INCOME TAX EVASION AND THE EFFECTIVENESS OF TAX COMPLIANCE LEGISLATION, 1979-1982

DISSERTATION

Presented to the Graduate Council of the University of North Texas in Partial Fulfillment of the Requirements For the Degree of

DOCTOR OF PHILOSOPHY

By

John C. Stroope, B.A., M.A.
Denton, Texas
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The federal income tax system in the United States depends upon a high degree of voluntary compliance. The IRS estimates that the voluntary compliance level is declining and that this tax compliance gap cost the government an estimated $90.5 billion in 1981. Between 1979 and 1982, Congress made several changes in the tax laws designed to improve tax compliance. Extensive data was collected by the IRS for 1979 and 1982 through the random sample audits of approximately 50,000 taxpayers on the Taxpayer Compliance Measurement Program (TCMP), which is conducted every three years. During the period 1979 through 1982, Congress lowered the marginal tax rates, added some fairly severe penalties, for both taxpayers and paid return preparers, and increased information reporting requirements for certain types of income.

In this research, it was hypothesized that voluntary compliance should increase in response to lower marginal rates, a higher risk of detection due to additional reporting requirements, and increased penalties. Multiple regression analysis was employed to test these hypotheses,
using 1979 and 1982 TCMP data. Because of the requirements for taxpayer confidentiality, it was necessary for the IRS to run the data and provide the aggregate data results for the research.

The results provided insight into the effectiveness of tax compliance legislation. While the overall voluntary compliance level (VCL) increased from 1979 to 1982 by 1.53 percent, the VCL increase for taxpayers in high marginal rates was much smaller (.42 percent) than the overall increase. This is very inconsistent with the notion that high marginal rates are driving noncompliance, and suggests that marginal rates may not be strong determinants of compliance. Probably other factors, such as opportunity for evasion, may be more important. There was little change from 1979 to 1982 of the compliance of returns done by paid return preparers. Because of the timing of many TEFRA provisions (effective in 1983), further research for years after 1982 is needed.
ACKNOWLEDGMENT

While many persons rendered advice and encouragement for which I am grateful, special appreciation is due to those individuals in the Research Division of the Internal Revenue Service in Washington, D.C., who provided the data which was essential for this research. In particular, I want to thank William Lefbom, Nancy Bates and Kathy Chaurette. Without their efforts, this research would not have been possible.

I also received valuable assistance from William P. Wilson, Coordinator of Academic Computing, Gettysburg College, Gettysburg, Pennsylvania, and Katsuyuki K. Niiro, Associate Professor of Economics, also of Gettysburg College.
# TABLE OF CONTENTS

LIST OF TABLES .............................................. v

Chapter

I. INTRODUCTION ........................................  1
   Historical Background
   Tax Compliance Legislation

II. LITERATURE REVIEW .................................... 14
   Early Research on Tax Compliance
      The Underground Economy
      Theory Development
      Empirical Research on Tax Compliance
      Equity Theory
      Deterrence Theory
      Prospect Theory
      Taxpayer Compliance Measurement Program

III. RESEARCH DESIGN ...................................... 38
   The Independent Variables
   Research Methodology
   Limitations of TCMP Data

IV. FINDINGS OF THE RESEARCH .......................... 47

V. CONCLUSIONS AND IMPLICATIONS ........................ 60

APPENDIX A--SUMMARY OF TAX COMPLIANCE RESEARCH ... 63


APPENDIX C--SPSS INPUT INSTRUCTION .................. 67

APPENDIX D--FORMULA FOR T RATIO FOR COMPARABILITY OF REGRESSION COEFFICIENTS FROM DIFFERENT POPULATIONS .......... 72

BIBLIOGRAPHY .............................................. 74
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Voluntary Compliance Levels by Examination Class</td>
<td>5</td>
</tr>
<tr>
<td>3. Unreported Legal-Source Income for Individuals</td>
<td>12</td>
</tr>
<tr>
<td>5. Marginal Rate Categories</td>
<td>41</td>
</tr>
<tr>
<td>6. List of Variables in the Equation</td>
<td>47</td>
</tr>
<tr>
<td>7. Results of the 1979 Regression</td>
<td>48</td>
</tr>
<tr>
<td>8. Results of the 1982 Regression</td>
<td>49</td>
</tr>
<tr>
<td>9. Breakdown of Voluntary Compliance Level</td>
<td>52</td>
</tr>
</tbody>
</table>
CHAPTER I

INTRODUCTION

The success of the federal income tax system in the United States is dependent upon voluntary self-assessment and compliance with federal income tax laws and regulations. Responsibility for administration and enforcement of the income tax laws rests with the Internal Revenue Service (IRS). The IRS currently audits less than two percent of the approximately 100 million individual income tax returns filed each year. The percent of the total income tax liability voluntarily reported, according to IRS estimates, has been steadily declining for several years.

The IRS has asked Congress for assistance in heading off a downward trend in the voluntary compliance level. Congress has enacted various provisions, such as additional penalties and audit resources, with little empirical evidence to support the assumptions used to justify the action taken. There has been very little research on the tax compliance problem and taxpayer behavior. It appears to be a significant problem. IRS estimates of the annual tax revenue losses show an increase of this tax compliance gap from $30.9 billion in 1973 to $90.5 billion in 1981.
(IRS, 1983). The purpose of this proposed research is to determine what variables affect taxpayers' inclination to evade taxes and to assess the adequacy of legislative efforts to cope with the problem.

**Historical Background**

Nowhere in the world has an advanced industrial country relied on a personal income tax as much as has the United States. Prior to World War II, only a very small percent of the population paid any income tax. With the increased demand for revenue during the war years, exemptions were lowered and rates were raised and almost everyone was brought on the taxpayer rolls. At that time, there was considerable debate about the administrative feasibility of an income tax system covering almost everyone. Pechman (1983) noted that many public finance experts and even some high ranking officials in the IRS simply did not believe an individual income tax of almost universal coverage in a large country could ever be administered effectively. However, the system has remained as the backbone of the federal revenue system and the administrative cost of collecting such a massive amount of income tax has been only about 0.5 percent of the tax collected. Pechman (1983) concluded that this cost of enforcement relative to the amount of revenue collected has been lower in the United States than in most other industrialized nations. Some
TABLE 1
INCOME TAX GAP, 1973-1981
(In Billions of Dollars)

