drain tax revenues while Adamany and Agree [1975] and Jacobson [1980] stated that the presence of a tax incentive was not increasing the political donor base.

Alexander [1961] believed that a deduction format for the tax incentive might be easier for taxpayers to understand since it would be similar to the charitable contribution deduction; Goldman [1964] said that Congress would be more likely to pass legislation for a deduction than a credit. Nevertheless, both authors, along with Peters [1958] and Schoenblum [1979], preferred a credit to a deduction, believing a credit would be more fair. However, Thirsk [1980] found that converting three Canadian deductions to credits would only slightly equalize income distribution.

Most commentators favoring Federal financing for campaigns cited concern about private financing sources. McGovern [1972], Adamany [1973], Alexander [1976] and Heard [1960] emphasized the dangers of allowing wealthy individuals to dominate campaign funding. Forman and Malysa [1986] and Drew [1983] favored federal funding to keep PACs from becoming dominant. Heard [1960] and Minow [1969] believed rising media costs to be another reason to support Federal funding. The existing source of Federal financing, the designation or checkoff provision, was cited by Alexander [1976] for providing that participants would be able to make equal contributions, wealth or income notwithstanding. Mortenson and Winkleman [1969] believed that a checkoff provision would reduce campaign finance abuses.

Other authors were less favorably disposed toward Federal funding of campaigns. Weiss [1973] and Thayer [1973] felt that Federal involvement would give incumbents an unfair advantage. Hensley and Jarrett [1976] and Winter and Bolton [1973] were concerned that political participation would decrease. Thayer [1973] and Winter and Bolton [1973] argued that a major Federal financing role would hinder freedom of expression. Goldman [1964] questioned the constitutionality of Federal funding. Wiedenbeck [1985a] stated that replacing the credit for political contributions with

matching government grants for candidates would meet considerable public opposition. In regard to the checkoff, both Weiss [1973] and Hensley and Jarrett [1976] felt that one dollar was meaningless participation.

Results of Empirical Studies

Perhaps the most relevant findings on political donations came from Dawson and Zinser [1976], Jacobson [1980] and Uhlander and Scholzman [1986]. These writings studied political contributions as a whole (rather than political contributions usable for the Section 23 credit) and named characteristics of contributors. For 186 congressional districts with detailed party registration data, Dawson and Zinser found that income, incumbency and voter migration were positively correlated at the 5% level to willingness to make donations under $100 to Republican candidates (none of their variables were statistically significant at the 5% level for Democratic candidates) in the 1972 Congressional elections. The authors believed that income might have been a surrogate for political awareness and experience with governmental benefits, that small contributors made donations for consumption purposes such as pride in the legislator's prominence and that economic growth and job opportunities not only attract new residents but also provide greater capacity

to donate. Jacobson [1980] determined that outside factors,, such as Watergate in 1974, could affect contributions and that most donations to House candidates were under $100. Uhlander and Scholzman [1986] found that receipts of opponents, being a leader in the Democratic party, committee chairmanship and party affiliation were positively related to fund-raising ability, while length of tenure in Congress was negatively related and candidate gender was not a statistically significant variable.

Herbert Alexander [1976, 1979, 1983] has found that checkoff participation has generally exceeded the proportion of voters who make campaign donations. While checkoff usage has exceeded 25% since 1975, the proportion of voters making contributions has ranged from 8-10%. Adamany and Agree [1975] found no evidence that the proportion of donors increased from either 1960 or 1964 to 1974 and also found that taxpayers with adjusted gross income (AGI) over $20,000 were 27 times more likely to give than those with AGI under $5,000. By 1984, Adamany [1986] found that the percentage of Americans making contributions in presidential election years (1952-80) was 8-13% while the checkoff percentage was 32-35%.

EXHIBIT 2
SOME EMPIRICAL FINDINGS ON POLITICAL GIVING

AUTHOR(S)	YEAR	FINDINGS
Adamany	1986	Participation in $1 designation program (checkoff) exceeded participation in political contribution tax credit.
Adamany and Agree	1975	Taxpayers with AGI over $20,000 were 27 times more likely to donate than those with AGI under $5,000.
Civic Service	1983	Public funding for legislative races opposed 65%-25%.
Cohen	1978	97% of donations made to Republicans were under $100.
Dawson and Zinser	1976	Income, incumbency and voter migration were positively correlated with political donations of under $100.
Jacobson	1980	Most contributions to House candidates were less than $100.
Uhlander and Scholzman	1986	Committee chair or Democratic leadership positions and receipts of opponents were positively associated with fund-raising ability. Length of Congressional tenure was negatively associated.

FECA campaign finance reporting rules became effective on April 6, 1972. From that date to the November elections, 35% of the dollar volume of all donations came from giving of over $100, 32% from

donations under $100, 26% from political or special interest committees and the remainder as indirect gifts or loans [Congressional Quarterly Weekly Report, Kelley, ed., 1973]. Even though small contributors generally do not provide the majority of dollars, they can be the majority in number of donors. During 1976-77, the Republican Congressional Committee reported 97% of donations were under $100, 72% under $20 [Cohen, 1978].

Gopoian [1984] found that industrial or labor PACs put more emphasis on key issues, ideology or which district a legislator lived in than on whether the PAC could achieve access or power with the Congressman. Chappell [1982] said that a linkage between special interest group contributions and congressional voting patterns could not be proven but said that lack of precision (large standard errors) might explain lack of significance. The amount of money given by PACs went from $12.5 million in 1974 to $83.1 million in 1982 [Sorauf, 1984].

Public opinion has not been kind to public financing of campaigns. A 1983 Civic Service Poll found that while respondents were willing to consider tax incentives for political donations, public financing for legislative races was opposed 65-25% and opposed by almost every imaginable cross-section of the American public. In fact, present funding of the Presidential

campaign was opposed in the survey [CSI, 1983]. The 1983 Survey results were consistent with a 1982 Harris poll [Alexander, 1984] and were slightly more favorable to public funding than the 71-11% opposition cited by the University of Michigan in 1964 [Adamany, 1969].

Sneed [1965] stated that revenue adequacy and free-market compatibility (also called neutrality or economic efficiency) were important goals for a tax system. A number of empirical studies have either compared public policy benefits and revenue losses from tax incentives, or have evaluated the effect of tax code provisions on economic behavior.

During the past 20 years, economists have attempted to determine whether tax incentives, especially for charitable contributions, have improved funding for socially desirable activities. Results of the studies are not uniform: Feldstein [1975] found that within the $4,000-100,000 income range, $1.10 was given for each dollar of revenue loss, while Rudney [1985] countered that only $0.61 was given per dollar of revenue loss and the deduction was only efficient for taxpayers with incomes over $100,000. Articles by Abrams and Schmitz [1984] and Clotfelter [1985] argued that an increase in tax price for donations would reduce giving; moreover, Abrams and Schmitz found one dollar of state spending reduced giving by thirty cents. A behavioral model of

charitable contributions by Schiff [1985] found that only religion of the father and education had a consistently significant relationship with willingness to donate; tax price and income were not found to be consistently related.

A developing area of accounting research is determination of the effect of tax provisions on economic behavior. Some of the studies published in the 1980s are by Gonedes [1981], Zimmerman [1983], Wolfson [1985] and Moore, Steece and Swenson [1985]. Gonedes determined that corporations made up for underindexing of tax rates by increasing use of both debt-induced tax shields and tax incentives such as accelerated depreciation. Zimmerman reported higher tax rates for very large non-retail companies, which he called consistent with a political cost hypothesis that large firms seek accounting methods which minimize reported income. Wolfson noted that outside investors were willing to accept greater risk on real estate investments if marginal tax rates were relatively high. Moore, Steece and Swenson concluded that California taxpayers quickly and accurately made adjustments on Federal tax prepayments after Proposition 13 passed.

Summary

As Americans became more politically sophisticated, both direct political graft and undue influence by

wealthy political donors became increasingly objectionable. Tax incentives for political contributions, originally designed to broaden the political donor base, were in turn criticized for reducing the tax base without significantly increasing the number of non-wealthy donors. Indeed, some critics called for direct governmental aid to political candidates. Other commentators applauded tax incentives as providing an opportunity for taxpayers to support office-seekers of similar ideologies. Some empirical results showed income was a major determinant of who makes political donations, that the designation provision was more widely used than tax incentives and that most donations were under $100.

Tax incentives for political contributions gained support in the 1960s and in 1971, three tax provisions for political giving were added to the IRC, a credit, a deduction and the designation provision. The deduction was eliminated in 1978. During the period studied, the credit and designation provision remained. After the Tax Reform Act of 1986, only the designation provision is left.

III. THEORETICAL FRAMEWORK AND RESEARCH METHODS

Motives and Factors Associated with Political Giving

Prior research has provided a number of potential motives for political giving. Heard [1960] gave as reasons: concern for policy, identity with a group, conformity with associates, sense of duty to be involved, desire of access to politicians, desire for governmental or private privilege. Jacobson [1980] included vanity and effectiveness of the appellant. Reuben [1985] added personal attractiveness of the candidate as a motive.

Many commentators believed that the most disturbing feature of private campaign financing was the potential for donors to gain an advantage in obtaining access to politicians. Jacobson [1980] gave evidence that political access indeed motivated some political giving. The least desirable form of access-seeking is the *quid pro quo* contribution. Thayer [1973] mentioned numerous examples of such donations in his "Golden Age of Boodle" chapter; McGovern [1972] brought up a more recent example where ITT received favorable legal treatment in exchange for a large donation to the re-election effort for President Nixon. Even when favors were not actually given, the potential for abuse scared many. Drew [1983] said that the concept of representative government was in danger from the present funding system; Sorauf

[1984], Minow [1969] and Peters [1958] also expressed concern that wealthy donors may have too much influence. An opposing viewpoint came from Winter and Bolton [1973] who felt that those distrusting the present system lacked faith in the ability of American voters to depose immoral politicians.

Numerous authors believed that political donations served as an outlet for political expression or ideas [Hensley and Jarrett, 1976; Adamany, 1969; Winter and Bolton, 1973; Heard, 1960]. Polk [1975] believed that FECA regulations would tend to make ideology a key to campaign giving; Gopoian [1984] and Sorauf [1984] agreed when it came to PAC donations. Peters [1958] and Hensley and Jarrett [1976] felt that basing contributions on ideological grounds would limit the desire to seek quid pro quos.

Jacobson [1980] argued that some donors gave out of civic-mindedness. Peters [1958] and Alexander [1961] encouraged tax incentives to spur such political giving. Some articles [Hensley and Jarrett,1976; Iowa Law Review, Tharp, ed., 1970] claimed that giving was related to other political activity, such as voting.

Along with personal goals and beliefs, the political environment may affect giving. Incumbency has been suggested as a factor affecting donations, although disagreement exists on how it affects donations. One

article found that incumbents were aided by their status [Congressional Quarterly Weekly Report, Rosen, ed. 1973], but Uhlander and Scholzman [1986] found that incumbency was negatively related to campaign receipts. Meanwhile, Dawson and Zinser [1976] found that incumbency was not a consistently significant factor in their model. With inconsistent results like these, it is not surprising that Jacobson [1980] felt that public financing would help challengers while Weiss [1968] felt public financing would give incumbents an unfair advantage.

Other environmental factors connected to politics which may affect giving are chairing Congressional committees, party affiliation or presence of political scandal. Sorauf [1984] concluded that Republicans were more successful fund-raisers than Democrats. Uhlander and Scholzman [1986] and Dawson and Zinser [1976] each found committee chair positions helpful in fund-raising. Jacobson [1980] stated that the Watergate scandal affected political giving in 1974.

Political campaign giving may be affected by both personal and environmental socioeconomic reasons as well as by political factors. Adamany and Agree [1975] and Dawson and Zinser [1976] found that income was positively related to political giving. Harper [1978], Jacobson [1980] and Heard [1960] explained higher donor

rates among the wealthy by pointing out that taxpayers with high incomes had less restrictive spending constraints.

Interest in using political contributions as a tax-reducing device is implied by articles by Feinschrieber [1972b] telling how to choose between deduction or credit for donations and by Hasselbeck and Stewart [1975] who cited prior IRC sections written to limit deductibility of donations. The effectiveness of using a tax incentive to increase the number of small donors has been hotly debated. Wertheimer [1986] believed that incentives were needed to avoid PAC dominance of campaign funding; Jacobson [1980] argued tax incentives reduced but did not eliminate the irrationality of making a small donation; Hoff [1982] felt that restrictions on the credit would cause some small contributors with low tax liability to be unable to use the credit; and Adamany and Agree [1975] found no evidence that an increased proportion of Americans gave after the tax incentives went into effect.

Greater agreement was reached on the proposition that the credit or deduction was a tax expenditure [Iowa Law Review, Fribley, ed., 1973; Harper, 1978, Boehm, 1967]. However, Wiedenbeck [1985b] said that income measurement was not clearly defined at present for giving; two equally acceptable views to support taxing

of gifts, restricting tax avoidance or taxing psychic consumption, would result in different conclusions as to whether a tax expenditure existed. Therefore, since no clear income definition exists, tax expenditure analysis should be given little attention. Although Wiedenbeck wrote about giving to charity, it is plausible that the same rationale could be used in the debate over tax incentives for political contributions.

Use of tax incentives may be associated with environmental socioeconomic factors such as macroeconomic issues and time. Two leading macroeconomic issues in the early 1980s were inflation and unemployment; both issues were critical to millions of voters during the period [Shriver, ed., 1983]. Revenue loss estimates for the tax incentive provisions of the Revenue Act of 1964 [BNA Primary Sources, 1971] expected greater losses in even-numbered years (sometimes called "national election years") than odd-numbered years (which are sometimes called "off-years"). It is possible that some taxpayers learned about the credit over the term studied, using it in latter years but not in earlier years.

The motives described above can be included in four groups: (1) personal political motives (access-seeking, ideology, civic-mindedness), (2) environmental political motives (incumbency, party strength, political scandal),

(3) personal socioeconomic motives (personal income, desire to reduce taxes), (3) environmental socioeconomic motives (macroeconomic issues, time). The research questions considered are:

(1) What surrogates for personal and environmental political considerations were correlated with political giving?

(2) What surrogates for personal and environmental socioeconomic considerations were correlated with political giving?

(3) Can a model be developed to help explain who made qualifying political contributions and took a political contribution tax credit?

The Proposed Model

Characteristics believed to affect willingness of taxpayers to make political donations and take the political contribution tax credit are included in the proposed model below.

EXHIBIT 3
PROPOSED POLITICAL CONTRIBUTION TAX CREDIT MODEL

CRED= f(CHEKYES, CHEKNO, AGI, CONTPER, MOVEXP, FORMSCH, EXEMPT, GOVINC, SENINC, GOVELEC, SENELEC, HCHAIR, SCHAIR, VOTEPER, REPVOTE, SINVOTE, PERHS, CONTHS, REG, GP, UNEMP, YEAR)

VARIABLE	SOURCE	SIGN	DESCRIPTION
DEPENDENT VARIABLE			
CRED	AY	N/A	Taxpayer took political credit
PERSONAL POLITICAL MOTIVES			
CHEKYES	AY	+	At least one YES box checked
CHEKNO	AY	+	At least one NO box checked

EXHIBIT 3

PROPOSED POLITICAL CONTRIBUTION TAX CREDIT MODEL

VARIABLE	SOURCE	SIGN	DESCRIPTION
PERSONAL SOCIOECONOMIC MOTIVES			
AGI	AY	+	Adjusted gross income
CONTPER	AY	+	Ratio of charitable donations to AGI
MOVEXP	AY	+	Taxpayer claimed moving deduction
FORMSCH	AY	+	Presence of forms and schedules supporting Form 1040/ 1040A
EXEMPT	AY	N/A	One taxpayer used over 65 deduction
ENVIRONMENTAL POLITICAL FACTORS			
GOVINC	WA	+/-	Governor running for re-election
SENINC	WA	+/-	Senator running for re-election
GOVELEC	WA	+	Gubernatorial election held
SENELEC	WA	+	Senatorial election held
HCHAIR	CSD	+	State has House committee chairman
SCHAIR	CSD	+	State has Senate committee chairman
VOTEPER	SA	+	Percentage of eligible voters casting ballots
REPVOTE	N/A	+	State Republican voting percentage times VOTEPER
SINVOTE	N/A	+	Average state income times VOTEPER
ENVIRONMENTAL SOCIOECONOMIC FACTORS			
PERHS	SA	+	State proportion of adults finishing at least four years high school
CONTHS	N/A	+	Interaction of CONTPER and PERHS
REG	WA	+/-	Geographic region of United States
GP	WA	+/-	Regional inflation rate
UNEMP	SA	+/-	State unemployment rate
YEAR	AY	N/A	Year tax return was filed

SIGN: Hypothesized sign of coefficient

SOURCES: AY -Arthur Young Tax Research Data Base
CSD-Congressional Staff Directory
SA -Statistical Abstract of the United States
WA - World Almanac and Book of Facts
Sources based on state field

Indicator, interaction and quantitative variables were considered for association with the dependent variable CRED. CRED shows whether a given taxpayer took a tax credit for political contributions. Environmental variables were derived from the state field of the Arthur Young tax research data base. CHEKYES and CHEKNO indicate that a taxpayer checked either the "yes" or the "no" box for the Presidential Election Campaign Fund question. Checking either box could demonstrate a political motive consistent with political giving. Adamany [1973] asserted that a "yes" answer would give all taxpayers an equal chance to demonstrate civic-mindedness, while Sorauf [1984] found that many conservatives, otherwise prominent as political donors, opposed public funding programs like the checkoff. Taxpayers failing to check any box would seem to be the least politically motivated.

Harper [1978] and Dawson and Zinser [1976] each considered income a major factor in the political contribution decision. This personal finance factor is measured by AGI.

Two incentives authorized by the Internal Revenue Code during the period tested are the charitable contribution deduction (CONTPER, Section 170) and the moving expense deduction (MOVEXP, Section 217). Clotfelter [1985] stated that to the extent that

charitable giving is equivalent to a normal good, giving would decline as the tax rate increased. This statement implies that the decision to give to charities may be influenced by the tax law. Contrary to their hypothesis, Dawson and Zinser [1976] found that voter migration was positively associated with political giving. They suggested that greater economic opportunity may have increased the capacity to contribute.

Long and Caudill [1987] used variables to indicate presence of supporting forms and schedules (FORMSCH) in measuring return complexity for their study of characteristics of taxpayers using paid preparers. A taxpayer may be willing to undertake preparing a complex tax return or be willing to pay a larger fee for tax preparation on a long return if the taxpayer believes that tax liability reduction will exceed the incremental cost. EXEMPT indicates at least one taxpayer is over 65. Dawson and Zinser [1976] considered age as a possible characteristic affecting willingness to give in their study of political contributions.

GOVINC and SENINC show if the taxpayer voted in a state where the governor or senator was an incumbent running for re-election. As mentioned earlier, studies on the value of incumbency on fund-raising have had mixed results. GOVELEC and SENELEC show whether an

election was held in the state of the taxpayer. Authors of the Revenue Act of 1964 (88-2 Senate Report 830, H.R. 8363, 1964) expected greater deductions in election years than off-years. HCHAIR and SCHAIR indicate whether the taxpayer's state has a House or Senate chairman up for re-election. Uhlander and Scholzman [1986] argued that this form of incumbency can help in fund-raising and Dawson and Zinser [1976] found that donors of small amounts had a consumption motive for giving to prominent legislators.

VOTEPER indicates voter turnout in the taxpayer's state and will be calculated by taking the mean of voting percentages for the 1980 Presidential and the 1980 and 1982 Congressional elections. An association existed between political giving and voter participation, perhaps because of the financial stake involved [Iowa Law Review, Tharp, ed., 1970]. REPVOTE is an interaction of the turnout of eligible voters and proportion of congressional votes cast for Republicans in a state. Sorauf [1984] found Republicans more successful than Democrats at raising funds. Political giving could be correlated with the interaction of Republican strength and voting activity. SINVOTE reflects the interaction between state income and voting. It is reasonable that a state where taxpayers have high income and where citizens are willing to

exercise the right to vote would provide an environment that encourages political contributions.

PERHS is a surrogate for educational achievement based on the proportion of adults in the taxpayer's state who completed at least four years of high school and CONTHS is an interaction between charitable giving and education, which Schiff [1985] found to be related. Adamany [1969] found that 36% of those making political contributions had college education, while only 17% of those sampled had college education. Moreover, Adamany also found that 16% of political donors were grade school educated versus 29% of those studied. It is plausible that education, with or without the charitable donation interaction, could be associated with political giving. REG provides the geographic region of the taxpayer. Heard [1960] mentioned that different regions of the country differed in frequency of giving. GP indicates how rapidly consumer prices are increasing in each region. Rapidly increasing prices may convince a taxpayer to become politically active and make a political donation to protect the standard of living for the taxpayer. However, high inflation rates could also reduce the ability of the taxpayer to make a contribution. UNEMP indicates the degree of unemployment in each state. A significant drop in unemployment may create greater willingness to be

politically active, including greater willingness to make political gifts; although a counter-trend could exist because being laid off may affect the ability of some small contributors to give. The YEAR variable indicate the year in which the return was filed.

Hypotheses

Each model variable was tested for significance as part of a logit (logistic regression) model, except for the YEAR variable, which was tested by a chi-square test of independence. The null form of each model variable hypothesis is listed in Exhibit 4A. Hypotheses 7-9 and 19-24 are two-tailed tests; the other hypotheses are one-tailed tests. The REG variable is split into four parts: EAST, MID, SOUTH and WEST, for the regions of the country. Geographic region was defined as follows for both the region and inflation variables: Northeast (EAST): Maryland, Pennsylvania, West Virginia and all states north and east; South: Kentucky, Oklahoma and the Confederate states; West: all states fully outside the Eastern and Central time zones; Midwest (MID): all others. Within each region, the inflation rate was the mean of the inflation rate for four groups of cities based on size.

EXHIBIT 4A
MODEL VARIABLE HYPOTHESES TO BE TESTED (NULL FORM)

H1: CHEKYES is not positively associated with CRED.

H2: CHEKNO is not positively associated with CRED.

H3: AGI is not positively associated with CRED.

H4: CONTPER is not positively associated with CRED.

H5: MOVEXP is not positively associated with CRED.

H6: FORMSCH is not positively associated with CRED.

H7: There is no association between EXEMPT and CRED.

H8: There is no association between GOVINC and CRED.

H9: There is no association between SENINC and CRED.

H10: GOVELEC is not positively associated with CRED.

H11: SENELEC is not positively associated with CRED.

H12: HCHAIR is not positively associated with CRED.

H13: SCHAIR is not positively associated with CRED.

H14: VOTEPER is not positively associated with CRED.

H15: REPVOTE is not positively associated with CRED.

H16: SINVOTE is not positively associated with CRED.

H17: PERHS is not positively associated with CRED.

H18: CONTHS is not positively associated with CRED.

H19: There is no association between EAST and CRED.

H20: There is no association between MID and CRED.

H21: There is no association between SOUTH and CRED.

H22: There is no association between WEST and CRED.

H23: There is no association between GP and CRED.

H24: There is no association between UNEMP and CRED.

The hypotheses considered, if rejected in null form, could have significant political or tax policy ramifications. Rejecting the null for CHEKYES could indicate that the checkoff and credit were seen as complements; rejecting the null for CHEKNO could indicate that the provisions were seen as substitutes.

If the null is rejected for AGI, this may give evidence that the credit provided greater benefits to high-income taxpayers, which may not have been the intent of Congress. Accepting the null form for AGI may indicate successful broadening of the donor base beyond rich Americans. Rejection of the null for CONTPER could be consistent with the statement by Peters [1958] that charitable and political donations could be considered comparable in purpose. Rejecting the null for MOVEMP may provide evidence of favoritism towards geographically mobile taxpayers which Congress might not have intended. Rejecting the null for FORMSCH may indicate that long returns were associated with tax avoidance which is inconsistent with administrative convenience [Sneed, 1965]. Rejecting the null for EXEMPT may provide evidence of differential tax code treatment of the elderly, which Tate [1972] stated should be done outside the IRC.

A positive correlation between either GOVINC, SENINC or both and CRED may give evidence of a financial

advantage for incumbent governors, senators or both in addition to the political advantage of holding office; a negative correlation may indicate an offset of political advantage and financial disadvantage. Rejection of the null for GOVELEC, SENELEC or both may indicate that the revenue loss associated with the credit may vary based on whether senatorial, gubernatorial or both types of elections were held. Rejecting the null for HCHAIR, SCHAIR or both may provide evidence of a funding advantage of already politically powerful committee chairmen in re-election bids. Rejecting the null for VOTEPER may provide evidence that a positive correlation existed between voting and political giving. Rejecting the null for REPVOTE may give evidence of an association between states with politically active Republicans and the political contribution tax credit, which may not be what Congress intended. Rejecting the null for SINVOTE may provide evidence that the ability to pay (income) and willingness to act (voting) interact in the political donation decision.

Rejecting the null for PERHS may indicate favoritism toward voters with greater education than others. Congress may not have intended for these results to happen. Rejecting the null for CONTHS may give evidence that education and willingness to give, found by Schiff [1984] to be significant in charitable

donation decisions, interact to associate with political giving. Rejecting the null for EAST, MID, SOUTH or WEST may indicate a bias not intended by Congress in tax benefits between geographic regions. A correlation between CRED and either inflation (GP) or unemployment (UNEMP) may indicate that macroeconomic conditions are associated with political giving.

Along with testing the model variable hypotheses, four other questions were considered: (1) were different variables significant in different years?, (2) did taxpayers taking the maximum (full) credit have different characteristics than taxpayers taking less than the maximum (part) credit?, (3) was the credit taken with different frequency in different years?, (4) were taxpayers which took advantage of the 1982 provision to deduct charitable contributions without itemizing deductions more or less likely to take the political contribution tax credit than those who itemized deductions? These questions were tested by using chi-square tests of independence and also considered descriptively (see Exhibit 4B).

Some interesting time effects that would cause the null form of H25 to be rejected are if the credit is more frequently taken in 1982 than 1981, 1981 than 1980, and 1980 than 1979, which may indicate a learning effect, or if the credit is more frequently taken in

1980 or 1982 than in the off-years, which may show a national election effect. A variation on the national election effect is a presidential election effect, where use of the credit in 1980, a presidential election year, significantly exceeded use of the credit in other years.

EXHIBIT 4B
TESTS OF HYPOTHESES FOR YEAR TAKEN AND DEGREE OF CREDIT TAKEN (NULL FORM)

H25: CRED will equal one with equal frequency each year from 1979-1982.

H26: The decision to take a full credit or a less than full credit will not be associated with any independent model.

H27: The pooled regression equation and the regression equation for the independent years are equivalent.

H28: In 1982, CRED was taken with equal frequency by those itemizing charitable contributions and those deducting charitable contributions without itemizing.

Model variables might not only explain whether the taxpayer took any credit, but also whether the taxpayer took the maximum credit or less than the maximum. Variables which varied between periods could be explained either by different conditions between years or lack of power of models. If frequency of CRED in 1982 varied between charitable donors which itemized and those who deducted without itemizing, the charitable contribution variable (CONTPER) may need to be rewritten.

Data Collection

The major data source for the statistical analysis was the Arthur Young Tax Research Data Base (AY Data Base) tapes available through the University of Michigan. The AY Data Base provides a wide range of data from actual IRS files and contains data for over 9,000 taxpayers per year from 1974 to 1983. A publication explaining the AY Data Base [Clowery and Skadden, 1984] stated that the data comes from a random sample of unaudited individual tax returns filed by United States citizens and residents. The overwhelming majority of returns were based on a calendar year. Sampling variability statistics are available from the University of Michigan. The University of Michigan engaged in various tests to minimize the potential error, but acknowledged some risk of error beyond random variance [Clowery and Skadden, 1984]. Additional statistical information on the Data Base is available in the Appendix of this paper.

The form of the AY Data Base tapes used is the linkable panel, which provides a special identification number allowing a researcher to study the same taxpayers for several years. The period 1979-1982 was selected because tapes were available for the period and because Section 218, the political contribution tax deduction provision, had been repealed by then.

To protect taxpayer privacy, some data items from the tax return are not included in the AY Data Base. At least two such variables, occupation and zip code, would have been studied if available. Occupation would have been a personal socioeconomic variable; Dawson and Zinser [1976] found occupation significant on some tests and Heard [1960] stated that occupation affected the choice of the party receiving donations. A House member seeking re-election variable would be possible with zip code.

One of the fields available in the tapes was the state of residency. This field, in connection with other data sources, expanded the list of variables which could be considered. The Congressional Staff Directory was used to see which states had House and Senate committee chairpersons. The Statistical Abstracts of the United States was used to determine for each state the percentage of adult population which has completed four or more years of high school, to determine the unemployment rate for the state, to find what proportion of the voting-age population for each state voted in the 1980 and 1982 elections, and to find what proportion of voters from each state voted for Republican candidates in Congressional elections. The World Almanac and Book of Facts was used to determine the inflation rate by geographic region, whether a Senator or Governor

(whether or not incumbent) was running for election in a given year, and what the per capita income was for each state.

Data Analysis

In addition to the AY Data Base tapes, a file of state-based variables were established and merged with the AY tapes for analysis. The state-based variables include unemployment rate, presence of House committee chairman in the state of taxpayer, presence of a Senate election and other variables.

During the initial part of the study, descriptive statistics were developed to consider such issues as: (1) is stratification by income level needed?, (2) should a trichotomous (instead of binary) dependent variable be used to indicate no credit taken, less than full credit taken and full credit taken?, (3) is stratification needed to make the number of taxpayers in each dependent variable category (no, part, full) more equal? Stratification by income was not used in the logit equations but the effect of income level on political giving was considered as a separate issue. On the second issue, the model was tested using both trichotomous and dichotomous dependent variable levels. The preliminary statistics indicated that stratification for dependent variable category was not necessary.

Because of the ordinal dependent variable and large

number of binary dependent variables, ordinary least squares (OLS) regression was not appropriate. Two frequently used alternatives to OLS are logit (based on log-linear model) and probit (based on a cumulative normal function). Aldrich and Nelson [1984] and Gujarati [1988] each determined that logit (also called logistic regression) and probit were virtually identical (only a slight difference in tails) and could be used interchangeably.

Schaefer [1986] said that collinearity between independent variables (often called multicollinearity) seriously affects the logit maximum likelihood estimator (MLE). Gujarati [1988] pointed out that multicollinearity makes standard error larger, thus increasing the risk of accepting a false hypothesis. Farrar and Glauber [1967] defined multicollinearity as the departure from orthogonality, distinguished "acceptable" departures from orthogonality from "harmful" degrees of multicollinearity and recommended collecting additional data or estimating parameters from other sources if multicollinearity persisted. Both the Farrar-Glauber article and an article by Belsley, Kuh and Welsch [1980] suggested that correlations between independent variables of over 0.9 should cause concern. Tests for multicollinearity were made throughout the research to detect problems. The Farrar-Glauber

approach of elimination of independent variables or adding data points, mentioned by Neter and Wasserman [1974], was among remedial measures for serious multicollinearity.

For this study, logistic regression (logit) was used since SAS (Statistical Analysis System) has a logistic procedure which handles multichotomous ordinal variables such as the three-level dependent variable (no, part, full) considered in this study [Harrell, 1986] and since logit is not based on a normal curve. Neter and Wasserman [1974] said that logit, which assumes a curvilinear response function, is appropriate for many applications involving binary response functions. Press and Wilson [1978] and Amemiya and Powell [1983] found logit to be a more robust and thus preferred model to discriminate analysis if the dependent variable is binary and some or all of the independent variables are not normally distributed. Regression models will be computed for a pooled four year cross-section as well as for a cross-section for the data of each year. Model variables will be estimated through MLEs. Anderson [1982] observed that the major underlying assumption of logit, that the log-likelihood ratio is linear, is appropriate for: (1) multivariate normal functions, (2) multivariate discreet functions, (3) logarithmic or quadratic functions based

on normal or discreet distributions or (4) combinations of the above.

Summary

Previous commentators have given a variety of motives for political giving. These motives were grouped into four categories: personal political, personal socioeconomic, environmental political, and environmental socioeconomic. 25 model variables which generally were suggested in previous research were included in these categories. In addition to hypotheses for the model variables which were tested with a logistic regression model, four other hypotheses were tested with chi-square analysis.

The major source of data for testing come from the Arthur Young Tax Research Data Base, while some state-based data came from reference books. In addition to the logit and chi-square tests, work was done to minimize multicollinearity.

IV. RESEARCH RESULTS

Descriptive Statistics

The linkable panel form of the Arthur Young Tax Research Data Base (AY Data Base) had anywhere from 9,235 (1982) to 46,675 (1981) observations available during the period studied with 182 (1980) variables available per observation. The smaller number of 1982 returns resulted from cost reduction moves by IRS. Using state-based variables required the elimination of AY Data Base returns not filed with a state address, such as those from Washington, D.C., Puerto Rico and Guam. Approximately one to one and one-half percent of the tax returns were deleted (Exhibit 5).