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</thead>
<tbody>
<tr>
<td>Legal sector tax gap, total</td>
<td>28.8</td>
<td>39.2</td>
<td>62.3</td>
<td>81.5</td>
</tr>
<tr>
<td>Corporation tax gap, total</td>
<td>3.5</td>
<td>4.6</td>
<td>6.4</td>
<td>6.2</td>
</tr>
<tr>
<td>Individual tax gap, total</td>
<td>25.3</td>
<td>34.6</td>
<td>55.9</td>
<td>75.3</td>
</tr>
<tr>
<td>Individual income tax liability reporting gap, total</td>
<td>23.8</td>
<td>32.2</td>
<td>50.6</td>
<td>68.5</td>
</tr>
<tr>
<td>Nonfilers' income tax liability (Net of pre-payments and credits)</td>
<td>0.9</td>
<td>1.4</td>
<td>2.0</td>
<td>2.9</td>
</tr>
<tr>
<td>Filers' income tax liability</td>
<td>22.9</td>
<td>30.8</td>
<td>48.6</td>
<td>65.6</td>
</tr>
<tr>
<td>Unreported income</td>
<td>17.3</td>
<td>24.2</td>
<td>38.4</td>
<td>52.2</td>
</tr>
<tr>
<td>Overstated business expenses and personal deductions</td>
<td>5.5</td>
<td>6.4</td>
<td>9.7</td>
<td>12.9</td>
</tr>
<tr>
<td>Illegal sector tax gap</td>
<td>2.1</td>
<td>3.4</td>
<td>6.3</td>
<td>9.0</td>
</tr>
<tr>
<td>TOTAL tax gap, legal and illegal sector</td>
<td>30.9</td>
<td>42.6</td>
<td>68.5</td>
<td>90.5</td>
</tr>
</tbody>
</table>


Analysts feel the record of success has been achieved because of a perception by taxpayers that the system is fair and equitable and because the U.S. has a long standing
tradition of being a law-abiding nation (Coppinger, 1983; Lewis, 1979; Pechman, 1983).

Unfortunately, there are indications that resentment of the tax system is increasing and compliance is declining, with revenue losses from noncompliance exceeding $90 billion in 1981 according to IRS estimates, as shown in Table 1. The IRS estimates of the level of voluntary compliance have always shown a steady decline, with the single exception of 1982, which actually showed a very small increase in voluntary compliance (from 91.0 percent in 1979 to 91.8 percent in 1982 as shown in Table 2).

While there are other indicators which tend to confirm these IRS estimates (such as opinion polls by Gallup and Harris, and measurement of the "underground" economy by economists using econometric techniques), it should be recognized that there is no way to confirm the accuracy of these IRS estimates. While some of the theories which have been suggested to explain noncompliance (and which are outlined in a later section of this paper) may lend some support to an increase in noncompliance at this particular time (in the 1970s), it should be recognized that it remains essentially unproven whether or not tax compliance is declining as rapidly as estimated, or even whether it is declining at all. Taxes are always going to be somewhat unpopular at best and tax compliance is never going to be
<table>
<thead>
<tr>
<th>Examination Classes</th>
<th>1976 (Percent)</th>
<th>1979 (Percent)</th>
<th>1982 (Percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grand Total</td>
<td>91.7</td>
<td>91.0</td>
<td>91.8</td>
</tr>
<tr>
<td>Nonbusiness (Total Positive Income)</td>
<td>93.7</td>
<td>93.0</td>
<td>93.4</td>
</tr>
<tr>
<td>1) TPI Under $10,000, 1040A Type</td>
<td>90.4</td>
<td>86.1</td>
<td>85.9</td>
</tr>
<tr>
<td>2) TPI Under $10,000, Non-1040A Type</td>
<td>83.4</td>
<td>72.8</td>
<td>73.2</td>
</tr>
<tr>
<td>3) TPI $10,000 - Under $25,000, Simple Type</td>
<td>97.2</td>
<td>95.1</td>
<td>94.4</td>
</tr>
<tr>
<td>4) TPI $10,000 - Under $25,000, Complex Type</td>
<td>92.3</td>
<td>88.5</td>
<td>87.4</td>
</tr>
<tr>
<td>5) TPI $25,000 - Under $50,000</td>
<td>94.8</td>
<td>94.7</td>
<td>94.4</td>
</tr>
<tr>
<td>6) TPI $50,000 and Over</td>
<td>92.7</td>
<td>92.9</td>
<td>93.9</td>
</tr>
<tr>
<td>Business (Total Gross Receipts)</td>
<td>77.2</td>
<td>74.7</td>
<td>73.7</td>
</tr>
<tr>
<td>7) Schedule C TGR, Under $25,000</td>
<td>72.9</td>
<td>66.3</td>
<td>64.3</td>
</tr>
<tr>
<td>8) Schedule C TGR, $25,000 - Under $100,000</td>
<td>81.5</td>
<td>75.0</td>
<td>72.4</td>
</tr>
<tr>
<td>9) Schedule C TGR $100,000 and Over</td>
<td>78.6</td>
<td>75.0</td>
<td>75.7</td>
</tr>
<tr>
<td>10) Schedule F TGR, Under $25,000</td>
<td>72.6</td>
<td>70.4</td>
<td>67.3</td>
</tr>
<tr>
<td>11) Schedule F TGR, $25,000 - Under $100,000</td>
<td>77.6</td>
<td>76.4</td>
<td>74.9</td>
</tr>
<tr>
<td>12) Schedule F TGR, $100,000 and Over</td>
<td>59.3</td>
<td>78.0</td>
<td>80.2</td>
</tr>
</tbody>
</table>

100 percent. This is nothing particularly new. Socrates commented, about 2,400 years ago, "When there is an income tax, the just will pay more taxes than the unjust, on the same amount of income" (Plato, The Republic, 1956, p. 619).

Tending to support the notion that tax compliance is not declining is the increased availability of information to the IRS because of computerization. Also supporting this would be the population movement away from rural America and the tendency for small farmers to be replaced by big companies. All estimates have shown voluntary compliance rates have been very low for the small farmers (refer to Table 2). Perhaps the 1982 estimate, showing a slight reversal of the trend of increasing noncompliance, reflects some of these factors.

Whatever the level of compliance is and even if the most conservative estimates of the size of the underground economy are correct, there is still a significant problem, one which is worthy of analysis. The problem has been the subject of very few empirical studies. The IRS began studying the compliance problem extensively by the late 1960s, and began devoting more resources to the tax compliance problem in the 1970s, seemingly in response to all of the publicity and studies on an underground economy that was alleged to be perhaps as large as 25 percent of the reported Gross National Product (GNP) (Simon and Witte,
1982). The magnitude of the tax compliance problem was
being brought to the attention of the President and
Congress as the IRS began pushing for more enforcement
tools and resources in order to enforce compliance.
Perhaps a brief review of tax compliance legislation will
be helpful to the reader.

Tax Compliance Legislation

Prior to 1976 there was a relatively simple structure
of penalties (virtually unchanged since the 1939 Internal
Revenue Code) designed to deter nonfiling, fraud, and
negligence. The Tax Reform Act of 1976 was the first major
tax law which made substantial changes in the structure of
the penalties and reporting requirements. Some penalties
were increased, interest charges were increased, and a new
penalty was added to require return preparers to file
information reports with the IRS for the first time.

The Revenue Act of 1978 lowered the maximum individual
income tax rate from 70 percent to 50 percent, effective
January 1, 1980.

The Economic Recovery Tax Act (ERTA) was signed into
law on August 13, 1981. It was the masterpiece of
President Reagan and the supply-side economists, calling
for across-the-board reductions in taxes and faster write-
offs of capital investment in order to inspire productivity
and economic growth. Among its provisions, it reduced all
individual income tax rates by 5 percent October 1, 1981, 10 percent effective July 1, 1982, and another 10 percent on July 1, 1983. The supply-siders expounded the hypothesis based on the Laffer curve that said the expansionary effects of the tax rate cuts would create so much new revenue that total revenues would not drop. Some Reagan advisors also felt that it would increase revenues because it would result in an increase in the level of voluntary compliance. ERTA also sought to deter non-compliance by those who would deliberately underreport income. A new penalty was added to the Internal Revenue Code (IRC) on underreported tax which was due to "negligent or intentional disregard of rules and regulations" (IRC Section 6653).

Revenues started declining rapidly as a result of ERTA, and one year later, on August 19, 1982, the Tax Equity and Fiscal Responsibility Act (TEFRA) was passed. Although it was estimated to raise $98.3 billion, the proponents of the bill stated it was not really a tax increase, as the additional revenues raised by the act would be the result of several provisions aimed at closing loopholes and enhancing taxpayer compliance with existing laws. In TEFRA Congress established two major new penalties. One of the penalties (IRC Section 6661) was directed at the taxpayer and assessed a 10 percent penalty
for substantial understatement of the tax liability. The other penalty was assessed on tax return preparers who "aid and abet" taxpayers in these substantial understatements (IRC Section 6701). This new penalty on return preparers was set at $1,000 per return. An exclusion from this penalty exists for cases in which the practitioner relied on "substantial authority" (IRC Section 6661). Some practitioners became very concerned that the IRS now intended to be routinely second-guessing the CPA's professional judgement, as congressional testimony and committee hearings made it seem clear that Congress meant "substantial authority" to be a stronger term than "reasonable support" (Raby, 1982; Seigel, 1983). Some members of Congress apparently felt tax accountants were part of the problem. For example, Senator Charles Grassley of Iowa, during TEFRA hearings, said he believed these penalties would "stop accountants and other tax advisors from selling tickets to this audit lottery" (U.S. Senate, 1982, p. S 8793).

While most of the revenue losses of the compliance gap are believed to have been from tax evasion it is now believed by some analysts that the compliance gap today has grown to its present size due to an increase in the number of taxpayers playing the audit lottery (Chang and Schultz, 1983). The idea of the audit lottery is that the taxpayer
takes a lottery ticket by taking a questionable position on the income tax return, in the hope that the return will not be audited. If the return is not audited, the taxpayer wins. Even if the return is audited, all is not lost. There is a chance the IRS audit might not discover the questionable item, although the larger the amount, the less likely this probably is. But even if audited and detected, the taxpayer could possibly settle with the IRS for less than the full and correct tax. And given the very worst case scenario, the taxpayer could end up having to pay the taxes he should have paid in the first place plus a moderate rate of interest. In summary, the audit lottery offers a situation of a lot to gain and very little to lose. And tax advisors may, under the professions ethical guidelines, advise a taxpayer to take an aggressive position, as long as he has some "reasonable support" for that position, even if the advisor believes that the taxpayers' position would not be upheld if it were challenged by the IRS (Rule 102, AICPA Code of Ethics).

TEFRA placed into effect these two new stiff penalties designed to make it unprofitable to continue playing the audit lottery.

TEFRA also required tax withholding of 10 percent on interest and dividend payments (eventually repealed following controversial reactions from financial
institutions) and placed more stringent controls on information reporting to the IRS for dividend payments, interest payments, and payments to independent contractors. As Table 3 indicates, IRS estimates of underreported self-employment income and dividend and interest income in 1981 amounted to almost $100 billion, which is about 40 percent of the total compliance gap.

TEFRA also required withholding on a number of pension, profit-sharing, annuity and similar plans. It also required registration of bearer bonds and other debt obligation heretofore issued in bearer form. The IRS and Congress apparently believed registration of these instruments will enhance reporting of income. As Table 4 illustrates, voluntary compliance estimates are historically low for this type of income. TEFRA also included a new reporting requirement for state and local tax returns, increased employer reporting of employee tips, and increased penalties for failure to provide these new information reports. In summary, TEFRA was the most comprehensive piece of tax compliance legislation ever to become law in the United States.
TABLE 3

UNREPORTED LEGAL-SOURCE INCOME FOR INDIVIDUALS, 1973-1981
(In Millions of Dollars)

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</thead>
<tbody>
<tr>
<td>Wages and Salaries</td>
<td>33,304</td>
<td>46,274</td>
<td>71,076</td>
<td>94,581</td>
</tr>
<tr>
<td>Dividends</td>
<td>1,920</td>
<td>3,638</td>
<td>5,528</td>
<td>8,747</td>
</tr>
<tr>
<td>Interest</td>
<td>4,440</td>
<td>6,763</td>
<td>11,548</td>
<td>20,479</td>
</tr>
<tr>
<td>Capital Gains</td>
<td>5,015</td>
<td>9,935</td>
<td>16,283</td>
<td>17,727</td>
</tr>
<tr>
<td>Nonfarm Proprietor Income</td>
<td>23,906</td>
<td>32,565</td>
<td>47,246</td>
<td>58,400</td>
</tr>
<tr>
<td>Farm Proprietor Income</td>
<td>5,742</td>
<td>4,542</td>
<td>7,832</td>
<td>9,547</td>
</tr>
<tr>
<td>Informal Supplier Income</td>
<td>10,346</td>
<td>12,721</td>
<td>16,995</td>
<td>17,080</td>
</tr>
<tr>
<td>Pensions and Annuities</td>
<td>3,123</td>
<td>4,067</td>
<td>6,258</td>
<td>8,799</td>
</tr>
<tr>
<td>Rents</td>
<td>1,335</td>
<td>2,390</td>
<td>2,711</td>
<td>3,049</td>
</tr>
<tr>
<td>Royalties</td>
<td>312</td>
<td>1,088</td>
<td>1,672</td>
<td>2,770</td>
</tr>
<tr>
<td>Estate and Trust Income</td>
<td>487</td>
<td>695</td>
<td>1,140</td>
<td>1,330</td>
</tr>
<tr>
<td>State Income Tax Refunds, Alimony, and Other Income</td>
<td>3,990</td>
<td>6,857</td>
<td>6,260</td>
<td>7,166</td>
</tr>
<tr>
<td><strong>Total Income</strong></td>
<td>93,919</td>
<td>131,535</td>
<td>194,548</td>
<td>249,675</td>
</tr>
</tbody>
</table>