EXHIBIT 5
SAMPLE SIZES FOR STATISTICAL TESTING

Model	Total Observ.	Number Deleted	Observations Available	Number Tested	Percent Tested
Overall	148,209	1,462	146,747(99.0%)	15,000	10.2%
1979	45,786	438	45,348(99.0%)	4,600	10.1
1980	46,513	320	46,193(99.3%)	4,700	10.2
1981	46,673	582	46,093(98.7%)	4,700	10.2
1982	9,235	122	9,113(98.7%)	1,000	11.0

One effect of the inconsistent number of variables available each year was that the age exemption variable and the presidential election campaign fund (checkoff) information were not available for all years. AGEX (age) was only available in 1982, ELECT (checkoff) was only available in 1979 and 1982. Also, FORMSCH (length

of return) could not be calculated using exactly the same data base variables--for one example, the presence of 1040 Schedule E could be tied to one variable in 1982 (E16_82) but required looking at nine variables in 1981 (such as variables for pensions, farm rental, rent, royalty, partnership, estate/trust, and small business).

TABLE 1
DESCRIPTIVE STATISTICS

OVERALL DATA BASE

VARIABLE	% ≠ 0	RANGE	MEAN	STD DEV
CRED	5.1	1	0.051	
AGI	99.93	885.76	16.88	16.81
CONTPER	30.02	2.251	0.009	0.032
FORMSCH	100	12	2.31	1.70
GP	100	0.096	0.122	0.021
MOVEXP	1.54	28350	33.19	404.44
PERHS	100	0.294	0.667	0.062
REPVOTE	99.29	0.463	0.205	0.069
UNEMP	100	0.127	0.070	0.018
HCHAIR	58.9	1	0.589	

VARIABLE	MINIMUM	25%	MEDIAN	75%	MAXIMUM
CRED	0				1
AGI	(686.6)	5.94	12.85	23.65	199.2
CONTPER	0	0	0	0.004	2.251
FORMSCH	1	1	2	3	13
GP	0.066	0.107	0.122	0.138	0.162
MOVEXP	0	0	0	0	28350
PERHS	0.531	0.635	0.667	0.722	0.825
REPVOTE	0	0.167	0.193	0.252	0.463
UNEMP	0.028	0.059	0.069	0.078	0.155
HCHAIR	0				1

NOTE: AGI is expressed in terms of 1000s.

TABLE 1
DESCRIPTIVE STATISTICS

1979

VARIABLE	% ≠ 0	RANGE	MEAN	STD DEV
CRED	4.3	1	0.043	
AGI	99.96	885.02	15.45	15.59
CONTPER	26.64	2.251	0.008	0.032
FORMSCH	100	12	2.06	1.50
GP	100	0.025	0.110	0.009
MOVEXP	1.52	15257	31.3	363.6
PERHS	100	0.294	0.667	0.062
REPVOTE	99.15	0.463	0.229	0.066
UNEMP	100	0.064	0.058	0.011
HCHAIR	57.2	1	0.572	

VARIABLE	MINIMUM	25%	MEDIAN	75%	MAXIMUM
CRED	0				1
AGI	(686.6)	5.52	11.80	21.65	198.4
CONTPER	0	0	0	0.002	2.251
FORMSCH	1	1	1	3	13
GP	0.100	0.105	0.107	0.125	0.125
MOVEXP	0	0	0	0	15257
PERHS	0.531	0.635	0.667	0.722	0.825
REPVOTE	0	0.177	0.239	0.276	0.463
UNEMP	0.028	0.040	0.059	0.078	0.124
HCHAIR	0				1

1980

VARIABLE	% ≠ 0	RANGE	MEAN	STD DEV
CRED	5.7	1	0.057	
AGI	99.95	760.08	16.64	16.91
CONTPER	28.32	1.666	0.009	0.031
FORMSCH	100	12	2.34	1.71
GP	100	0.025	0.145	0.009
MOVEXP	1.54	17123	30.5	367.5
PERHS	100	0.294	0.666	0.062
REPVOTE	99.12	0.463	0.228	0.067
UNEMP	100	0.084	0.071	0.016
HCHAIR	57.5	1	0.575	

VARIABLE	MINIMUM	25%	MEDIAN	75%	MAXIMUM
CRED	0				1
AGI	(560.9)	5.85	12.71	23.39	199.2
CONTPER	0	0	0	0.003	1.666
FORMSCH	1	1	2	3	13
GP	0.137	0.137	0.145	0.145	0.162
MOVEXP	0	0	0	0	17123
PERHS	0.531	0.635	0.667	0.722	0.825
REPVOTE	0	0.177	0.239	0.276	0.463
UNEMP	0.040	0.059	0.069	0.078	0.124
HCHAIR	0				1

TABLE 1
DESCRIPTIVE STATISTICS

1981

VARIABLE	% ≠ 0	RANGE	MEAN	STD DEV
CRED	5.3	1	0.053	
AGI	99.93	452.20	18.06	17.34
CONTPER	30.54	0.500	0.010	0.033
FORMSCH	100	12	2.45	1.81
GP	100	0.028	0.122	0.010
MOVEXP	1.57	28350	36.57	448.9
PERHS	100	0.294	0.666	0.062
REPVOTE	99.54	0.413	0.165	0.055
UNEMP	100	0.087	0.076	0.017
HCHAIR	60.6	1	0.606	

VARIABLE	MINIMUM	25%	MEDIAN	75%	MAXIMUM
CRED	0				1
AGI	(253.6)	6.35	13.76	25.54	198.6
CONTPER	0	0	0	0.005	0.500
FORMSCH	1	1	2	3	13
GP	0.110	0.116	0.122	0.122	0.138
MOVEXP	0	0	0	0	28350
PERHS	0.531	0.635	0.667	0.722	0.825
REPVOTE	0	0.131	0.181	0.192	0.413
UNEMP	0.036	0.064	0.074	0.084	0.123
HCHAIR	0				1

1982

VARIABLE	% ≠ 0	RANGE	MEAN	STD DEV
CRED	5.7	1	0.057	
AGI	99.97	363.30	19.20	18.71
CONTPER	52.79	0.500	0.011	0.034
FORMSCH	100	12	2.69	1.86
GP	100	0.010	0.072	0.004
MOVEXP	1.53	19010	39.4	521.7
PERHS	100	0.294	0.666	0.062
REPVOTE	99.57	0.413	0.165	0.055
UNEMP	100	0.100	0.096	0.021
HCHAIR	65.3	1	0.653	

VARIABLE	MINIMUM	25%	MEDIAN	75%	MAXIMUM
CRED	0				1
AGI	(253.6)	6.35	13.76	25.54	198.6
CONTPER	0	0	0	0.005	0.500
FORMSCH	1	1	2	3	13
GP	0.110	0.116	0.122	0.122	0.138
MOVEXP	0	0	0	0	28350
PERHS	0.531	0.635	0.667	0.722	0.825
REPVOTE	0	0.131	0.181	0.192	0.413
UNEMP	0.036	0.064	0.074	0.084	0.123
HCHAIR	0				1

After eliminating returns not coming from a state-based address and merging the state-based variables with the AY Data Base, 146747 observations remained. Nine variables were used for overall testing AND were tested for the four individual years; descriptive statistics of all available observations for these variables and the dependent variable are found in Table 1.

One unexpected result was found in preparing the descriptive statistics. The code in the ELECT (checkoff) representing "no boxes checked" occurred in 47.4% of all cases for 1979 but only in 0.3% of all cases in 1982. Running a test sample of 300 observations for both years gave consistent results with the descriptive statistic printout. A telephone call to Michael Strudler, researcher at the Office of Tax Policy Research at the University of Michigan (administrators of the AY Data Base), provided no additional information as to why the proportions were so different. It was therefore concluded that different coding systems were used for each year. Since so few "no" observations were available (expected value of three observations in a sample of 1,000 returns), the variable CHEKNO was not tested for 1982. Also, CHEKNO was not tested for the overall model because of the differences in coding. The CHEKNO variable was used in 1979 (the Data Base does not contain the ELECT variable from the Data Base for 1980

and 1981). A more predictable result was the increased frequency of CONTPER in 1982 as the result of taxpayers being allowed to deduct a small amount of charitable contributions even without itemizing deductions in that year.

Test of AY Data Base Representativeness

The linkable panel form of the AY Data Base for 1979-1982 was compiled from a random sample of unaudited Federal individual income tax returns, both 1040 and 1040A, filed by U.S. citizens and residents during a given calendar year. The samples came from a population of approximately 100,000,000 returns per year [Clowery and Skadden, 1984; Strudler, 1983, pp. 22-24].

One way to test the sample for how well it represents the underlying population is to compare the number of returns from each state against the population of the United States. To perform the test, the number of returns per state were ranked for 1979 and 1980 (1-most returns, 50-fewest returns) and the population of each state according to the 1980 census was ranked. Kendall's Tau (T) [Conover, 1980, p. 257] was used to test the null hypothesis that state ranks were independent (not representative) against the alternative hypothesis that state ranks were positively correlated (representative).

Test results were: for 1979 T=1,176; for 1980

T=1,179. Therefore, the number of returns per state test provides evidence for the hypothesis that the sample is representative of the underlying population (p-value < 0.005).

Preliminary Work to Condense Model

Although CHEKNO was eliminated from consideration except for 1979 for coding reasons explained in the previous section, 21 other model variables still remained. If other hypothesized variables were to be found irrevelant for all years or some variables could be limited to specific years, model building would be more manageable. Approaches used to limit variables tested included: (1) running correlation tests between independent variables, (2) comparing taxpayers taking less than the maximum credit (hereafter called part or partial credit) with taxpayers taking the maximum allowable credit (hereafter called full credit) and (3) running logistic regression (logit) equations on samples. In the early stages of the work, 1982 data was used heavily, since 1982 data contains the greatest number of hypothesized variables. Eventually, samples from each of the four years plus a sample of the overall AY Data Base were used.

Running a correlation matrix for a sample of 2000 returns in 1982 produced two extremely high correlations. CONTPER (charitable contributions) and

CONTHS (interaction between charitable giving and education) had a correlation coefficient of 0.99464. SINVOTE (interaction between state income and voter participation) and VOTEPER (voting frequency) had a correlation coefficient of 0.99686. Collinearity between independent variables of this magnitude would make any regression equation extremely unreliable. Since both cases involved collinearity between a percentage variable (CONTPER, VOTEPER) and an interaction variable which included the percentage variable (CONTHS, SINVOTE), a four-way test involving possible pairs of the variables was used (CONTPER, VOTEPER; CONTPER, SINVOTE; CONTHS, VOTEPER; CONTHS, SINVOTE). Gordon [1974] said that interaction terms were likely to be highly correlated with their parent term or terms. Gordon recommended either deleting one of the correlated terms or running the analysis both ways (one term, then the other).

The criterion for which of the four approaches were kept, and thus which two variables would be eliminated, was which pair of variables produced the highest R on a sample logit run including the other model variables. R was chosen because the square of R (R*R) approximates the explanatory power of the model. In case of ties, the percentage variable was given preference over the interaction variables since significant results in

subsequent testing could be more directly explained for the percentage variables than for the interaction variables. Since R = 0.251 for all four models, CONTPER and VOTEPER were kept and CONTHS and SINVOTE were dropped. Moreover, since EXEMPT is only available for 1982 (6.2% of all Data Base observations), EXEMPT was considered for testing in 1982.

Each of the remaining variables (except CHEKNO and EXEMPT) were tested both in sample logit equations and in chi-square (X*X) tests for independence. The chi-square tests were primarily designed to determine differences between taxpayers taking partial credit and those taking full credit, but were also used to see if moderately collinear independent variables (correlation coefficient > 0.4) were separately correlated with the dependent variable. These procedures were undertaken to remove any variables which were not relevant in any test from further consideration, to limit consideration of other variables to only specific years, as was previously done with the CHEKNO variable, and to test other variables for all four years plus the sample of the overall AY Data Base (overall Data Base sample).

The preliminary overall Data Base sample was 15,000 observations, preliminary samples for each year were 1,200 observations. The significance level for all preliminary tests was 0.10 except 0.05 on two-tailed

logit tests. Some variables, such as CHEKYES and GOVINC, had two natural categories. Most other variables, such as AGI and MOVEXP, were divided into quartiles (fourths) based on descriptive statistics like those in Table 2.

Other than for CHEKNO and EXEMPT, which were discussed earlier, variables which were not significant in any test were eliminated from further consideration. Variables which are available for all years and were significant for any logit or chi-square test were tested for each individual year and the overall sample. Variables only available for certain years (such as CHEKYES) or only relevant for certain years (such as GOVINC or SENELEC) were included in the overall model as well as specific years if significant in any sample tests.

Results of the preliminary logit tests are given in Table 2; results of the preliminary chi-square tests are given in Table 3. The most significant result of the preliminary test came by looking at the 1982 chi-square test comparing full versus part credit for inflation. The result was significant (p-value = 0.008), but the pattern was not a steady increase from political activism or decrease from being unable to afford a political contribution as the inflation level increased. Instead, full credit was concentrated in quartile 3

while part credit was heaviest in quartiles 2 and 4. Since inflation rates were determined by geographic region, one possible explanation of the pattern in the test is that regional differences might be causing the difference between quartiles to be significant. Therefore, geographic region (REG) variables (EAST, MID, SOUTH, WEST) were separated from inflation (GP) as new hypothesized (H20-H23, Exhibit 4A) variables.

TABLE 2
PRELIMINARY LOGIT TEST RESULTS

Variable	Beta	S.E.	(X*X)	p-value
Overall Sample (n = 14,991; p-value = 0.0000; R = 0.306; R*R = 0.094)				
Intercept	-4.2759	0.6428	44.25	0.0000
AGI	3.098	0.183	285.25	0.0000
EAST	0.6975	0.0950	53.91	0.0000
CHEKYES	0.7168	0.1157	38.40	0.0000
SENELEC	0.3550	0.0852	17.35	0.0000
FORMSCH	0.3525	0.0950	13.78	0.0002
GP	7.1187	1.9586	13.21	0.0003
CONTPER	2.7243	0.8254	10.89	0.0010
WEST	0.4013	0.1421	7.97	0.0048
HCHAIR	0.1956	0.0834	5.50	0.0190
PERHS	-1.5740	0.9385	2.81	0.0935
1979 Sample (n = 1,200; p-value = 0.0000; R = 0.333; R*R = 0.111)				
Intercept	-4.3821	0.2834	240.79	0.0000
AGI	4.573	0.731	39.09	0.0000
CHEKYES	1.0016	0.2686	13.90	0.0002
EAST	0.5943	0.2777	4.58	0.0324
1980 Sample (n = 1,200; p-value = 0.0000 R = 0.189; R*R = 0.036)				
Intercept	-3.2470	0.1731	352.04	0.0000
AGI	2.455	0.509	23.25	0.0000
MOVEXP	5.6756	3.0243	3.52	0.0606

TABLE 2
PRELIMINARY LOGIT TEST RESULTS

Variable	Beta	S.E.	(X*X)	p-value
1981 Sample (n = 1,199; p-value = 0.0003 R = 0.168; R*R = 0.028)				
Intercept	-3.9955	0.3208	155.09	0.0000
FORMSCH	1.0798	.3444	9.83	0.0017
EAST	0.6335	0.2968	4.56	0.0328
1982 Sample, all charitable giving combined in one variable (n = 1,200; p-value = 0.0000 R = 0.319; R*R = 0.102):				
Intercept	-3.9539	0.2318	291.08	0.0000
AGI	3.555	0.526	45.71	0.0000
CHEKYES	0.6064	0.2683	5.11	0.0238
CONTPER	5.9553	2.8020	4.52	0.0336
1982 Sample, CONTPER split by whether taxpayer itemized (n=1,200; p-value=0.0000; R=0.220; R*R=0.0048):				
Intercept	-2.9803	0.2377	157.17	0.0000
AGI	2.727	0.573	22.64	0.0000

NOTE: Beta for AGI should be multiplied by 1/100,000 (10** -5), Beta for MOVEXP should be multiplied by 1/10,000 (10** -4), (X*X) is chi-square, (R*R) is approximate explanatory power (r-square), S.E. represents standard error.

Other noteworthy findings included the presence of AGI, EAST and CHEKYES in over half of the logit equations, FORMSCH in over half of the chi-square tests, and a significant association between CRED (the dependent variable) and ITEM (whether a 1982 taxpayer with charitable donations itemized). Since the CONTPER variable may have to be revised if CRED and ITEM are associated, this association will be tested again with the main sample.