TABLE 4

VOLUNTARY REPORTING PERCENTAGES FOR INDIVIDUALS, 1973-1981

<table>
<thead>
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<tr>
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<tr>
<td>Wages and Salaries</td>
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<tr>
<td>Dividends</td>
</tr>
<tr>
<td>Interest</td>
</tr>
<tr>
<td>Capital Gains</td>
</tr>
<tr>
<td>Nonfarm Proprietor Income</td>
</tr>
<tr>
<td>Farm Proprietor Income</td>
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<tr>
<td>Informal Supplier Income</td>
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<tr>
<td>Pensions and Annuities</td>
</tr>
<tr>
<td>Rents</td>
</tr>
<tr>
<td>Royalties</td>
</tr>
<tr>
<td>Estate and Trust Income</td>
</tr>
<tr>
<td>State Income Tax Refunds, Alimony, and Other Income</td>
</tr>
<tr>
<td>Total Income</td>
</tr>
</tbody>
</table>
CHAPTER II
LITERATURE REVIEW

There has been an increasing number of researchers studying the tax compliance issue in recent years. Various methods have been used; a number of different theories have been suggested as applicable in explaining tax compliance. This review of the literature will begin by describing briefly the early history of research on tax compliance and the so-called "underground economy." Next, theory development will be described, starting with the classic work of Allingham and Sandmo (1972) on Expected Utility Theory. The following section describes the types of empirical research on tax compliance. Following that, there is one section on equity theory, a section on deterrence theory, and a section on prospect theory. The final section will describe the IRS' major ongoing study of tax compliance: the Taxpayer Compliance Measurement Program (TCMP).

Early Research on Tax Compliance

The Underground Economy

The subject of tax compliance in the United States began receiving widespread attention in the 1970s. At first, the center of attention was in the news media and
the popular press. It was there that the term "underground economy" was popularized to become a household word. A few economists, such as Edgar Feige (1979), and public finance experts, such as Peter Guttman (1977), conducted studies that purported to show the existence of a huge underground economy, larger than anyone had imagined, with a size of over $100 billion and perhaps 25 percent the size of the reported GNP. Several newspapers carried coverage of these claims, with captions in large headline print.

By the late 1970s, the center of attention on the underground economy had moved from the pages of newspapers and the popular press into the pages of scholarly reviews. Most of the early articles were in the economics literature. Several of these early articles stressed the importance of studies in this area because of the possible influence on economic policies of the distortion of official estimates of such macroeconomic variables as the Gross National Product (GNP), the employment rate, and the rate of inflation (Feige, 1979; Tanzi, 1982).

The early studies in the economics and public finance journals were primarily concerned with measuring the size of the underground economy. Perhaps the article that most attracted the attention of the media to the underground economy was written by economists Peter Guttman in the December 1977 issue of the Financial Analysts' Journal.
Using econometric techniques based on the amount of currency in circulation he estimated the Gross National Product (GNP) of the underground economy was $195 billion in 1977. He believed that high marginal tax rates were the driving force and said that "higher taxes drive more and more of the economy underground, beyond the reach of the tax collector" (Guttman, 1977, p. 29). There was extensive media coverage of this article and a number of other economists and financial analysts began to do studies and write articles about the underground economy.

Estimates of the size of the underground economy varied widely in these articles and studies and this is not surprising—measurement of the underground economy is a very difficult task, and there is no general agreement as to what is the best way to attempt measurement of it.

Few of these early articles in the economics and public finance literature devoted much attention to the causes of noncompliance.

Theory Development

Allingham and Sandmo (1972) published an article in the *Journal of Public Economics* which was the first really important work to address the area of tax compliance from a theoretical standpoint. In their article, which is considered by many researchers in the area today to be the pioneering work on the subject, they relied on Expected
Utility Theory. That theory, developed by von Neumann and Morgenstern (1944), dealt with decision making under uncertainty and was used to predict whether an individual would report all taxable income to the tax authorities. Allingham and Sandmo (1972) contended that Expected Utility Theory applied because the tax compliance decision is a decision under uncertainty. It is uncertain whether failure to report all your income will evoke any reaction at all. The IRS may not audit your return. Or if audited, the underreported income (or overstated deduction) may not be detected. If it is detected, there is uncertainty with respect to the penalties that could be imposed, or whether other action, such as prosecution, will take place. Although the IRS seldom seeks prosecution, it considers the threat of prosecution to be an important deterrent.

One factor which complicates the study of tax noncompliance is that there are several different types of behavior accounting for the different forms of what is generally defined as tax noncompliance. In calculating the percent of voluntary compliance, the IRS includes as non-compliance the mathematical difference between the amount of taxable income per the return as filed and the amount of taxable income as determined correct by an IRS examination. Noncompliance will therefore include willful evasion, honest mistakes, honest differences of opinion between the
taxpayer and the IRS, and playing the audit lottery. Playing the audit lottery is generally described as taxpayers taking questionable positions which are likely to be overturned by the IRS if there is an audit.

Expected Utility Theory probably best fits the audit lottery scenario, but it may not be adequate for other forms of noncompliance. Several studies in recent years have shown that compliance norms, or tax ethics, are a very important factor in tax compliance. In an extensive survey of over 800 taxpayers in Oregon, Mason and Calvin (1984) showed that of a list of eight variables, tax ethics was the one most highly correlated to tax compliance. Yet Expected Utility Theory ignores tax ethics and assumes taxpayers are amoral, and that paying taxes is simply a form of gambling. Another factor which has been examined by researchers is the perceived fairness of the tax system. Borrowing on theories from social psychology regarding equity, or more specifically equity in exchange, researchers have shown evidence of a strong positive relationship between compliance and the perception that the tax system is fair and equitable (Vogel, 1974; Porcano, 1984).

A complete list of all the factors which have been suggested in the literature as affecting compliance would probably require several pages. An extensive survey of
studies on the tax compliance issue disclosed that there
have been over 40 such published studies since the
pioneering work of Allingham and Sandmo in 1972. A
complete list of those identified by this writer are cited
in Appendix A. Listed below are twelve factors believed to
affect the level of compliance that are frequently cited in
these published studies:

1. marginal tax rate
2. opportunity for evasion
3. perceived risk of audit
4. knowledge of tax laws
5. audit experiences
6. penalties—both the level of and the perceived
   likelihood of imposition
7. compliance norms, or tax ethics
8. perception of fairness of the tax system
9. demographic characteristics (age, education,
   etc.)
10. level of difficulty of the return
11. economic factors (inflation, unemployment)
12. complexity of the tax law.

These factors are closely interrelated. For example,
a taxpayer that has a high marginal tax rate (number 1) is
likely to have a more difficult return (number 10) and
therefore has more opportunity for evasion (number 2).
Also, there is a greater risk of being audited for taxpayers in a higher income bracket (number 3), and these taxpayers may generally be expected to be aware of this and have prior audit experience (number 5) and more knowledge of tax laws (number 4). Taxpayers in a higher bracket may also be likely to exhibit certain demographic characteristics (age, education, etc.—number 9).

Empirical Research on Tax Compliance

Empirical research efforts have not gone far in providing explanations, and are basically still in the infancy stage. As Appendix A indicates, there were only two published empirical studies in the accounting literature prior to 1984. The limited amount of empirical work can be categorized in three basic types:

1. experiments, such as tax game simulations;
2. surveys, or interview data; and
3. analysis of IRS data.