TABLE 3
PRELIMINARY CHI-SQUARE TEST RESULTS

	VARIABLES	Chi-Square	(d.f.)	p-value
Overall Sample:	LEV/ FORMSCH	16.608	1	0.000
	LEV/ CONTPER	10.430	1	0.001
	LEV/ AGI	8.725	3	0.033
1979	LEV/ UNEMP	7.285	3	0.063
1980	LEV/ FORMSCH	6.197	1	0.013
	LEV/ GOVINC	4.036	1	0.045
	LEV/ UNEMP	7.792	3	0.051
1981	LEV/ SOUTH	9.168	1	0.002
	LEV/ WEST	4.848	1	0.023
1982	LEV/ SOUTH	7.618	1	0.006
	LEV/ FORMSCH	6.610	1	0.010
	LEV/ REPVOTE	9.300	3	0.026
	LEV/ GP	8.856	3	0.031
	CRED/ ITEM	2.923	1	0.087

NOTE: LEV represents whether a full or a partial credit was taken. ITEM represents whether a 1982 taxpayer taking a deduction for charitable contributions itemized deductions. D.f. represents degrees of freedom.

Variables which remain for the main tests are listed in Exhibit 6. In addition to the CONTHS and SINVOTE variables eliminated earlier, GOVELEC, MID, SCHAIR, SENINC and VOTEPER were eliminated. This leaves 15 variables for the overall Data Base tests plus CHEKNO (1979), EXEMPT (1982), and YEAR, which is considered through a separate chi-square test for independence (Table 8).

EXHIBIT 6
MODEL VARIABLES REMAINING AFTER PRELIMINARY TESTS

VARIABLE	CATEGORY	PERIODS TESTED	SIGN
AGI	PSM	ALL	+
CHEKYES	PPM	Overall,79,82	+
CHEKNO	PPM	1979	+
CONTPER	PSM	ALL	+
EAST	ESF	ALL	+/-
EXEMPT	PSM	1982	+/-
FORMSCH	PSM	ALL	+
GOVINC	EPF	Overall,80,82	+/-
GP	ESF	ALL	+/-
HCHAIR	EPF	ALL	+
MOVEXP	PSM	ALL	+
PERHS	ESF	ALL	+
REPVOTE	EPF	ALL	+
SENELEC	EPF	Overall,80,82	+
SOUTH	ESF	ALL	+/-
UNEMP	ESF	ALL	+/-
WEST	ESF	ALL	+/-

NOTE: EPF - Environmental Political Factor
ESF - Environmental Socioeconomic Factor
PPM - Personal Political Motive
PSM - Personal Socioeconomic Motive
SIGN - the hypothesized sign of variable.
Overall - Overall Data Base Sample

Logistic Regression Tests to Determine Model Variables

To determine which of the remaining variables from Exhibit 6 would be included in equations for the overall Data Base sample and for each individual year, observations used in preliminary runs were eliminated from consideration. This procedure was carried out to assure independence of results for the main tests from the preliminary tests. Because of occasional missing values, especially for CONTPER, a very small number of deletions occurred in each sample. For instance, of 4,700 observations available for 1980 study, 4,698 were used and two were deleted.

TABLE 4
MAIN LOGIT EQUATION TEST RESULTS

VARIABLE	BETA	S.E.	(X*X)	p-value
Overall Sample (n = 14,992; p-value = 0.0000 R = 0.296; R*R = 0.088)				
Intercept	-4.0764	0.2935	192.94	0.0000
AGI	2.512	.168	223.50	0.0000
CHEKYES	0.7379	.1135	42.24	0.0000
EAST	0.4864	.0922	27.81	0.0000
FORMSCH	0.5076	.0964	27.71	0.0000
CONTPER	3.6173	.7622	22.52	0.0000
SOUTH	-0.5294	.1246	18.05	0.0000
REPVOTE	-2.8535	.7466	14.61	0.0001
GP	5.6224	2.0187	7.76	0.0054
1979 Sample with inflation (n = 4,600; p-value= 0.0000; R = 0.279; R*R = 0.078)				
Intercept	-1.6164	0.9390	2.96	0.0852
AGI	2.582	.336	59.04	0.0000
FORMSCH	0.4696	.1711	7.53	0.0061
GP	-20.3040	8.4005	5.84	0.0156
CHEKNO	-0.4771	0.2091	5.20	0.0225
CHEKYES	0.3875	.1923	4.06	0.0439
1979 Sample with region (n = 4,600; p-value = 0.0000; R = 0.279; R*R = 0.078)				
Intercept	-4.0359	0.2099	369.86	0.0000
AGI	2.590	.336	59.47	0.0000
FORMSCH	0.4542	.1715	7.02	0.0081
WEST	0.4443	.1832	5.88	0.0153
EAST	0.4056	.1769	5.26	0.0218
CHEKNO	-0.4628	.2092	4.90	0.0269
CHEKYES	0.3995	.1925	4.31	0.0379
1980 Sample (n = 4,698; p-value = 0.0000; R= 0.246; R*R =0.061)				
Intercept	-3.3929	0.1285	696.63	0.0000
AGI	2.255	.282	64.13	0.0000
SOUTH	-0.6052	.1562	15.01	0.0001
CONTPER	4.2767	1.3801	9.60	0.0019
FORMSCH	0.3951	0.1563	6.39	0.0115
1981 Sample (n =4,698; p-value = 0.0000; R = 0.296; R*R = 0.088)				
Intercept	-4.3640	0.1787	596.46	0.0000
AGI	2.986	.323	85.67	0.0000
EAST	0.8843	.1405	39.61	0.0000
HCHAIR	0.3833	.1465	6.85	0.0089
FORMSCH	0.4269	.1707	6.25	0.0124

TABLE 4
MAIN LOGIT EQUATION TEST RESULTS

VARIABLE	BETA	S.E.	(X*X)	p-value
1982 Sample (n = 1,000; p-value = 0.0000; R = 0.267; R*R = 0.071)				
Intercept	-3.7983	.2453	239.75	0.0000
AGI	2.592	.516	25.26	0.0000
CHEKYES	0.8428	.2888	8.52	0.0035

NOTE: Beta for AGI should be multiplied by 1/100,000 (10** -5), (X*X) represents chi-square, (R*R) represents r-square, S.E. represents standard error.

Approximately 10% of the original Data Base was used for each year and the overall sample (see Exhibit 5). Significance levels for the logit tests were 0.10 for one-tailed tests and 0.05 for two-tailed tests (EAST, EXEMPT, GOVINC, GP, SOUTH, UNEMP, WEST).

Results of the main logit tests (the tests used to determine if the model variable hypotheses are accepted or rejected) are shown on Table 4 and summarized in Exhibit 7. Because of severe multicollinearity between region and inflation (Table 9), separate logit tests were run each year from 1979-1982, one test including regional variables EAST, WEST and SOUTH and a second test for inflation variable GP. The power of the 1979 test was equal, thus results of both equations are shown. For 1980 and 1981, the power with region exceeds the power with inflation; therefore, only the equations using region are shown. No region or inflation variable was used in 1982. Multicollinearity between inflation and region was not severe in the overall sample.

EXHIBIT 7
RESULTS OF MODEL HYPOTHESIS TESTS

VARIABLE	SIGN	1979-I	1979-R	1980	1981	1982	Over
Personal Political Motives:							
CHEKYES	+	+	+	N/A	N/A	+	+
CHEKNO	+	-	-	N/A	N/A	N/A	N/A
Personal Socioeconomic Motive							
AGI	+	+	+	+	+	+	+
CONTPER	+	O	*	+	O	O	+
EXEMPT	+	N/A	N/A	N/A	N/A	O	N/A
FORMSCH	+	+	+	+	+	O	+
MOVEXP	+	O	O	O	O	O	O
Environmental Political Factor							
GOVINC	+/-	N/A	N/A	O	N/A	O	O
HCHAIR	+	O	O	O	+	O	O
REPVOTE	+	O	O	O	O	O	-
SENELEC	+	N/A	N/A	O	N/A	O	O
Environmental Socioeconomic Factor							
EAST	+/-	N/A	+	O	+	O	+
GP	+/-	-	N/A	O	O	O	+
PERHS	+	O	O	O	O	O	O
SOUTH	+/-	N/A	O	-	O	O	-
UNEMP	+/-	O	O	O	O	O	O
WEST	+/-	N/A	+	O	O	O	O

Note: Sign: hypothesized sign of coefficient; O: no association; N/A: Not Applicable; +: positive association; -: negative association; *: significant but meaningless (Table 7); 1979-I: inflation variables used; 1979-R: regional variables used.

Beta is the coefficient and indicates whether the independent variable is positively or negatively related to the dependent variable. The Wald chi-square statistic [Harrell, 1986] was used to determine the p-value (significance) of each variable. Only adjusted gross income (AGI) was significant for all five main logit equations. In addition, number of forms and schedules (FORMSCH) were significant for the overall

Data Base sample and three of the four years; and the regional variable for the northeast (EAST) and yes designation on the checkoff provision (CHEKYES) were significant for the overall sample and two of the four years. All logit models were highly statistically significant with p-values of less than 0.0001. The computer printout also provides the R for the model. Squaring this R gives an approximate measure of explanatory power of the model. (R*R) for the models range from 0.061 for the 1980 model to 0.088 for the 1981 model.

Chi-Square Tests for Full versus Part Credit

Choice of available observations for the chi-square tests was the same as for the logit tests (elimination of observations used in preliminary runs, sample size, etc.). The significance level for chi-square tests is 0.10. Results of the chi-square tests of differences between taxpayers taking a full credit and taxpayers taking a partial credit are found in Table 5.

For the overall sample and three of the years, taxpayers with more than one form or schedule (FORMSCH) were less likely to take a full credit than taxpayers with only one form. In the only other variable with more than one statistically significant relationship, taxpayers taking the charitable contribution deduction (CONTPER) were less likely to take a full credit than

those not taking a deduction.

TABLE 5
MAIN CHI-SQUARE TEST RESULTS

	(X*X)	(d.f.)	p-value
Overall sample:			
LEV/ FORMSCH	27.964	1	0.000
LEV/ CONTPER	12.984	1	0.000
LEV/ CHEKYES	4.816	1	0.028
LEV/ AGI	7.727	3	0.052
1979 Sample:			
LEV/ FORMSCH	4.837	1	0.028
LEV/ UNEMP	7.834	3	0.050
LEV/ CONTPER	3.412	1	0.065
1980 Sample:			
LEV/ FORMSCH	6.314	1	0.012
LEV/ CONTPER	4.902	1	0.027
LEV/ PERHS	8.950	1	0.030
1981 Sample:			
LEV/ FORMSCH	6.944	1	0.008
LEV/ CONTPER	4.964	1	0.026
LEV/ AGI	6.771	3	0.080
1982 Sample:			
LEV/ FORMSCH	2.972	1	0.085
LEV/ EXEMPT	2.739	1	0.098
LEV/ SCHAIR	2.699	1	0.100
CRED/ITEM	0.234	1	0.629

NOTE: LEV represents whether a full or a partial credit is taken. ITEM represents whether a 1982 taxpayer claiming charitable giving itemized. (X*X) represents chi-square, d.f. represents degrees of freedom.

Form of the Logistic Regression Equation

Three issues arose in the process of determining the best form of the logistic regression equation. One was whether the dependent variable should be dichotomous (credit, no credit) or trichotomous (full credit, part

credit, no credit). Another was whether AGI needed to be adjusted for inflation. The final issue was whether any significant model variables failed to add to the explanatory power of the model (meaningless variables).

Equations for dichotomous and trichotomous dependent variables were compared both for the overall Data Base sample and the 1982 sample in Table 6. If the equations are substantially different, use of the trichotomous equation might be better able to capture all relevant information; if not, equations with dichotomous dependent variable may be easier to interpret. Since the equations have the same signs and variables and similar p-values, a dichotomous dependent variable was used for all remaining logit tests. The full or part credit dichotomy still is considered in the chi-square tests of the preceding section.

Adjusting income for inflation may provide a more accurate guide to purchasing power than using a nominal measure such as AGI. To test whether crumbling purchasing power of income affected logit results, AGI was adjusted for inflation for both the overall sample and the 1982 sample by dividing AGI by GP. The overall sample captured the cumulative effect of inflation from 1979 to 1982 as well as regional differences in inflation rates; the 1982 sample was only modified for regional variations.

TABLE 6
RESULTS OF FORM OF EQUATION TESTS

VARIABLE	BETA	S.E.	(X*X)	p-value
Overall Sample:	Equation with two credit levels and no inflation adjustment (p-value = 0.0000; R = 0.296; R*R = 0.088)			
Intercept	-4.0764	0.2935	192.94	0.0000
AGI	2.512	.168	223.50	0.0000
CHEKYES	0.7379	.1135	42.24	0.0000
EAST	0.4864	.0922	27.81	0.0000
FORMSCH	0.5076	.0964	27.71	0.0000
CONTPER	3.6173	.7622	22.52	0.0000
SOUTH	-0.5294	.1246	18.05	0.0000
REPVOTE	-2.8535	.7466	14.61	0.0001
GP	5.6224	2.0187	7.76	0.0054
	Equation with three credit levels and no inflation adjustment (p-value = 0.0000; R = 0.0272; R*R = 0.074)			
Constant1	-4.0888	0.2927	195.09	0.0000
Constant2	-5.1412	.2970	299.59	0.0000
AGI	2.407	.158	233.52	0.0000
CHEKYES	0.7320	.1131	41.89	0.0000
FORMSCH	0.5057	.0959	27.78	0.0000
EAST	0.4769	.0919	26.96	0.0000
CONTPER	3.8622	.7487	26.61	0.0000
SOUTH	-0.5314	.1242	18.30	0.0000
REPVOTE	-2.8844	.7454	14.97	0.0001
GP	5.9587	2.0110	8.78	0.0030
	Equation with two credit levels and adjusted for inflation (p-value = 0.0000; R = 0.293; R*R = 0.086)			
Intercept	-4.4940	0.4014	125.34	0.0000
AGI	3.119	.216	212.39	0.0000
CHEKYES	0.7187	.1162	38.24	0.0000
FORMSCH	0.5236	.0961	29.66	0.0000
EAST	0.4916	.0931	27.89	0.0000
CONTPER	3.6146	.7621	22.49	0.0000
REPVOTE	-3.0439	.7769	15.35	0.0001
SOUTH	-0.4951	.1324	13.99	0.0002
GP	6.2593	2.0571	9.26	0.0023
UNEMP	5.3274	2.3277	5.24	0.0221

NOTE: Beta for AGI should be multiplied by 1/100,000 (10** -5). (X*X) represents chi-square. N =14,992.

TABLE 6
RESULTS OF FORM OF EQUATION TESTS

VARIABLE	BETA	S.E.	(X*X)	p-value
	Equation with two credit levels and adjusted for inflation - GP variable removed (p-value = 0.0000; R = 0.292; R*R = 0.085)			
Intercept	-3.3230	0.1949	290.61	0.0000
AGI	3.142	.216	212.39	0.0000
CHEKYES	0.5602	.1017	30.36	0.0000
FORMSCH	0.5210	.0962	29.36	0.0000
EAST	0.4807	.0915	27.62	0.0000
CONTPER	3.6633	.7592	23.28	0.0000
SOUTH	-0.5625	.1235	20.73	0.0000
REPVOTE	-3.2102	.7337	19.14	0.0000
SENELEC	0.1785	.0862	4.29	0.0384
1982 Sample:	Equation with two credit levels and no inflation adjustment (p-value = 0.0000; R = 0.267; R*R = 0.071)			
Intercept	-3.7983	0.2453	239.77	0.0000
AGI	2.592	.516	25.26	0.0000
CHEKYES	0.8428	.2888	8.52	0.0035
	Equation with three credit levels and no inflation adjustment (p-value = 0.0000; R = 0.248; R*R = 0.062)			
Constant1	-4.1741	0.3757	123.42	0.0000
Constant2	-5.6302	.4464	159.07	0.0000
AGI	2.062	.507	16.54	0.0000
CHEKYES	0.7935	.2882	7.58	0.0059
FORMSCH	0.6883	.4125	2.78	0.0952
	Equation with two credit levels adjusted for inflation (p-value = 0.0000; R= 0.267; R*R = 0.071)			
Intercept	-3.7988	0.2453	239.75	0.0000
AGI	2.782	.553	25.29	0.0000
CHEKYES	0.8421	.2888	8.50	0.0035

NOTE: Beta for AGI should be multiplied by 1/100,000 (10** -5)

TABLE 6
RESULTS OF FORM OF EQUATION TESTS

Test for Meaningless Variables:

Sample	Variable	Chi-square	R before	R after
Overall	GP	7.76	0.295	0.296
1979-I	CHEKYES	4.06	0.277	0.279
1979-R	CHEKNO	4.89/4.90	0.255	0.277
1979-R	CHEKYES	4.26/4.31	0.277	0.279
1979-R	CONTPER	2.72	0.279	0.279

Note: 1979-I: inflation variable used; 1979-R: regional variables used. On CHEKNO and CHEKYES, left number is chi-square before CONTPER deleted, right number is after deletion.