As Appendix A indicates, there has been about an equal amount of research of the first two types, while research using IRS data has been very limited. There are probably two major reasons why there has been little research using IRS data. Confidentiality requirements have limited the availability of the data and also the IRS data does not include information relating to many of the factors suggested by the theories. Use of surveys and
questionnaires can provide much more data than would be available from IRS data.

There have been just two published studies on tax compliance which were based on IRS data: Clotfelter (1983), and Witte and Woodbury (1985). Both studies used the IRS's Taxpayer Compliance Measurement Program (TCMP) survey for 1969, which consists of approximately 47,000 audits of individual tax returns. Since TCMPs are covered in detail in a later section of this paper, discussion of it will be brief at this point.

The Clotfelter (1983) study was performed under contract for the IRS Office of Tax Analysis. It used univariant linear multiple regression, with the dependent variable being underreported income. Independent variables included marginal tax rate, types (or source) of income, geographic region and some demographic characteristics. His findings suggest that high marginal rates have a strong and positive relation to tax noncompliance. However, the validity of his findings are open to criticism. For example, the use of the dollar amount of income as the dependent variable will bias the results. By definition, any time this variable has a very large value (high dollar amount), the marginal rate cannot be anything other than a correspondingly high rate.
The Witte and Woodbury (1985) study also used 1969 TCMP data. It was not done under contract for the IRS, and a data set was used which was based on the 1969 TCMP survey. The data set contained aggregated data which was compiled from the TCMP survey. Taxpayers were aggregated based on the probability of being audited, and a model was constructed to include risk of detection of noncompliance. Also, some other information not normally available from TCMP surveys was included, such as taxpayers with a prior history of noncompliance, age, and a surrogate for complexity of the return based on the presence of certain forms. The linear form of multiple regression analysis was used. While the results were not entirely consistent with expectations, they did suggest risk of detection (based upon both risk of audit and presence of an information reporting system) to be a strong determinant for tax compliance. Interestingly, the geographic data yielded results that suggest regional and local group attitudes on tax compliance may be important.

There have been some studies in which survey data was supplemented with data which the IRS had made available for the researchers (Schwarz and Orleans, 1967; Madeo, Schepanski, and Vecker, 1985).

While most researchers agree more research is needed using both survey and experimental techniques, both methods
have problems or limitations. The use of surveys, especially when asking subjects to admit having practiced criminal behavior (tax evasion), may yield results of questionable reliability. The surveys must be carefully worded and include assurances of anonymity and be phrased to minimize any implications of immorality. As Mason and Calvin (1984) point out, sociologists continue to maintain that survey results of deviant behavior, while less than completely reliable, can provide useful data for research purposes.

One concern about experimental research on tax compliance is that most researchers have used student subjects. While this is understandable due to convenience and resource limitations, it may severely limit external validity. Student subjects, many of whom have never paid any taxes, may not be representative of the taxpaying general public. This concern applies to both surveys and experiments, as both types frequently have been completed using student subjects.

While different types of studies on tax compliance have often yielded similar results, many others have reached conflicting conclusions. Not only is there disagreement in the literature as to which factors affect tax compliance, for some of the suggested factors there is even disagreement as to the direction of the effect. For
example, researchers have come to very different conclusions as the direction of the effect of complexity of the tax laws upon tax compliance. One experimental work (Milliron, 1985) showed when an increase in complexity was associated with an enhanced opportunity for evasion, the reaction was to reduce compliance. But Milliron (1985) also reported increased compliance as a result of increased complexity of the tax law associated with equity of the tax law. Dean, Keenan, and Kenney (1980) argued that tax complexity increases compliance by affecting equity perceptions. According to the IRS (1983b) complexity is necessary for equitable tax laws. Westat (1980), in a study on compliance commissioned by the IRS, concluded that complexity creates uncertainty which taxpayers attempt to resolve by increasing their compliance, out of fear of the IRS. An opposite view was expressed by Assistant Treasury Secretary for Tax Policy, John E. Chapoton. In a statement to the Senate Finance Committee on June 23, 1983, he said, with reference to the compliance effects of TEFRA and ERTA: "Major revisions in the law are made at material cost . . . confusion inevitably results . . . and could lead to non-compliance among taxpayers . . . precisely the opposite of the effect we are seeking" (Coppinger, 1983, p. 712).

During the TEFRA hearings before the Senate Finance Committee, a member of the Joint Committee on Taxation
testified concerning tax compliance:

The precise reasons for the decline in voluntary compliance cannot be easily identified. However, a number of factors may contribute to the problem. For example, the complexity of the tax code and frequent changes in its provisions may contribute to higher levels of taxpayer misunderstanding than existed in earlier times. This higher level of misunderstanding would lead to an increase in inadvertent noncompliance. (Coppinger, 1983, p. 714)

The lack of adequate methodologies hampers resolution of questions about the causes of tax noncompliance. While most research in the area has been theoretical, in the past two or three years there has been an encouraging increase in empirical research in which efforts are being made to test some of the many unsupported theories and hypotheses which have arisen.

Equity Theory

Traditional equity theorists indicate two types of equity within a tax system: horizontal equity and vertical equity. Horizontal equity requires equals to be treated equally. Vertical equity requires an appropriate differentiation among unequals, i.e.—those who can afford to pay more should pay more. The progressive rate structure we have always had in the United States is supposed to achieve vertical equity, but given various loopholes and specified benefits, it fails to achieve as much equity as many would hope for. Ever since Adam Smith advocated progressive tax rates, there has been strong popular support for it,
although not without a good deal of debate as to how progressive it should be. And in recent years tax reformers calling for a more simple tax system frequently advocate a "Flat Tax." Perhaps many of these reformers feel such a system, by abolishing the many tax preference items, would accomplish equity in a manner far superior to the previous system.

While the taxpayers' perceptions of horizontal or vertical equity of the tax system may be important, perhaps more important is the perception of equity in exchange. The equity in exchange theories from social psychology indicate that participants in an inequitable exchange relationship will experience frustration and anger and will often take severe measures to restore equity in the exchange relationship. If taxpayers believe the government is not spending tax dollars wisely, equity in exchange theory would postulate tax evasion to be a likely result. Some researchers believe this is a major contributing factor to the tax compliance problem (Porcano, 1984; Spicer and Becker, 1980; Mason and Calvin, 1984; Chang and Schultz, 1983).

One economist (Olsen, 1983, p. 1) recently said that taxpayers have a perception "that the government goes to great lengths to collect their hard earned taxes but to short lengths to spend them wisely." He stated that if this situation continues, over time it creates a risk that
"the integrity of taxpayers may become a mirror image of the perceived integrity of the tax spenders" (Olsen, 1983, p. 1).

Empirical research in social psychology suggests that a perception of fairness about the terms of an exchange relationship is a very important determinant to compliance with those exchange terms (Adams, 1965). Persons perceiving themselves to be victims of inequitable situations have been observed to show extreme anger and hostility, and may take extreme measures to restore equity (Homans, 1961). Porcano (1984) believes that taxpayers are evading taxes in an effort to restore equity to an inequitable exchange situation.