The results in Table 6 indicate signs in the logit equation are the same and p-values are similar. The only difference in variables came in the inflation adjusted overall sample where UNEMP was added and the trichotomous dependent variable for 1982 where FORMSCH was added. Both UNEMP (5.24) in the overall sample and FORMSCH (2.78) in the 1982 sample had low chi-square values, indicating little increase in explanatory power. Therefore, unadjusted earnings were used for subsequent tests because of simplicity. As a separate test of the overall sample, GP was removed as a model variable to see if inflation has an impact separate from reducing the purchasing power of a given amount of AGI. Removing GP allowed the Senate election variable (SENELEC) to enter to model, took out unemployment (UNEMP) and slightly reduced the explanatory power of the inflation-adjusted model.

To evaluate whether any statistically significant

variables are meaningless (failed to add to explanatory power of model), all statistically significant overall Data Base sample variables with chi-square values less than ten and all significant yearly model variables with chi-square values less than five were tested for effect on R. If inclusion of the variable increased R the variable was kept; if not, the variable was dropped. As shown on Table 6, the charitable contribution variable (CONTPER) was dropped in the 1979 model using regions because CONTPER did not increase R. Dropping CONTPER reduced classification accuracy for the model slightly (63.0% to 62.6%); this was considered to be immaterial. No other variables were eliminated as meaningless.

Impact of Income on Political Giving

The adjusted gross income (AGI) variable is the only variable entering into each of the logistic regression models; moreover, it has the highest chi-square value of any variable in each of the equations. Schoenblum [1979] called the credit a tax windfall for wealthy political donors. The Treasury Department [P-H, 1984] and Boehm [1967] said that tax incentives unnecessarily restricted the tax base. Therefore, determining the impact of income on political giving is an important part of evaluating the effectiveness of tax credits for tax policy.

Three approaches were used to evaluate the impact

of income on political giving. One approach was to perform a chi-square test of independence between income level and frequency of taking the political contribution tax credit. Income categories used include less than $10,000, $10,000-12,000; $12,000-15,000; $15,000-$20,000; $20,000-30,000; $30,000-$50,000; $50,000-$100,000 and over $100,000. The second approach was to develop a logistic model of political giving without AGI (or FORMSCH since FORMSCH has a correlation coefficient with AGI of about 0.50). The third approach used descriptive statistics to show frequency of giving for three income ranges (over $10,000; over $30,000; over $100,000). Proportion of taxpayers in each income range are basically representative of the Data Base for both samples.

TABLE 7
IMPACT OF INCOME TESTS

Chi-Square Test of Frequency of Credit and Income Category

Sample	(X* X)	d.f.	p-value
Overall	553.827	7	0.000
1980	162.529	7	0.000
1981	173.916	7	0.000
1982	43.264	7	0.000

Comparison of Explanatory Power
1979 0.028/0.078=35.9% Overall 0.032/0.088=36.3%

NOTE: For Comparison of Explanatory Power, the percentage equals R-square for model without AGI and FORMSCH divided by power of model with AGI an FORMSCH

TABLE 7
IMPACT OF INCOME TESTS

Logit Models

VARIABLE	BETA	S.E.	(X*X)	p-value
Overall Sample with AGI and FORMSCH included (p-value = 0.0000; R = 0.296; R*R = 0.088)				
Intercept	-4.0764	0.2935	192.94	0.0000
AGI	2.512	.168	223.50	0.0000
CHEKYES	0.7379	.1135	42.24	0.0000
EAST	0.4864	.0922	27.81	0.0000
FORMSCH	0.5076	.0964	27.71	0.0000
CONTPER	3.6173	.7622	22.52	0.0000
SOUTH	-0.5294	.1246	18.05	0.0000
REPVOTE	-2.8535	.7466	14.61	0.0001
GP	5.6224	2.0187	7.76	0.0054
Overall Sample with AGI and FORMSCH excluded (p-value = 0.0000; R = 0.178; R*R = 0.032)				
Intercept	-3.8574	0.3906	97.53	0.0000
CONTPER	5.7708	.6567	77.23	0.0000
CHEKYES	0.7801	.1135	47.24	0.0000
EAST	0.4694	.0908	26.70	0.0000
SOUTH	-0.5356	.1294	17.13	0.0000
REPVOTE	-2.8325	.7545	14.10	0.0002
GP	7.4021	2.0178	13.46	0.0002
MOVEXP	1.7154	0.4977	11.18	0.0006
UNEMP	5.6611	2.2969	6.07	0.0137
1979 Sample with AGI and FORMSCH included (p-value = 0.0000; R = 0.0279; R*R = 0.078)				
Intercept	-1.6164	0.9390	2.96	0.0852
AGI	2.582	.336	59.04	0.0000
FORMSCH	0.4696	.1711	7.53	0.0061
GP	-20.3040	8.4005	5.84	0.0156
CHEKNO	-0.4771	0.2091	5.20	0.0225
CHEKYES	0.3875	.1923	4.06	0.0439
1979 Sample with AGI and FORMSCH excluded (p-value = 0.0000; R = 0.0166; R*R = 0.028)				
Intercept	-0.8046	0.9225	0.76	0.3831
CONTPER	5.2467	1.4036	13.97	0.0002
CHEKNO	-0.5259	0.2060	6.51	0.0107
GP	-21.1321	8.3294	6.44	0.0122
CHEKYES	0.4326	0.1878	5.30	0.0213

NOTE: Beta for AGI should be multiplied by 1/100,000 (10** -5), Beta for MOVEXP should be multiplied by 1/10,000 (10** -4), (X*X) represents chi-square, (R*R) represents r-square, S.E. represents standard error, d.f. represents degrees of freedom.

TABLE 7
IMPACT OF INCOME TESTS

Frequency of Jointly Making Donation and Taking Credit

	AGI >= $10,000		AGI>=$30,000	
	1979	Overall	1979	Overall
Percentage of Sample Size	55.3%	59.2%	11.7%	15.4%
Percentage of Data Base	56.1	59.2	11.9	15.4
Percent of Group who Donated	6.7	7.4	11.2	12.3
Percent of Total Donors	82.4	86.8	31.4	37.7
Percent of Taxpayers not in Category Donating	1.7	1.6	3.4	3.7

	AGI >= $100,000	
	1979	Overall
Percentage of Sample Size	0.4%	0.5%
Percentage of Data Base	0.5	0.5
Percent of Group who Donated	47.4	37.7
Percent of Total Donors	4.4	3.2
Percent of Taxpayers not in Category Donating	4.3	4.9

NOTE: Taxpayers not in category donating equalled total donors in sample multiplied by (one minus percent of total donors) divided by total sample size multiplied by (one minus percent of sample size). Percentage of sample taking the credit: 4.4% for 1979, 5.0% for the overall Data Base sample. Percentage of Data Base row included for comparison with Percentage of Sample Size.

Three conclusions appear from the results of Table 7. First, there is a very strong link between income and political giving. Over 10% of taxpayers making over $30,000 and over 30% of taxpayers with AGI over $100,000 take the credit for political contributions while less than 2% of taxpayers with income under $10,000 make such gifts and take a credit. Second, statistically significant logistic regression equations could be developed for the political contribution tax credit even without using the AGI or FORMSCH variables. Moreover,

the overall Data Base sample added two new variables (MOVEXP, UNEMP) and no new variables were necessary in the 1979 equation. Third, the explanatory power of the logit equation without AGI or FORMSCH was approximately 35% of the power with AGI and FORMSCH included.

Chi-Square Tests for the Relationship Between Year and Credit

With samples of 15,000 observations taken for the overall Data Base for each of the preliminary run, main logit test and test of model run, chi-square tests for the relationship between taking a political contribution credit and the year the credit was taken can be prepared for each of three independent samples. As shown in Table 8, all samples had a significant relationship between year and frequency of taking the credit. The significance level was 0.10 for all tests.

One possible explanation for a difference between years is a national election effect. If a national election effect occurred, frequency of credit for 1980 and 1982 combined should significantly exceed frequency of credit for 1979 and 1981 combined. In all three samples, frequency of taking credit in even=numbered years exceeds frequency in odd-numbered years ("off years"); the difference is significant for two of the three samples. A variation of the national election effect is the presidential election effect, where the

frequency of taking a credit is significantly greater in a presidential election year, such as 1980, than in other years, such as 1979, 1981 or 1982. In five of nine overall comparisons and five of six comparisons between 1980 and an odd-numbered year, the frequency of taking a credit in the presidential election year significantly exceeds the frequency of taking the credit in other years.

Another possible explanation for different frequencies of giving between years is increased awareness of the political contribution credit (a learning effect). This explanation would require a significant increase in frequency of using the credit from one year to the next year. In six of 18 comparisons, a significant increase in taking the credit occurs from one year to the next (Table 8). However, three of the six significant increases involved 1979 and 1980, where a national election or Presidential election effect also could explain the increase. Moreover, in two cases (both involving 1980 and 1981) a significant decrease occurred from one year to the next. Therefore, learning theory has little support.

TABLE 8
CHI-SQUARE TEST BETWEEN YEAR AND CREDIT

1979-1982 Period			National Election Effect		
Sample	Chi-Square	p-value	Sample	Chi-Square	p-value
1	14.358	0.002	1	11.986	0.001
2	7.551	0.056	2	2.246	0.134
3	20.555	0.000	3	10.869	0.001

Comparisons by Individual Year

1979 versus 1980				1979 versus 1981			
Sample	(X*X)	Sign	p-value	Sample	(X*X)	Sign	p-value
1	13.698	+	0.000	1	2.227	+	0.136
2	3.161	+	0.075	2	3.454	+	0.063
3	20.232	+	0.000	3	7.336	+	0.007

1979 versus 1982				1980 versus 1981			
Sample	(X*X)	Sign	p-value	Sample	(X*X)	Sign	p-value
1	2.488	+	0.115	1	4.962	-	0.026
2	6.172	+	0.013	2	0.007	+	0.934
3	0.978	+	0.328	3	3.254	-	0.071

1980 versus 1982				1981 versus 1982			
Sample	(X*X)	Sign	p-value	Sample	(X*X)	Sign	p-value
1	0.362	-	0.547	1	0.454	+	0.500
2	1.869	+	0.172	2	1.732	+	0.188
3	2.612	-	0.106	3	0.383	-	0.536

NOTE: A positive sign shows an increased frequency from one year to the subsequent year. (X*X) represents chi-square. All tests have one degree of freedom (1 d.f.) except the 1979-1982 test, which has 3 d.f.

Summary

Overall year/credit effect significant three of three times. National election effect significant two of three times. Presidential election effect significant five of nine times, correct sign (+ 79/80,- 80/81) each time. Learning curve effect significant six of 18 times in correct direction, two of 18 times in incorrect direction.

Multicollinearity

Multicollinearity is present if independent variables are collinear (correlated). Although the large sample size reduced the risk of multicollinearity,

the problem could still exist if two or more variables were redundant. Three procedures were used to determine if multicollinearity existed. Diagnostics proposed by Belsley, Kuh and Welsch [1980] may be the most sophisticated at finding collinearities between three or more independent variables. Belsley, Kuh and Welsch had two diagnostic tests: (1) condition indices, an index between maximum and minimum singular values, and (2) variance decomposition proportion (effect of a singular value on each variable). If both a high condition index (over 30) and a variance decomposition problem (singular value affects at least two variables by over 0.5) occur, then collinearity is a problem.

Chatterjee and Price [1977] suggested a second procedure, the variance inflation factor (VIF). The VIF, which is based on the inverse of the correlation matrix, approaches infinity as R approaches one. Chatterjee and Price said that a VIF greater than ten would indicate that multicollinearity is affecting estimation. Finally, the correlation matrix provides evidence of severe multicollinearity if the absolute value of correlation coefficients exceeds 0.9 and signals potential multicollinearity problems if the absolute value of coefficients is between 0.4 and 0.9. Gordon [1974] recommended eliminating one variable or running separate equations comparing the effect of

collinear variables where collinearity existed. Schaefer [1986] indirectly accepted the use of OLS diagnostics (such as VIF, condition indices or correlation coefficients) for logistic regression.

Table 9 indicates that no samples had variance inflation factors over 10. Other than the inflation/region combination, there were no correlation coefficients with an absolute value over 0.9 in either the main run or the test of model run; however; many coefficients had an absolute value exceeding 0.4. Moderate (absolute value 0.4 to 0.9) collinearity occurred frequently for relationships between AGI and FORMSCH, between PERHS and SOUTH, between PERHS and REPVOTE, between PERHS and WEST, and between SOUTH and REPVOTE. Coefficients of about -0.65 existed between CHEKNO and CHEKYES in 1979. These relationships were watched closely in the Belsley-Kuh-Welsch tests for condition indices.

TABLE 9
RESULTS OF MULTICOLLINEARITY TESTS

Variance Inflation Factors

No factors over ten in any run (main or test of model); no factors over three in any run using GP (main or test of model):

Factors over three, main run with regional variables:

Overall	4.4511	SOUTH, 3.7397 PERHS
1979	4.3444	SOUTH, 3.8113 PERHS
1980	6.3552	SOUTH, 4.8890 PERHS
1981	4.7711	SOUTH, 4.0856 PERHS
1982	5.4319	SOUTH, 4.9387 PERHS

TABLE 9

RESULTS OF MULTICOLLINEARITY TESTS

Variance Inflation Factors

Factors over three, test of model run with regional variables:

Overall	4.4846 SOUTH,	3.7053 PERHS
1979	4.2488 SOUTH,	3.7106 PERHS
1980	6.5402 SOUTH,	4.8631 PERHS
1981	4.9634 SOUTH,	4.0245 PERHS
1982	5.9018 SOUTH,	5.1703 PERHS

Belsley-Kuh-Welsch Tests where Condition Index > 30

Period	Condition Index	Variable with Variance Decomposition Over 0.5
Main Run:		
1979-I	33.846	None
	68.756	GP (.6240), PERHS (.5151)
1979-R	83.181	PERHS (.9220)
1980-I	54.031	PERHS (.7957)
	71.937	GP (.9692)
1980-R	100.271	PERHS (.9385)
1981-I	33.605	None
	71.454	GP (.6051), PERHS (.5945)
1981-R	85.604	PERHS (.9482)
1982-I	47.170	PERHS (.7627)
	97.616	GP (.7979)
1982-R	105.604	PERHS (.9574), SOUTH (.5023)
Overall	90.825	PERHS (.9258)
Test of Model Run:		
1979-I	33.846	PERHS (.5006)
	68.024	GP (.6534)
1979-R	86.633	PERHS (.9258)
1980-I	54.610	PERHS (.7627)
	72.942	GP (.9761)
1980-R	101.071	PERHS (.9392)
1981-I	67.194	GP (.6324), PERHS (.6013)
1981-R	81.776	PERHS (.9569), SOUTH (.5005)
1982-I	52.240	PERHS (.7039)
	87.215	GP (.8055)
1982-R	106.961	PERHS (.9545), SOUTH (.5008)
Overall	90.300	PERHS (.9113)

NOTE: I following year (1979-1982) indicates inflation variable, R following year shows regional variables.

TABLE 9
RESULTS OF MULTICOLLINEARITY TESTS

Correlation Coefficients over 0.80 (absolute value)

CONTAGI/CONTHS	0.99464	- CONTHS	eliminated (1982)
SINVOTE/VOTEPER	0.99686	- SINVOTE	eliminated (1982)
GP /WEST	0.92970	- (1980)	inflation and regional
GP /EAST	-0.89651	- (1981)	variables were run
GP /EAST	-0.89916	- (1982)	separately for 1979-82

Correlation Coefficients between 0.40 and 0.80
(absolute value)

Main run:

AGI /FORMSCH	0.42636	(Overall), 0.42324 (1980)
	0.44415	(1981), 0.42903 (1982)
CHEKNO/CHEKYES	-0.64829	(1979)
GP /REPVOTE	0.42344	(1979)
PERHS /SOUTH	-0.71341	(Overall), -0.71505 (1979),
	-0.71435	(1980), -0.70872 (1981),
	-0.70965	(1982)
PERHS /REPVOTE	0.50527	(Overall), 0.56231 (1979),
	0.54816	(1980), 0.59218 (1981),
	0.59024	(1982)
PERHS /WEST	0.63725	(Overall), 0.63675 (1979),
	0.63175	(1980), 0.64085 (1981),
	0.61191	(1982)
SOUTH /REPVOTE	-0.60862	(Overall), -0.68947 (1979),
	-0.67849	(1980), -0.67514 (1981),
	-0.65689	(1982)

Test of model run:

AGI /FORMSCH	0.43675	(Overall), 0.45181 (1979),
	0.43907	(1980), 0.41714 (1981),
	0.58078	(1982)
CHEKNO/CHEKYES	-0.66601	(1979)
GP /REPVOTE	0.40226	(1979)
PERHS /SOUTH	-0.71219	(Overall), -0.71115 (1979),
	-0.70567	(1980), -0.70942 (1981),
	-0.72147	(1982)
PERHS /REPVOTE	0.51240	(Overall), 0.53709 (1979),
	0.54064	(1980), 0.58244 (1981),
	0.62373	(1982)
PERHS /WEST	0.63656	(Overall), 0.63996 (1979),
	0.63651	(1980), 0.64124 (1981),
	0.63430	(1982)
SOUTH /REPVOTE	-0.60994	(Overall), -0.67557 (1979),
	-0.67850	(1980), -0.68139 (1981),
	-0.69297	(1982)

The correlation between GP and regional variables (EAST, SOUTH, WEST) was a problem except for the overall

sample. For 1979, the condition index between region and inflation was 2,912,486 and variance decomposition factors for GP, EAST, SOUTH and WEST were all 1.000. For 1980, the coefficient between GP and WEST was over 0.929. Correlation coefficients for GP and EAST were between -0.895 and -0.900 for 1981 and 1982. The approach used for 1979-1982 [Gordon, 1974] was to run separate equations, one using GP but not REG, the other using REG but not GP. As shown in Table 10, using regional variables gives greater explanatory power and classification accuracy than does use of GP for tests (1979-1982, both main and test of model runs) except for the 1979 main logit test, where explanatory power and classification accuracy are virtually equal and 1981 and 1982 classification accuracy on the test of model, where accuracy differed by less than one percent.