The research in social psychology also indicates that if persons perceive themselves to be the beneficiary of an inequitable situation, they will experience guilt feelings and may even increase their inputs into an exchange situation in order to reduce the feeling of guilt (Homans, 1961). Taxpayers in high marginal rates will generally tend to have more opportunities for tax avoidance, which is legal, by taking advantages of loopholes or intended tax preference items. It is therefore plausible that taxpayers in this group might practice tax evasion (which is illegal) less frequently. Indications that this is the case have been reported in some of the studies (Spicer and Lundstedt,
IRS data on tax compliance by income groups consistently show compliance to be higher than average for the higher income brackets (refer to Table 4).

A review of the estimates of the size of the underground economy which have been made by econometric techniques shows a clear upward trend in the level of tax evasion, beginning in the mid to late 1960s (Tanzi, 1973; Feige, 1979). Reference to these estimates obviously involves ignoring many forms of tax noncompliance (including playing the audit lottery, overstating deductions, etc.), but there are no other estimates of noncompliance available for these time periods and it may not be unreasonable to assume an association of the level of the underground economy with the level of other forms of tax noncompliance. Perhaps the most highly regarded econometrics estimates of the underground economy were developed by Vito Tanzi (1983), a former Harvard economist who is now with the International Monetary Fund. According to his estimates, after a long period of decline from 1945-1965, tax evasion began to increase dramatically in 1966; then the rate of increase slowed slightly in the early 1970s, and in 1974 increased dramatically again and has been increasing ever since (refer to Appendix B).
It is interesting to note that 1966 was the height of the Vietnam War (and anti-war demonstrations against this most unpopular war) and equity theory may suggest a causal relationship between public disgust with the Vietnam War and a dramatic increase in tax evasion.

There is also another explanation which might explain why tax evasion should suddenly begin increasing when it apparently did. In 1965, inflation began soaring to levels unequalled since World War II. Some economists (Allingham and Sandmo, 1972; Tanzi, 1983) have suggested inflation, as well as unemployment, may be related to tax compliance. As consumers see the purchasing power of the dollar steadily decline, tax evasion may be one alternative for relief. Some taxpayers may simply be in a financial crisis situation in which there are no funds to pay the taxes due, and therefore the taxpayer may resort to not reporting income.

During the late 1970s, when stagflation (high inflation and high unemployment rates) was at its highest levels, tax evasion, which had been increasing steadily since 1966, again surged upward at an increased rate (refer to Appendix B). Stagflation, as well as high marginal tax rates (as high as 90 percent) and the surtax during part of the Vietnam War period, may have also contributed to the financial crisis effect.
Both theories may have some relevance in explaining this decline in tax compliance during this period, but further research is needed to better understand and assess the impact of the theories.

Related to this issue is the question of the effect of the taxpayers' age on compliance. In a recent study (Groze, 1986) by a sociologist, a survey of 360 taxpayers in Oklahoma City showed younger taxpayers were more inclined to commit tax evasion. Groze, in assessing the results of this study, commented:

It is interesting to note that the current cohort of young taxpayers were socialized into adulthood in an era marked by the Vietnam War and Watergate. These events may have produced a cohort who attach little legitimacy and trust to government. Therefore, if tax cheating is primarily a rebellion against a government which is seen as inept, then an increase in the fairness of the tax system is not likely to lead to a decrease in tax cheating as long as people continue to see the government as untrustworthy (Groze, 1986, p. 5).

If this is correct, then the Reagan administration attempts to increase compliance through reform of the tax law (to increase perceived fairness of the system) will not be successful. This could be expected to be the case if taxpayers' perception of inequity in exchange is more important than the perception of equity of the tax system itself, or the distribution of the tax burden.

Research efforts to assess the effect of equity on tax compliance have had mixed results. It is not clear as to
the importance of perception of equity on tax compliance, especially when the interaction with other factors is considered. Porcano (1984), using experimental techniques, showed a correlation between perceived equity and tax compliance. Mason and Calvin (1984) conducted surveys of 800 taxpayers in Oregon in 1975 and 1980. Interestingly, they found no correlation between increased perception of unfairness of the tax system and increased noncompliance. They concluded that fear of sanctions overrode the impact of perceived inequity. This demonstrates one of the difficulties in tax compliance research in that the many contributing factors may be expected to interact and confound the results.

Deterrence Theory

The deterrent effects of penalties and other forms of punishment have been examined in some of the studies, and conflicting results have been obtained. The conflict has been attributed to the confounding impact of other interrelated factors. Vogel (1974) found that social status and group attitudes toward tax compliance were more important than fear of penalties. Coppinger (1983) suggested that continuing to increase penalties might not only fail to increase compliance but could even have the opposite effect and actually cause compliance to decrease. Social psychologists studying nonconforming behavior have recorded
instances of this opposite effect phenomenon in which deviant behavior actually increased after stiffer penalties were imposed. Among the areas in which this effect has been observed and documented are drinking of alcoholic beverages, obedience of traffic laws, and genuflecting in Catholic churches (Moore, 1983). And in one study (Schwarz and Orleans, 1967), tax evasion began increasing following an IRS prosecution of a widely publicized case in which media publicity stated that this case was evidence of a new crackdown against tax evasion. Several subjects interviewed said they evaded taxes after this case because of a new awareness that it was going on. Some said they became confident they could get away with it. Several subjects said the offender in the widely publicized case had been incredibly stupid and the evasions had been of very major proportions. "If that is the kind of thing the government waits for," said one taxpayer, "they will never come after me" (Schwarz and Orleans, 1967, p. 276).

The AICPA (1983) did an extensive study in which they reported that appeals to conscience were more effective in increasing tax compliance than the deterrent effect of penalties.

Prospect Theory

Kahneman and Tversky (1979) developed prospect theory as an alternative to expected utility theory for decision
making under uncertainty. Jackson and Jones (1985) and Chang and Schultz (1983) have used a prospect theory approach in studying tax compliance. While the results of both studies were preliminary and somewhat inconsistent with some aspects of prospect theory, they did show encouraging indications that prospect theory may be useful in explaining tax compliance. Prospect theory helps explain some taxpayer behavior which expected utility theory could only label as irrational behavior.

Prospect theory assumes that people make decisions under uncertainty on the basis of their individual value functions, and in some instances, select alternatives which are inconsistent with maximizing the expected utilities of the choices. The value functions differ significantly from the expected utility theory functions in two ways: (1) values are assigned to potential gains and losses, or variations above or below some reference point, rather than on final outcomes, and (2) decision weights which reflect an individual's perception of probabilities replace actual probabilities. The theory posits that the value function is steeper for losses than it is for gains, indicating that the pain associated with a loss is felt more strongly than the pleasure associated with a comparable gain.

The focus of prospect theory on gains or losses rather than final outcomes is consistent with our experience of
perception and judgment. As Sanders (1984) points out, when we respond to physical attributes such as brightness, loudness, or temperature, the past and present context of experiences provides an adaption level, or reference point. Thus an object at a given temperature may be perceived as warm or cold, depending on the temperature to which one is adapted (Chang and Schultz, 1983). According to these authors, this same principle applies to non-sensory attributes, such as wealth or prestige. The same level of wealth, for example, may imply poverty for one person and riches for another. A small business loss (interpreted as a loss in good years) may, on the other hand, be interpreted as a gain by an entrepreneur who is weathering a severe recession. Thus, in a tax reporting setting, a tax savings can be viewed as a gain, or as a reduced loss, depending on whether the taxpayer has to pay tax (is underwithheld) or has a refund coming (is overwithheld).

Prospect theory suggests a taxpayer is willing to incur a risk for the purpose of avoiding filing and having to pay tax, which he or she would be unwilling to incur for the purpose of obtaining a larger refund. Therefore, one way to test prospect theory would be to test for the effect of the withholding status (over or underwithheld) on tax compliance. The Chang and Schultz (1983) study attempted
this in an experimental situation and the results partially confirm the theory.

Another part of prospect theory says that individuals do not differentiate accurately between low probabilities. If the probabilities were .80 as compared to .20, the individual could be expected to differentiate accurately. But if the probabilities were .04 and .01, even though one probability is still four times as great as the other (as with .80 and .20), the individual will not be able to accurately differentiate. Therefore the decision maker will place a statistically unwarranted emphasis on the comparative magnitude of the outcomes. For example, if an individual is faced with choosing between these two alternatives:

Case A—Loss of $1,000, with P = .04
[expected value (40)]

Case B—Loss of $3,000, with P = .01
[expected value (30)]

expected utility theory says the individual will choose B, the smaller expected value loss, while prospect theory says the individual will choose A, even though the expected value loss is higher than B. A is chosen because the individual focuses on the magnitude, a $1,000 possible loss instead of a $3,000 possible loss, not on the probability.

Jackson and Jones (1985) attempted to test this in a tax evasion experimental setting. They hypothesized that
if you took a group with a very low probability of being audited (no self-employment income, no itemized deductions, low to moderate income level) and increased the magnitude of the penalties, the taxpayer would focus on the magnitude and the increased penalty would increase compliance. Their findings tended to confirm this. This is somewhat contrary to the general rule, where the probability of being detected is more important than the size of the penalties.

Taxpayer Compliance Measurement Program: TCMP

Most individual income tax returns are selected for audit by computerized discriminant function (DIF) formulas. A number of returns are also selected at random. This random selection makes up the Taxpayer Compliance Measurement Program (TCMP). TCMP surveys originated in 1962, first being directed at delinquent accounts. The individual returns filed survey (which the IRS refers to as "Phase III," and which is the subject of interest for this research) originated in 1964. TCMP individual returns filed surveys are now conducted every three years. Approximately 50,000-55,000 returns are selected at random for TCMP audits, and every line on the returns selected must be verified, regardless of dollar amounts. TCMP audits are usually performed by more experienced auditors, and findings are subjected to extensive technical review. Since it is a scientific stratified random sample, the data
from the TCMP surveys can be projected to estimate the compliance characteristics of the taxpaying nation as a whole. In other words, the TCMP sample is a model which represents the taxpaying public of the United States.

TCMP surveys take about three years to complete. The results of the 1982 TCMP, which is the latest available, were published by the IRS in the Spring of 1986. In addition to measuring levels of compliance, IRS uses TCMP data to develop and enhance the DIF formulas. Since 1969, IRS has used TCMP data for its DIF formulas. This has helped reduce the percentage of audits resulting in no tax change from 43 percent in 1968 to 21 percent in 1981 (IRS, 1984). IRS also uses TCMP data in developing taxpayer education programs, design of tax return forms and instructions, budget submissions, and recommendations to Congress for changes in the tax law (IRS, 1984b).

Of the TCMP return audits, 50 percent result in no tax change, 43 percent result in additional tax assessments, and 7 percent result in a reduced tax liability (usually generating a refund) (Lefbom, 1986).
CHAPTER III

RESEARCH DESIGN

The purpose of this research was to examine the effect of certain variables on tax compliance, and to assess the adequacy of legislative efforts to cope with the problem. The data used for this research was the IRS's TCMP surveys for 1979 and 1982. Because of confidentiality requirements, the IRS could not release the TCMP data. However, officials with the IRS Research Division in Washington D.C. agreed that they would subject to resource constraints, provide indirect access to the data by having IRS employees run the data for the researcher.

Over the past few years, Congress has made several significant changes in the tax laws which were designed to improve the tax compliance problem. Several of these changes were made between 1979 and 1982 (TCMP Survey Years). Therefore this research used multiple regression analysis on 1979 and 1982 TCMP survey data. Between 1979 and 1982, Congress lowered the marginal rates; increased information reporting requirements, especially for dividend, interest, and self-employment income; and added some new penalties and increased other penalties, including one on return preparers. If the legislation achieved its
intended results then analysis of TCMP data through the use of multiple regression analysis should partially confirm it.

The linear model was used. Prior researchers (Clotfelter, 1983; Witte and Woodbury, 1985) have found the linear model works well with tax compliance data.

The dependent variable was the voluntary compliance level. The definition of the voluntary compliance level was total tax reported divided by total tax as corrected, times 100 percent. The value of the dependent variable ranged from zero (no tax reported voluntarily) to in excess of 100 percent (7 percent of TCMP surveys result in a taxpayer refund due to overreporting). Since about 50 percent of TCMP audits result in no change in tax liability (Lefbom, 1986), the distribution of the values of the dependent variable was heavily clustered around 100 percent. This lack of a normal distribution made it highly desirable to employ a transformation technique. A logit transformation was requested, but the IRS advised that due to presently existing hardware and software limitations, they would be unable to do this.

The Independent Variables

Specification of the model in this quasi-experiment was restricted by the data base. A large number of variables suggested by theory and prior research were not
available on the TCMP data base. The independent variables to be included in the model were as follows:

\[
\begin{align*}
&1 \quad \text{Above/Below the Mean Marginal Rate} \\
&2 \quad \text{Middle/High Marginal Rates} \\
&3 \quad \text{Interest Income (As a Percent of Total Income)} \\
&4 \quad \text{Dividend Income (As a Percent of Total Income)} \\
&5 \quad \text{Schedule C Income (As a Percent of Total Income)} \\
&6 \quad \text{Return Preparer (Self, or Paid Preparer)}
\end{align*}
\]

The Research Methodology

The decision was made to use hierarchical regression. While it was recognized that the ordering of the independent variables could be questioned, all of these variables do have some basis in theory. And a major advantage of hierarchical regression relates to the identification of interactive effects when there is multicollinearity (the variables are not independent of each other). As has been mentioned previously, these variables are closely related.

Path analysis was considered for use in this research. However, the determination was made that the presently available information in the tax compliance area is inadequate to develop the paths.