Table 9 indicates six situations where the condition index is over 30 and variance decomposition for two variables exceeds 0.5000. Five of these situations need no further attention because the stepwise procedure left both variables out of the model. Table 10 shows results of the one case, 1979 main logit test using inflation, where one collinear variable (GP) was in the model. Taking out GP did not affect selection of other model variables, did not allow collinear variable PERHS to be included in the model,

and reduced the explanatory power of the 1979 main logit model using inflation. Therefore, GP stayed in the model.

TABLE 10
EFFECT OF MULTICOLLINEARITY ON LOGIT EQUATIONS

Comparative Performance of Regional Variables and Inflation Variable - Yearly Samples, 1979-1982

Explanatory Power (Inf - Inflation, Reg - Regional)

	Main Run				Test of Model Run			
	1979	1980	1981	1982	1979	1980	1981	1982
Inf	0.078	0.054	0.084	0.071	0.125	0.073	0.067	0.093
Reg	0.078	0.061	0.088	0.071	0.127	0.078	0.070	0.094

Classification Power

	Main Run				Test of Model Run			
	1979	1980	1981	1982	1979	1980	1981	1982
Inf	0.630	0.671	0.663	0.732	0.696	0.647	0.636	0.780
Reg	0.626	0.678	0.668	0.732	0.708	0.667	0.630	0.772

1979 Logit Equation (Inflation) with and without GP variable

Equation with GP variable (p-value = 0.0000; R = 0.279; R*R = 0.078)

VARIABLE	BETA	S.E.	(X*X)	p-value
Intercept	-1.6164	0.9390	2.96	0.0852
AGI	2.582	.336	59.04	0.0000
FORMSCH	0.4696	.1711	7.53	0.0061
GP	-20.3040	8.4005	5.84	0.0156
CHEKNO	-0.4771	0.2091	5.20	0.0225
CHEKYES	0.3875	.1923	4.06	0.0439

Equation without GP variable (p-value = 0.0000; R =0.275; R*R=0.076)

Intercept	-3.8506	0.1972	381.27	0.0000
AGI	2.576	.334	59.53	0.0000
FORMSCH	0.4078	.1755	5.40	0.0202
CHEKNO	-0.4669	.2090	4.99	0.0255
CHEKYES	0.4272	.1915	4.98	0.0257
CONTPER	3.0151	1.7296	3.04	0.0813

Tests of the Logistic Regression Equations

Two tests of the logistic regression equations given in Table 4 were made. One test compared

classification accuracy of the main logit model against models that no taxpayers will take the credit (CRED = 0 for all taxpayers). A second test obtained another sample with observations independent of the preliminary and main samples. Results for both a best model through stepwise regression and the model from the main sample were compared. Because of computer problems, only 871 observations were available for 1982.

Results of the classification accuracy tests are found in Table 11. The no credit model is clearly more accurate in classification because of the very low percentage of taxpayers (about 5%) taking the credit throughout the period tested. Classification accuracy for the logit equations shown in Table 11 range from 63% in 1979 to 73% in 1982.

Results from the test of logit equation runs are found in Table 11. The main run model included between 50% (1980 and 1981) and 86% (overall Data Base) of the model variables of the best model for each period. Each main logit model except 1981 included one or two variables which were not significant in the test model. The explanatory power of the main logit model compared to the best model for the test sample, defined as (R*R) for the main model divided by (R*R) for the best model, ranged from 84% in 1982 to 100% for the overall sample. Nevertheless, explanatory power for the Table 4

equations ranged between 0.069 and 0.124 for the sample observations.

TABLE 11

RESULTS OF TESTS OF LOGIT EQUATIONS

VARIABLE	BETA	S.E.	(X*X)	p-value
Overall Sample: Best model for sample (n = 14,992; p-value=0.0000; R=0.302; R*R=0.091)				
Intercept	-5.7117	0.3371	287.03	0.0000
AGI	3.052	.175	305.42	0.0000
CHEKYES	0.7672	.1174	42.67	0.0000
EAST	0.5085	.0823	38.19	0.0000
GP	10.5327	2.0090	27.49	0.0000
FORMSCH	0.3516	0.0937	14.08	0.0002
CONTPER	2.8890	.8091	12.75	0.0004
UNEMP	5.1191	2.1646	5.59	0.0180
Model based on main sample (p-value = 0.0000; R = 0.302; R*R = 0.091)				
Intercept	-4.8939	0.2993	267.31	0.0000
AGI	3.051	.174	306.71	0.0000
CHEKYES	0.7573	.1165	42.26	0.0000
GP	10.4615	2.0156	26.94	0.0000
EAST	0.4269	0.0934	20.88	0.0000
FORMSCH	0.3479	.0938	13.75	0.0002
CONTPER	2.9103	.8068	13.01	0.0003
REPVOTE	-1.6890	.7404	5.20	0.0225
SOUTH	-0.2558	.1196	4.57	0.0325
1979 Sample (Regional factors): Best model for sample (n =4,600; p-value = 0.0000; R = 0.357, R*R = 0.127)				
Intercept	-4.9489	0.2026	596.82	0.0000
AGI	3.069	.342	80.37	0.0000
CHEKYES	1.2449	.1584	61.76	0.0000
EAST	0.5022	.1609	9.74	0.0018
HCHAIR	0.3608	.1630	4.90	0.0268
CONTPER	3.1754	1.6801	3.57	0.0588
FORMSCH	0.3504	0.1855	3.57	0.0589
Model based on main sample (p-value = 0.0000; R = 0.352; R*R = 0.124)				
Intercept	-4.5611	0.2491	335.21	0.0000
AGI	3.081	.342	81.25	0.0000
CHEKYES	1.0433	.2262	21.27	0.0000
EAST	0.5709	.1721	11.00	0.0009
FORMSCH	0.4035	.1811	4.96	0.0259
CHEKNO*	-0.3141	.2547	1.52	0.2175
WEST*	0.1521	.2073	0.54	0.4631

TABLE 11
RESULTS OF TESTS OF LOGIT EQUATIONS

VARIABLE	BETA	S.E.	(X*X)	p-value
1979 Sample (Regional factors):				
Best model for sample (n =4,600; p-value = 0.0000; R = 0.354, R*R = 0.125)				
Intercept	-2.5401	0.9986	6.47	0.0110
AGI	3.092	.340	82.56	0.0000
CHEKYES	1.2730	.1576	65.21	0.0000
GP	-20.9904	8.9511	5.50	0.0190
HCHAIR	0.3500	0.1633	4.59	0.0321
FORMSCH	0.3590	.1855	3.75	0.0529
CONTPER	3.0541	1.6692	3.35	0.0673
Model based on main sample (p-value = 0.0000; R = 0.352; R*R = 0.124)				
Intercept	-1.8859	0.9932	3.61	0.0576
AGI	3.107	.339	83.90	0.0000
CHEKYES	1.0804	.2254	22.98	0.0000
GP	-23.1448	8.9195	6.73	0.0095
FORMSCH	0.4137	0.1811	5.22	0.0224
CHEKNO*	-0.3072	.2545	1.46	0.2275
1980 Sample: Best model for sample (n = 4,697; p-value = 0.0000; R = 0.279; R*R = 0.078)				
Intercept	-4.0793	0.1627	628.67	0.0000
AGI	2.650	.293	81.98	0.0000
FORMSCH	0.6524	.1602	16.59	0.0000
EAST	0.4742	.1388	11.68	0.0006
HCHAIR	0.3311	.1341	6.09	0.0136
Model based on main sample (p-value = 0.0000; R = 0.264; R*R = 0.070)				
Intercept	-3.6955	0.1402	694.93	0.0000
AGI	2.617	.292	80.39	0.0000
FORMSCH	0.6020	.1628	13.68	0.0002
CONTPER*	2.4989	1.6520	2.29	0.1304
SOUTH*	-0.1372	0.1390	0.98	0.3233

NOTE: Beta for AGI should be multiplied by 1/100,000 (10** -5), * by variable name means variable is insignificant. S.E.-standard error, (X*X) is chi-square, (R*R) is approximate explanatory power.

TABLE 11
RESULTS OF TESTS OF LOGIT EQUATIONS

VARIABLE	BETA	S.E.	(X*X)	p-value
1981 Sample: Best model for sample (n = 4,700; p-value = 0.0000; R = 0.264; R*R = 0.070)				
Intercept	-4.2571	0.1763	583.03	0.0000
AGI	2.244	.289	60.47	0.0000
EAST	0.7432	.1388	28.56	0.0000
HCHAIR	0.5602	.1479	14.34	0.0002
FORMSCH	0.3798	.1670	5.17	0.0229
CONTPER	3.3553	1.5486	4.69	0.0303
Model based on main sample (p-value = 0.0000; R = 0.262; R*R = 0.069)				
Intercept	-4.2614	0.1764	583.64	0.0000
AGI	2.299	.287	64.07	0.0000
EAST	0.7409	.1385	28.62	0.0000
HCHAIR	0.5573	.1478	14.21	0.0002
FORMSCH	0.4393	.1636	7.21	0.0073
1982 Sample: Best model for sample (n = 871; p-value = 0.0000; R = 0.307; R*R = 0.094)				
Intercept	-4.1390	0.2966	194.68	0.0000
AGI	3.747	.676	30.70	0.0000
EAST	0.9007	.3329	7.32	0.0068
Model based on main sample (p-value = 0.0000; R = 0.281; R*R = 0.079)				
Intercept	-3.9476	0.2754	205.52	0.0000
AGI	3.536	.671	27.76	0.0000
CHEKYES*	0.4250	.3342	1.62	0.2035

NOTE: * next to a variable means variable is insignificant

Summary of Test of Logit Equations

	1979	1980	1981	1982	OVERALL
Proportion of model variables from main sample also in best model	4/6	2/4	4/6	1/2	6/7
	67%	50%	67%	50%	86%
Number of model variables from main sample not used in best model	2	2	0	1	2
Explanatory power (R*R) of main model compared to (R*R) of best model	99%	90%	99%	84%	100%

TABLE 11
RESULTS OF TESTS OF LOGIT EQUATIONS

Classification Accuracy of Logit Model versus No Credit Model

	1979	1980	1981
Logit model (Table 4)	63.0%	67.8%	66.8%
No credit taken model	95.6	93.9	95.1
	1982	OVERALL	
Logit model (Table 4)	73.2%	68.7%	
No credit taken model	95.3	95.0	

Additional Discussion of Some Results

Four results of the main computer analysis and test of logistic regression models deserve further consideration. These items are: (1) the difference between periods of the number of model variables included in each logit equation, (2) the negative beta (coefficient) found for checking the "no" box on the Presidential Campaign Fund (CHEKNO), (3) the existence of a negative beta for the interaction of voting frequency and support of Republican congressmen (REPVOTE), and (4) the presence of a negative beta for inflation (GP) in the 1979 model and positive beta for GP in the overall Data Base sample model.

The number of variables included in the logistic models (Table 4) ranged from two in 1982 to eight in the overall model. Since explanatory power is roughly the same for each period, the likely explanation for the extra variables in the equations with larger sample sizes is that the larger sample size allowed some

variables with little additional explanatory power to be statistically significant such as those tested in the meaningless variable tests (Table 6).

For the main logit run (Table 4), CHEKNO was statistically significant with a negative coefficient instead of the predicted positive coefficient. The most reasonable explanation for the difference is that the research hypothesis was not designed to consider the possibility that the taxpayers unmotivated by politics would check the "no" box rather than leaving both boxes unchecked. This behavior of checking the "no" box out of lack of political interest, the opposite of the civic-mindedness motive for checking the "yes" box, apparently was more common than checking "no" out of active opposition to Federal funding of presidential campaigns.

The negative coefficient for REPVOTE, the voting frequency- Republican vote surrogate, defies easy explanation. This counterintuitive result may best be viewed as an indicator of how imperfect state-based surrogate variables can be in estimating individual behavior.

There is no easy explanation for the change of signs for GP from 1979 to the Overall Data Base sample (Table 4). Perhaps interaction between inflation and regional variables, though much less severe than in the

individual years, may have produced the positive sign in the overall sample. Alternatively, this result could again indicate how imperfect state-based variables are in estimating behavior of individual taxpayers.

Summary of Major Results

Some of the major results from the logit model part of the study were: (1) a statistically significant logistic regression model could be developed for each period tested, (2) the model was robust as to whether a dichotomous or trichotomous dependent variable was used and as to whether AGI was inflation-adjusted, (3) the explanatory power of the models were low (between 0.06 and 0.10), and (4) income was a important factor in all logit equations, other factors which were also frequently significant included number of forms and schedules, northeast regional variable and checking "yes" box on the checkoff provision.

Some of the major results from the impact of income part of the study include: (1) taxpayers with incomes (AGI) over $30,000 were more likely to donate than those with AGI under $30,000, and (2) although a statistically significant logit equation could be developed without income or number of forms and schedules, the explanatory power of such an equation was only 36% of the Table 4 equations.

Some of the major results from testing the logit

equations were: (1) the models developed on one sample kept over 90% of their explanatory power when tested on an independent sample (except for 1982), and (2) classification accuracy for the models averaged about 65-70% and was lower than for a model assuming no taxpayers took the credit.

Some other major results of the study include: (1) the frequency of taking a credit varied between years, possibly because of either a national election effect or a presidential election effect, and (2) the AY Data Base was representative of the American population in regard to state of filing for 1979 and 1980.

V. CONCLUSIONS, ASSUMPTIONS AND DIRECTIONS

Conclusions and Implications

The development of a statistically significant model for taking the political contribution tax credit provides a starting point for understanding why people jointly made political contributions and took the political contribution tax credit. This model also shows that it may be possible to develop models of personal characteristics and environmental sensitivities for other tax code provisions.

The logit model developed from the main sample (Table 4) was somewhat successful (except in 1982) when tested for explanatory power against an independent sample (Table 11). Also, tests showed that the model was insensitive to whether the model had a dichotomous or trichotomous dependent variable and to whether income was adjusted for inflation. These tests provide additional evidence of reasonableness of the main logit model.

The low explanatory power of the model shows that there is much to learn about why people jointly make political donations and take a tax credit for doing so. The low power also indicates that there are limits on the ability of tax return-based data base to study personal characteristics of taxpayers. Some possible reasons for the low explanatory power include: (1)

absence of or imperfect state-based surrogates for important variables such as voting record or other political activity of voter, (2) inability to find measures of peer pressure, desire to obtain access to or favors from a politician or attractiveness of the candidate to the taxpayer.

The AY Data Base representativeness tests provide evidence that the data base is representative of geographic location of tax return filing for 1979 and 1980. Although not conclusive of overall representativeness of the AY Data Base, the test holds encouraging results for tax researchers using the AY Data Base in linkable panel form.

The strong association between income level and taking the political contribution tax credit indicates that putting the tax incentive into credit form did not remove the tendency of high-income taxpayers to be more likely than low-income taxpayers to jointly make political donations and take a credit for doing so. The association also suggests that the credit may have been damaging vertical equity in the federal tax system. In addition, the presence of the credit in the tax code slightly damaged revenue adequacy and simplicity. The low frequency of taking the credit appears to indicate that the credit did not greatly increase the number of taxpayers making political contributions. Clearly, the

political contribution tax credit was flawed.

A counterargument justifying the political contribution tax credit could still be made from either of two viewpoints. First, since a statistically significant giving model could be developed without the presence of the AGI variable, at least part of the motive behind political giving and taking the credit may be ideological concerns or civic-mindedness. Second, the major systems for political fund-raising presently available or considered, private funding or direct governmental funding have flaws of their own. Private funding create the risk of money providers having undue influence on candidates and force candidates to spend large amounts of valuable campaign time raising funds. Governmental funding appears to be solidly opposed by the American public and may create a barrier to non-incumbents by taking away one opportunity which the challenger has to offset the incumbency advantage of the present office holder, that of raising and spending more funds.

In a world of imperfect options for campaign financing, one could live with many of the flaws of the political contribution tax credit if it were effective at broadening the donor base. By modifying the credit to make it refundable and perhaps putting the credit on a sliding-scale basis like the child-care credit, damage

to vertical equity could be reduced. Improvement of quality of political debate by politicians less harried by fund-raising demands and protecting candidates from the demands of campaign fund providers may provide enough public policy benefits to justify the lost revenue and simplicity. However, the political contribution tax credit has not been effective at broadening the donor base. Less than 2% of taxpayers with income under $10,000 took the credit during the period test, and only about three and one-half percent of those making less than $30,000 took the credit. Given the level of general political activity in the United States, many of those who took the credit probably would have donated anyway. Therefore, the contention made by Adamany and Agree [1975] that political contribution tax incentives are irrevelant appears to be reasonable and the Tax Reform Act of 1986 appropriately eliminated the credit.

Assumptions and Limitations

Aldrich and Nelson [1984] listed these assumptions for probit and logit: (a) dependent variable has two outcomes (0 and 1) which are exclusive and exhaustive, (b) dependent variable varies based on independent variables (linear relationship is not necessary), (c) observations made on the dependent variable are statistically independent, (d) no exact linear

dependencies exist between independent variables (multicollinearity may be problematic because of unstable estimates and sampling error).

The assumption of only two outcomes for probit and logit has been relaxed. Fienberg [1980] pointed out that logit is capable of handling a trichotomous dependent variable and Mc Kelvey and Zavonia [1975] used trichotomous probit analysis in a study of Congressional voting behavior. The second logit assumption, that dependent variables vary based on independent variables, will be statistically tested but should not be a major concern, both because of the nature of the AY Data Base and because logit does not require a linear relationship between dependent and independent variables.

Using the linkable panel, which includes many of the same taxpayers over the four year period, poses a threat of repeated measures. Repeated measures on the same taxpayer may violate the third assumption of logit, that observations on the dependent variable are statistically independent. To minimize this violation, random subsamples of the data base, each with about 15000 of the 146747 returns available over the period, were used. Subsamples are expected to include fewer 1982 returns than returns from other years because the data base had about 9000 returns from 1982 and about 45000 returns from each of the other years.

Multicollinearity (collinear independent variables) could be a problem because of violation of the fourth assumption that no exact linear dependence exists between independent variables. Less severe multicollinearity may produce unstable estimates and sampling error. The results section of this paper describe efforts made to assess the degree of multicollinearity and reduce damage from multicollinearity.

Generalizing results beyond the 1979-1982 period, outside the United States or to political contributors not taking the political contribution tax credit can not be empirically supported by this research. Likewise, rejecting one of the null hypotheses here would provide evidence of association without necessarily providing evidence for cause and effect relationships.

Other major threats to internal validity come from omitted variables (such as occupation of the taxpayer), imperfect surrogates (such as using proportion of adults with four years of high school in the state of the taxpayer as a proxy for the education of the taxpayer), and missing data from the data base for age exemption for 1979-1981 and especially for presidential election campaign fund designation for 1980 and 1981.

Potential Directions for Future Research

Some ideas for future research include: (1)

studying personal characteristics of taxpayers taking other deductions or credits, such as the child care credit or energy credit; (2) if enough years of data containing the ELECT code become available, determining personal characteristics of taxpayers designating dollars to the Presidential Election Campaign Fund, (3) performing a cost-benefit analysis on the political contribution tax credit, (4) determining how much impact elimination of the political contribution credit had on donations of under $100 after 1986, (5) preparing a time-series regression on taking the political contribution credit for specific taxpayers as more years of linkable panel data become available, (6) studying additional years of data as they become available to see whether a national election or presidential election effect existed throughout the life of the credit.

BIBLIOGRAPHY

Abrams, B.A. and M.D. Schmitz, "The Crowding-out Effect of Governmental Transfers: Cross-Sectional Evidence," National Tax Journal, Volume 37 (October 1984), pp. 563-568.

Adamany, D.W., Financing Politics (Madison, WI: University of Wisconsin Press, 1969) 302 pp.

_____, Public Financing: A Cure for Slush Funds," Progressive, Volume 31 (October 1973), pp. 38-47.

_____, "New Faces in American Politics," Annals of the American Academy of Political and Social Scientists, (L.N. Cutler, L.R. Cohen and R.M. Witten, eds.), Volume 486 (July 1986), pp. 12-33.

_____ and G.E. Agree, Political Money (Baltimore, MD: Johns Hopkins University Press, 1975) 242 pp.

Aldrich, J.H. and F.D. Nelson, Linear Probability, Logit and Probit Models, Sage University Paper on Quantitative Applications in the Social Sciences Number 45 (Beverly Hills, CA: Sage Publications, 1984), pp. 40-60.

Alexander, H.E., Tax Incentives for Political Contributions (Los Angeles, CA: Citizens Research Foundation, 1961) 64 pp.

_____, Money in Politics (Public Affairs Press, 1972) 353 pp.

_____, Financing the 1972 Elections (Lexington, MA: Lexington Books, 1976) 743 pp.

_____, Financing the 1976 Elections (Washington, DC: Congressional Quarterly Press, 1979) 838 pp.

_____, Financing the 1980 Elections (Lexington, MA: Lexington Books, 1983) 524 pp.

_____, Financing Politics: Money, Elections, and Political Reform (Washington, DC: Congressional Quarterly Press, 1984, Third Edition) 232 pp.

_____ and L.L. Denny, Regulation of Political Finance (Berkeley, CA: Institute of Government Studies and Citizens Research Foundation, 1966) 71 pp.

Amemiya, Takeshi and J.L. Powell, "A Comparison of the Logit Model and Normal Discriminant Analysis When the Independent Variables are Binary," Studies in Econometrics, Time Series and Multivariate Statistics (Karlin, Samuel, Takeshi Amemiya and L.A. Goodman, eds.), (New York, NY: Academic Press, 1983), pp. 3-30.

Anderson, J.A., "Logistic Regression,"Classification Pattern Recognition and Reduction of Dimensionality: Handbook of Statistics: Volume 2 (Amsterdam, The Netherlands: North Holland Publishing Company, 1982) pp. 169-191.

Andrews. W.D., "Personal Deductions on an Ideal Income Tax," Harvard Law Review, Volume 86 (December 1972), pp. 309-385.

Belsley, D.A., E. Kuh and R.E. Welsch, Regression Diagnostics: Identifying Influential Data and Sources of Collinearity (New York, NY: John Wiley and Sons, 1980) 292 pp.

Bittker, B.L., "A 'Comprehensive Tax Base' as a Goal of Tax Reform," Harvard Law Review, Volume 80 (March 1967), pp. 925-985.

_____, "Charitable Contributions: Tax Deductions or Matching Grants?" Tax Law Review, Volume 28 (Fall 1972), pp. 37-63.

_____, "Income Tax Loopholes and Political Rhetoric," Michigan Law Review, Volume 71 (May 1973), pp. 1099-1128.

_____, "Income Tax Deductions, Credits and Subsidies for Personal Expenditures," Journal of Law Economics, Volume 16 (October 1973), pp. 193-213.

Bloom, Arnold, "Tax Results of Political Contributions," Boston University Law Review, Volume 36 (Spring 1956), pp. 170-189.

Blum, W.J. and Harry Kalven, Jr., The Uneasy Case for Progressive Taxation (Chicago, IL: University of Chicago Press, 1953) 121 pp.

Bureau of National Affairs - Tax Management, "Contributions for Candidates for Public Office," (Washington, DC: BNA, Volume 1, Series 1, 1971), pp. 41 [1971] 1-18.

Bureau of National Affairs - Tax Management, "Contributions for Candidates for Public Office," (BNA, Volume 1, Series 1, 1974), pp. 41 [1974] 1-9.

Boehm, R.T., "Taxes and Politics," Tax Law Review, Volume 22 (March 1967), pp. 369-438.

Brannon, G.M. and E.R. Morss, "The Tax Allowance for Dependents: Deductions versus Credits," National Tax Journal, Volume 26 (December 1973), pp. 599-609.

Chappell, H.W., "Campaign Contributions and Congressional Voting: A Probit-Tobit Model," Review of Economics and Statistics, Volume 64 (February 1982), pp. 77-83.

Charterjee, S.D. and B. Price, Regression Analysis by Example (New York, NY: John Wiley and Sons, 1977) 228 pp.

Civic Service, Inc., Attitudes toward Campaign Financing (St. Louis, MO: CSI, 1983) 11 pp.

Clotfelter, C.T., "Charitable Giving and Tax Legislation in the Reagan Era," Law and Contemporary Problems, Volume 48 (Autumn 1985), pp. 197-212.

Clowery, Grant and D.H. Skadden, An Introduction to the Arthur Young Tax Research Data Base (Ann Arbor,MI: University of Michigan, 1984) 122 pp.

Cohen, R.E., "Running Scared in Congress-- The Parties Go Head to Head over Money," National Journal, Volume 14 (November 13, 1982), pp. 1928-1933.

Commerce Clearing House, Standard Federal Tax Reporter, (Chicago, IL: CCH, 1987), Volume 1, pp. 10548-10580; Volume 3, pp. 23038-23049; Volume 8A, p. 61063.

Congressional Record, Senate, November 17, 1971 (Washington, DC: U.S. Government Printing Office, 1971), Volume 117, pp. 41758-41781.

Congressional Record, Senate, December 17, 1974 (U.S. Government Printing Office, 1974), Volume 120, pp. 40359-40360.

Congressional Staff Directory (Brownlee, C.B., ed.), "Senator's Assignments to Committees and Subcommittees," and "Representative's Assignments to Committees and Subcommittees," (Mount Vernon, VA: CSD, 1980-1983).

Conover, W. J., Practical Nonparametric Statistics (New York, NY: John Wiley and Sons, 1980, Second Edition) pp. 143-162, 257-260.

Dawson, P.A and J.E. Zinser, "Political Finance and Participation in Congressional Elections," Annals of the American Academy of Political and Social Scientists (H.E. Alexander, ed.), Volume 425 (May 1976), pp. 59-73.

Drew, Elizabeth, Politics and Money: The New Road to Corruption (New York, NY: MacMillan Publishing, 1983) 166 pp.

Elder, Peter, "Year-end Tax Law Contains Many Significant Items for Individuals and Corporations," Journal of Taxation, Volume 42 (March 1975), pp. 174-175.

Farrar, D.E. and R.R. Glauber, "Multicollinearity in Regression Analysis: The Problem Revisited," Review of Economics and Statistics, Volume 49 (February 1967), pp. 92-107.

Feinschreiber, Robert, "Political Contributions Now Provide Tax Benefits," Tax Adviser, Volume 3 (August 1972), pp. 452-456.

_____, "How to Choose Between the Deduction and the Credit for Political Contributions," Taxation for Accountants, Volume 8 (April 1972), pp. 246-248.

Feldstein, M.S., "On the Optimal Progressivity of the Income Tax," Journal of Public Economics, Volume 2 (November 1973) pp. 357-376.

_____, "The Income Tax and Charitable Contributions, Part I--Aggregate and Distributional Effects," National Tax Journal, Volume 28 (March 1975), pp. 81-99.

Fienberg, S.E., The Analysis of Cross-Classified Categorical Data (Cambridge, MA: MIT Press, 1980, Second Edition) 198 pp.

Forman, J.B. and L.L. Malysa, "Why Congress Should Retain the Political Contributions Tax Credit," Tax Notes, Volume 32 (July 14, 1986), pp. 169-173.

Fribley, J.M., ed.,"Campaign Financing and Democracy: Limiting Tax Benefits to the Affluent Contributor," Iowa Law Review, Volume 59 (December 1973), pp. 323-359.

Gonedes, N.J., "Evidence on the 'Tax Effects' of Inflation under Historical Cost Accounting Methods," Journal of Business, Volume 54 (April 1981), pp. 227-270.

Goldman, A.B., "Income Tax Incentives for Political Contributions: A Study of the 1963 Proposals," UCLA Law Review, Volume 11 (January 1964), pp. 212-258.

Gopoian, J.D., "What Makes PACs? An Analysis of the Allocation Patterns of Economic Interest Groups," American Journal of Political Science, Volume 28 (May 1984), pp. 259-281.

Gordon, Tavia, "Hazards in the Use of Logistic Function with Special Reference to Data from Prospective Cardiovascular Studies," Journal of Chronic Diseases, Volume 27, Number 3 (1974), pp. 97-102.

Gottschalk, Peter, "Deductions versus Credits Revisited," National Tax Journal, Volume 29 (June 1976), pp. 221-226.

Gujarati, D.N., Basic Econometrics (New York, NY: McGraw, Second Edition, 1988) pp. 293-309, 481-500.

Hanley, T.R. and G.G. Bauerfiend, "Tax Expenditure Budget," Tax Adviser, Volume 7 (October 1976), pp. 614-619.

Harrell, F.E., "The LOGIST Procedure," SUGI Supplemental Library User's Guide (Cary, NC: SAS Institute, Inc., 1986, Version 5 Edition) pp. 269-292.

Hasselbeck, J.R. and D.T. Stewart, "Political Contributions Mean Added Tax Benefits as a Result of the Tax Reform Act of 1974," Taxation for Accountants, Volume 15 (August 1975), pp. 110-112.

Heard, Alexander, The Costs of Democracy (Chapel Hill, NC, University of North Carolina Press, 1960) 493 pp.

Hensley, H.M. and Donald Jarrett, "Campaign Finance Acts--An Attempted Balance Between Public Interests and Individual Freedoms", Kansas Law Review, Volume 24 (Winter 1976) pp. 345-393.

Hochman, H.M. and J.D. Rodgers, "The Optimal Treatment of Charitable Contributions," National Tax Journal, Volume 30 (March 1977), pp. 1-18.

Hoff, R.P., "The Appropriate Role for Tax Credits in an Income Tax System," Tax Lawyer, Volume 35 (Winter 1982) pp. 339-365.

Jacobson, G.C.,"The Effects of Campaign Spending in Congressional Elections," American Political Science Review, Volume 72 (June 1978), pp. 469-491.

_____, Money in Congressional Elections (New Haven, CT: Yale University Press, 1980) 251 pp.

Kahn, C.H., Personal Deductions in the Federal Income Tax (Princeton, NJ: Princeton University Press, 1980) 233 pp.

Kaplan, R.L., "Taxation and Political Campaigns: Interface Resolved," TAXES: The Tax Magazine, Volume 53 (June 1975), pp. 340-351.

Karlinsky, S.S. and B.S. Koch, "Impact of Tax Law Complexity on Professionals," Journal of the American Taxation Association, Volume 9 (Fall 1987), pp. 24-34.

Kelley, Wayne, ed., "Presidential Contributors: Melange of Big Spenders," Congressional Quarterly Weekly Report, Volume 21 (September 22, 1973), pp. 2515-2517.

Kerlinger, F.N., Foundations of Behavioral Research (New York, NY: Holt, Rinehart and Winston, 1973, Second Edition), pp. 309-311, 659-665.

Long, J.E. and S.B. Caudill, "The Usage and Benefits of Paid Tax Return Preparation," National Tax Journal, Volume 40 (March 1987), pp. 35-46.

McGovern, George, "Campaign Contributions: A National Scandal," Brooklyn Law Review, Volume 39 (Summer 1972), pp. 157-160.

Mc Kelvey, R.D. and William Zavonia, "A Statistical Model for the Analysis of Ordinal Level Dependent Variables," Journal of Mathematical Sociology, Volume 4 (1975), pp. 103-120.

Milliron, V.C., "An Analysis of the Relationship Between Tax Equity and Tax Complexity," Journal of the American Taxation Association, Volume 7 (Fall 1985), pp. 19-33.

Minow, L.L., Chairman, The Committee on Campaign Costs in the Electronic Age, Voters' Time (New York, NY: Twentieth Century Fund, 1969) 64 pp.

Moore, M.L., B.M. Steece and C.W. Swenson, "Some Empirical Evidence on Taxpayer Rationality, Accounting Review, Volume 47 (March 1969), pp. 18-32.

Mortenson, E.R. and P.M. Winkleman, "Income Tax Consequences of Political Contributions," TAXES: The Tax Magazine, Volume 47 (March 1969), pp. 133-138.

Neter, John and William Wasserman, Applied Linear Statistical Models (New York, NY: Richard D. Irwin, 1974) pp. 87-89, 329-335, 339-351.

Nichols, David, Financing Elections: The Politics of an American Ruling Class (New York, NY: New Viewpoints, 1974) 191 pp.

O'Neil, C.J., J.M. Cathey and T.K. Flesher, "An Analysis of Ph.D. Dissertations in Taxation, 1977-1985," Issues in Accounting Education, Volume 3 (Spring 1988), pp. 120-130.

Oelbaum, Harold, "Proposed Regs Flesh out Rules on Political Contributions," Journal of Taxation, Volume 37 (December 1972), pp. 354-355.

Parker, J.E., Introduction to Taxation: A Decision-Making Approach (St. Paul, MN: West Publishing, 1985), p. 48.

Peel, F.W., Jr., "Tax Simplification: A Critique of the President's Proposals," South Texas Law Review, Volume 27 (October 1985), pp. 27-60.

Peters, E.A., "Political Campaign Financing: Tax Incentives for Small Contributors," Louisiana Law Review, Volume 18 (April 1958), pp. 414-436.

Polk, J.R., "The New Rules of Money in Politics," Working Papers for a New Society, Volume 3 (February 1975), pp. 31-36.

Prentice-Hall, "Revenue Act of 1978," P-H Federal Taxes, Volume 59, Bulletin 35 (Englewood Cliffs, NJ: P-H, 1978).

_____, "Tax Reform for Fairness, Simplicity and Economic Growth: The Treasury Report to the President--Volume 2," P-H Federal Taxes, Section 3, Bulletin 52 (P-H, 1984).

_____, "Complete Guide to the Tax Reform Act of 1986," P-H Federal Taxes, Bulletin 45 Extra (P-H, 1986), Section 112.

_____, Federal Taxes: Cumulative Changes Volume 1, Section 24, pp. 1-5 (P-H, 1987).

Press, S.J. and Sandra Wilson, "Choosing Between Logistic Regression and Discriminant Analysis," Journal of the American Statistical Association, Volume 73 (December 1978) pp. 699-705.

Reams, B.D. (editor), U.S. Revenue Acts: 1909-1950--The Legislative, Historical and Administrative Documents, Volume 50 (Buffalo, NY: Hein and Company, 1979).

_____, U.S. Revenue Acts: 1953-1972--Legislative Histories, Laws and Congressional Documents, Volume 34 (Hein and Company, 1985).

Reuben, R.C., "Reagan Reform Plan to Undermine Election Reform Advances of the '70's," Tax Notes, Volume 28 (September 16, 1985), pp. 1316-1318.

Rosen, R.E., ed., "Committee Action on Comprehensive Tax Reform," Tax Notes, Volume 29 (October 21, 1985), p. 291.

Rosen, R.E., ed., "Congressional Record: House Passes Ways and Means Tax Reform: Adds Resolution for 1987 Effective Date," Tax Notes, Volume 29 (December 23, 1985), p. 1275.

Rudney, Gabriel, "Charitable Deductions and Tax Reform: New Evidence on Giving Behavior," Tax Notes, Volume 26 (January 28, 1985), pp. 367-368.

Schaefer, R.F., "Alternative Estimators in Logistic Regression When the Data Are Collinear," Journal of Statistical Computation and Simulation, Volume 25 (1986), pp. 75-91.

Schiff, Jerald, "Does Government Spending Crowd out Charitable Contributions?" National Tax Journal, Volume 38 (December 1985), pp. 535-546.

Schoenblum, J.A., "From de facto to Statutory Exemption: An Analysis of the Evolution of Legislative Policy Regarding the Federal Taxation of Campaign Finance," Virginia Law Review, Volume 65 (April 1979), pp. 513-554.

Shriver, J., ed.,"Most Important Problem Trend: Public's Top Concern, 1980-1983," Gallup Report, Report 219 (December 1983), p. 5.

Slemrod, Joel, "Do We Know How Progressive the Income Tax Should Be?" National Tax Journal, Volume 36 (September 1983), pp. 361-369.

Silberman, J.I. and G.C. Durden, "Determining Legislative Preferences of the Minimum Wage: An Economic Approach," Journal of Political Economy, Volume 84 (April 1976), pp. 317-329.

Simons, H.C., Personal Income Tax (Chicago, IL: University of Chicago Press, 1938), p. 50.

Smith, Adam, An Inquiry into the Nature and Causes of the Wealth of Nations, Book 5, Chapter 2 (Edinburgh, Scotland: Adam and Charles Black, 1861, Fifth Edition; original edition 1776), pp. 367-411.

Sneed, J.T. "The Criteria for a Federal Tax Policy," Stanford Law Review, Volume 17 (April 1965), pp. 567-613.

Sorauf, F.J., What Price PACs (combined with Task Force on Political Committees, E.S. Muskie, chairman) (New York, NY: Twentieth Century Fund, 1984) 122 pp.

Statistical Abstracts of the United States (G.W. King, ed.), "Characteristics of the Labor Force, by State," "Percent of Voting-age Population Casting Ballots--States: 1976 to 1984," and "Years of School Completed by Region, Division and State," (Washington, DC: U.S. Bureau of the Census, 1980-1986).

Steurle, Eugene, R. McHugh and E. M. Sunley, "Who Benefits from Income Averaging?" National Tax Journal, Volume 31 (March 1978), pp. 19-32.

Strudler, Michael, General Description Booklet for 1982 Tax Model File (Washington, DC: Internal Revenue Service, Statistics of Income Division, 1983) 56 pp.

Surrey, S.S., "Tax Incentives as a Device for Implementing Governmental Policy: A Comparison with Direct Governmental Expenditures," Harvard Law Review, Volume 83 (February 1970), pp. 705-738.

_____ and P.R. McDaniel, "The Tax Expenditure Concept: Current Developments and Emerging Issues," Boston College Law Review, Volume 20 (January 1979), pp. 225-369.

Tate, John, "Aid to the Elderly: What Role for the Income Tax," University of Cincinnati Law Review, Volume 41, Number 1 (1972), pp. 93-115.

Tharp, R.R., ed., "Constitutional Standards for Encouraging Political Contributions," Iowa Law Review, Volume 55 (April 1970, pp. 981-997.

Thayer, George, Who Shakes the Money Tree? American Campaign Financing from 1789 to the Present (New York, NY: Touchstone Books, 1973) 320 pp.

Thirsk, W.R., "Giving Credit Where Credit is Due: The Choice Between Credits and Deductions under the Individual Income Tax in Canada," Canadian Tax Journal, Volume 28 (January-February, 1980), pp. 32-42.

Uhlander, C.J. and K.L. Scholzman, "Campaign Gender and Congressional Campaign Receipts," Journal of Politics, Volume 48 (February 1986), pp. 30-50.

Weidenbeck, P.J., "Paternalism and Income Tax Reform," Kansas Law Review, Volume 35 (Summer 1985), pp. 675-700.

_____, "Charitable Contributions: A Policy Perspective," Missouri Law Review, Volume 50 (Winter 1985), pp. 85-137.

Weiss, W.S., "Federal Tax Reform--The Need for Change in the Financing of Political Campaigns," Proceeds--National Tax Association Conference on Taxation, Volume 61 (September 1968), pp. 470-479.

Wertheimer, Fred, "Campaign Finance Reform: The Unfinished Agenda," Annals of the American Academy of Political and Social Scientists, Volume 486 (July 1986), pp. 86-102.

Winter, R.K., Jr. and F.R. Bolton, Campaign Financing and Political Freedom (Washington, DC: American Enterprise Institute, 1973) 27 pp.

Wolfson, M.A., "Tax Incentives and Risk-Sharing Issues in the Allocation of Property Rights: The Generalized Lease-or-Buy Problem," Journal of Business, Volume 58 (April 1985), pp. 159-171.

World Almanac and Book of Facts (H.F. Lane, ed.), "Consumer Survival Kit--Price Index (CPI-U by Region, City Size)," "Governors of States," "98th Congress--Senate," and "Population--Poverty (Income Distribution by Population Fifths)," (New York, NY: Newspaper Enterprise Association, 1980-1986).

Zimmerman, J.L., "Taxes and Firm Size," Journal of Accounting and Economics, Volume 5 (August 1983), pp. 119-150.

APPENDIX

Excerpts from General Description Booklet for 1982 Individual Tax Model File

The following information relates to the Tax Model File of 1982. The Linkable Tax Panel, which was used in this study, is a random subsample of 9,235 returns from the Tax Model File. Descriptions for the other years used was similar to the description here. The Data Base tape was in odd parity, SAS formatting, and had maximum block size of 32,767 bytes.

The following pages include a description of the Individual Tax Model Sample and descriptions of selected Data Base codes. The authors recommended the following articles for more detail on how the sample was processed.

BIBLIOGRAPHY

Durkin, T.M. and Otto Schwartz, "The SOI Quality Control Program," 1981 Proceedings, American Statistical Association, Section on Survey Research Methods, pp. 478-483.

Kilss, Beth and Fritz Scheuren, "Statistics from Individual Income Tax Returns: Quality Issues," 1982 Proceedings, American Statistical Association, Section on Survey Research Methods, pp. 271-277.

Sailer, Peter, Charles Hicks, David Watson and Dan Trevors, "Results of Coverage and Processing Changes to the 1980 Individual Statistics of Income Program," 1982 Proceedings, American Statistical Association, Section on Survey Research Methods, pp. 452-458.

Strudler, Michael, General Description Booklet for 1982 INDIVIDUAL TAX MODEL FILE, pp. 9-24.

INDIVIDUAL TAX MODEL SAMPLE DESCRIPTION

Sources of the Data

The data in the 1982 Individual Tax Model file were compiled from a stratified probability sample of unaudited Individual Income Tax Returns, Forms 1040, 1040A and 1040EZ filed by U.S. citizens and residents. The sample was designated at the National Computer Center and was processed in each of the ten Internal Revenue Service Centers during Calendar Year 1983. The total sample of 88,218 returns was selected from a population of 95,337,432 returns.

The estimates that could be obtained from this file are intended to represent all returns filed for Income Year 1982. While about 98 percent of the returns processed during 1983 were for Calendar Year 1982, a few were for prior years. Returns for prior years were used in place of 1982 returns received and processed after December 31, 1983. This was done on the assumption that the characteristics of returns not yet filed could best be represented by the returns for previous income years that were processed in 1983.

Analysis of prior-year returns indicated similar reporting characteristics, but income averages of prior-year returns were generally less than corresponding averages of current-year returns. This is due at least in part to the impact of inflation on individual incomes.

All returns processed during 1983 were subjected to sampling except tentative and amended returns. Tentative returns were not subjected to sampling because the revised returns may have been sampled later on, amended returns were excluded because the original returns had already been subjected to sampling.

Sample Criteria and Selection

Form 1040, 1040A and 1040EZ returns filed and processed into the Internal Revenue Service's Individual Master File System at NCC during 1983 were stratified, by computer, into sample strata based on: the presence or absence of a Schedule C (Profit or Loss from Business or Profession); presence of Schedule F; form used (Form 1040, 1040A and 1040EZ); size of adjusted gross income (or deficit) or largest of specific income (or loss) items; and sum of business plus farm receipts. Returns were then selected from the sample strata using the coding digits of the Social Security Number (SSN) at the rates ranging from 0.02 percent to 100 percent.

Method of Estimation

Sampling weights were obtained by dividing the computer population count of returns filed per sample stratum by the number of sample returns actually received for that stratum. All decimal sampling weights were then converted to "integer weighting factors," which were placed on each sample return. For example, if a decimal weight of 44.24 was computed for a stratum, 24 percent of the sample returns were systemically given a weighting factor of 45, and 76 percent a weight of 44. The file can be weighted with either decimal or integer weights.

Sampling Variability

The coefficient of variation is the standard deviation of an estimate expressed as a percent of the estimate. The standard deviation when added to and subtracted from the estimate provides the computed upper and lower limits within approximately two out of three estimates from similarly selected samples would be expected to fall. Coefficients of variation were computed using a sum-of-squares formula for selected frequency and amount estimates.

The sample estimate and an estimate of its standard error permit the construction of interval estimates with prescribed confidence that the interval includes the population value. For example, the amount estimate, X, of State income tax refunds is $4.371 billion and its coefficient of variation, CV(X), is 1.1%. The standard deviation (error) of the estimate, SE(X), is needed to construct the interval estimate and is the product of the estimate and its coefficient of variation:

$$\begin{aligned} SE(X) &= X * CV(X) \\ &= (\$4.371 \text{ billion} * 0.011) \\ &= \$0.048 \text{ billion} \end{aligned}$$

This SE(X) value is subtracted from and added to the estimate, X, to construct a 68 percent confidence interval estimate; that is, we have the interval:

$$(X - SE(X)) <= Y <= (X + SE(X))$$

where Y is the population value estimated by X. Base on these data, the interval estimate is from $4.323 billion ($4.371-$0.048) to $4.419 billion ($4.371+$0.048). A conclusion that the average estimate of State income tax refunds lies within an interval computed in this way would correct for approximately two-thirds of all possible similarly selected samples. To obtain this

interval with 95 percent confidence, multiply the SE(X) value by two. For these data the resulting interval would be from $4.275 billion to $4.467 billion.

Processing and Management of the Sample

While the sample was being selected, the selection process was monitored by applying prescribed sampling rates for each stratum to the population count for that stratum. A follow-up was required to reconcile differences between the actual number of returns selected and the expected number.

In transcribing and tabulating the information from the returns in the sample, checks were imposed to improve the quality of the resulting estimates. Incorrect or missing entries on the sampled record were altered during statistical editing to make them consistent with other entries on the returns and accompanying schedules. Data were also adjusted during editing in an attempt to achieve consistent statistical definitions. For example, a taxpayer may report director's fees on the other income ling of the Form 1040 return. If this situation had been detected during statistical editing, the amount of director's fees would have been entered into the salaries and wages field to the sample record.

Quality of the basic data abstracted was controlled at processing centers by means of a continuous verification system that used computer tests to check for mathematical errors and inconsistencies in the data. These tests were performed while the returns were still available to aid in resolving the error conditions. Prior to tabulation of the data at each IRS Data Center, additional computer tests were applied to each return record to determine the need for adjustments to the data. Also, as a further check on processing, the IRS Data Center conducted an independent reprocessing of a small subsample of the returns previously processed for the study.

Sample Codes

AGEX Age Exemptions:

[A]	No exemptions	00
[B]	One exemption (Primary only)	01
[C]	One exemption (Secondary only)	02
[D]	Two exemptions	03

ELECT Presidential Election Campaign Fund:

[A]	No boxes checked	00
[B]	One "yes" box checked	01
[C]	Two "yes" boxes checked	02
[D]	Only "no" boxes checked	08

STATE

Code	State Name	Code	State Name
1	Alabama	29	Nevada
2	Alaska	30	New Hampshire
3	Arizona	31	New Jersey
4	Arkansas	32	New Mexico
5	California	33	New York
6	Colorado	34	North Carolina
7	Connecticut	35	North Dakota
8	Delaware	36	Ohio
9	Dist. of Columbia	37	Oklahoma
10	Florida	38	Oregon
11	Georgia	39	Pennsylvania
12	Hawaii	40	Rhode Island
13	Idaho	41	South Carolina
14	Illinois	42	South Dakota
15	Indiana	43	Tennessee
16	Iowa	44	Texas
17	Kansas	45	Utah
18	Kentucky	46	Vermont
19	Louisiana	47	Virginia
20	Maine	48	Washington
21	Maryland	49	West Virginia
22	Massachusetts	50	Wisconsin
23	Michigan	51	Wyoming
24	Minnesota	52	APO/FPO
25	Mississippi	53	Puerto Rico
26	Missouri	54	CP:IO
27	Montana	54	Guam
28	Nebraska	54	Virgin Islands

VITA

Dan Wesley Meyer was born to L. Donald and Loretta L. Meyer on August 13, 1956 in Lafayette, Indiana. He attended public schools in Indiana, graduating in 1973. During 1973, his parents moved to Mississippi.

Dan graduated from the University of Mississippi in 1977, majoring in accounting and economics. He worked for two public accounting firms in the Memphis, Tennessee area from 1978 to 1980. He was licensed as a CPA in 1980 and has retained active membership in CPA societies.

Dan received a master's degree from Purdue University in 1982 and has attended the University of Missouri since 1983. During this period, he was the representative to the AAA Doctoral Consortium in 1985 and published an article in the DR Scott Lecture Series in 1986. He was a teaching assistant for seven years at Purdue and then Missouri.

In August 1988, Dan became an assistant professor of accounting at the University of Tennessee at Chattanooga. Dan is single and lives at 20 Mason Drive, Chattanooga, TN 37415. In addition to his parents, he has two brothers and a grandmother.

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