Several changes in the tax rate structure took place between 1979 and 1982. The maximum individual rate was lowered from 70 percent to 50 percent. ERTA reduced all
individual income tax rates by five percent effective October 1, 1981, and by ten percent effective July 1, 1982. In comparing the effect of the marginal tax rate in 1979 to the effect in 1982, a common measure was required. Also, the marginal rate was not readily available on the tapes, as it is not a line item on the TCMP survey. In searching for a common measure, it was decided to divide all tax returns into three categories, as shown below, in Table 5.

**TABLE 5**

**MARGINAL TAX RATE CATEGORIES**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amounts of Tax Liability (TCMP per exam)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Low marginal rates</td>
<td>1979: $1 - $2,992</td>
</tr>
<tr>
<td></td>
<td>1982: $1 - $3,604</td>
</tr>
<tr>
<td>2. Middle marginal rates</td>
<td>1979: $2,993 - $12,720*</td>
</tr>
<tr>
<td></td>
<td>1982: $3,605 - $17,705*</td>
</tr>
<tr>
<td>3. High marginal rates</td>
<td>1979: $12,721* and above</td>
</tr>
<tr>
<td></td>
<td>1982: $17,706* and above</td>
</tr>
</tbody>
</table>

* The cutoff points between the second and third categories were modified to take into account different marginal rates for different filing status.

The mean (average) tax liability per filer with income tax liability was $2,992 for 1979 and $3,604 for 1982.
(IRS, 1984a). This mean was used to assign taxpayers to either a zero (0), at or below the mean marginal rate, or a one (1), above the mean marginal rate. This provides the necessary common measure, since marginal rates for 1979 and 1982 are different and of themselves provide no basis for comparison. In addition, the one (1) group for variable $X^1$ (above the mean marginal rate) was broken down further, as variable $X^2$ (middle/high marginal rates) by assigning a zero (0) for the middle group and a one (1) for the high group. This high marginal rate category represents taxpayers whose marginal rate in both years was at or near 50 percent (minimum 49 percent), and up to 70 percent in 1979. In both 1979 and 1982 these brackets were at least 5-6 percent above the rates in the next lowest bracket (44 percent in 1982, 43 percent in 1979). The total tax liability in this category represents about one-fourth of all tax revenues for both 1979 and 1982.

If high marginal rates are driving tax non-compliance, then comparison of the mean voluntary compliance level for each of the groups and for both 1979 and 1982 should provide some indication of this, and provide some insight towards a better understanding of the effect of marginal rates on compliance.
Hypothesis 1:

The inclination of a taxpayer to underreport income will be less when the marginal tax rate is less.

While many confounding variables may be captured in variables within the model (such as age, education level and occupation in the marginal tax rate category), it should also be noted that there are many other variables which could not be included in the model. Any attempts to "tease out" causation or in a limited way make causal inferences must be done with extreme caution.

For the next variable (source of income), the purpose was to attempt to capture the effect of a possible increased risk of detection in 1982 as opposed to 1979 for interest, dividend, and self-employment income. Each type of income was computed in the regression as a proportion of total income per exam, for both 1979 and 1982. If the increased risk of detection was effective, then we should expect to see increased voluntary compliance in 1982 for these types of income.

Hypothesis 2:

The inclination to underreport income of a particular type (interest, dividends, self-employment income) will decline when the risk of detection increases.

While most of the TEFRA provisions on dividend, interest, and independent contractor reporting requirements
were not to take effect until July 1, 1983, and the TCMP data being compared to 1979 is for 1982, it is plausible that these provisions may have influenced taxpayers filing their 1982 returns, as these TEFRA provisions were very well publicized by the media prior to the filing dates for the 1982 returns. For example, the editor of Business Week, writing on November 1, 1982 (after passage of TEFRA and prior to any 1982 returns being filed) warned readers to beware on their 1982 tax return even though these new provisions were not to take effect until July 1, 1983:

> You ought to be even more careful about declaring this year's (1982) dividends and interest. There is the possibility that if large amounts suddenly show up on your return for 1983, the IRS may want to compare the figures with how much you declare on your return for 1982 or earlier (Dunn, 1982, p. 105).

For the last variable, return preparer, the purpose was to assess the effect of the return preparer penalty enacted by TEFRA. As with the source of income variable, the timing would have been better if the TCMP data was for 1983, since that is when the penalty took effect. However, knowledge of the penalty was present prior to filing of 1982 returns, so it is not implausible that the return preparer penalty could have influenced behavior in preparation of 1982 returns. For this variable, again, dummy coding was used: 1 = returns self-prepared; 0 = paid return preparer.
Hypothesis 3:

The inclination of tax return preparers to assist taxpayers in taking aggressive positions, such as the audit lottery, will decline when the risk is greater.

Details of the identification of the independent variables, including specific references to line numbers on IRS TCMP survey checksheets, and SPSS coding which was provided to the IRS, may be found in Appendix C.

Limitations of TCMP Data

The use of TCMP data has a major advantage in that it observes actual taxpayer behavior. This overcomes a big problem of survey techniques, which may or may not simulate actual taxpayer behavior. However, the use of TCMP data is subject to criticism on a number of grounds. First, TCMP audits do not detect noncompliance by the non-filers, or those individuals who reside deep in the economists' "underground economy." The IRS has performed studies of the non-filer problem, but it is not a part of this TCMP data base. Second, IRS auditors, no matter how well trained, will not detect all underreported income or overstated deductions. Finally, even the items identified by the IRS auditors during the TCMP examinations are not final. They do not reflect any adjustments that might occur as a result of the appeals process. However, the IRS estimates that if the results of the appeal process were
incorporated into the TCMP data, it would have a very slight effect on the overall estimates of voluntary compliance (IRS, 1984).

While the use of TCMP data can be criticized, and it does not include data on the taxpayers' perceived equity of the tax system, as well as other information which would be useful if it were available, this IRS measure of voluntary compliance was the best information at this time.

Congress has had very little empirical evidence on tax compliance to use as a guide in determining the type of legislation which will be most effective in coping with the compliance gap. This proposed research was one step in filling that need.
CHAPTER IV

FINDINGS OF THE RESEARCH

Before presenting the results, it should be explained that there was a major limitation which resulted from hardware problems with the Univac at the IRS national office which could not be overcome. This Univac computer is not presently capable of handling a probit or logit transformation, at least not with SPSS and on a data base as large as TCMP. This limitation could have been partially responsible for the very high T ratios that resulted.

Variables used in the equation are identified below, in Table 6.

TABLE 6

LIST OF VARIABLES IN THE EQUATION

<table>
<thead>
<tr>
<th>REGRESSION LABEL</th>
<th>VAR LABEL</th>
<th>VARIABLE LABEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td>V9</td>
<td>PCT OF VOLUNTARY COMPLIANCE (DEPENDENT VARIABLE)</td>
</tr>
<tr>
<td>$x_1$</td>
<td>V10</td>
<td>ABOVE (1)/BELOW(0) MEAN MARGINAL RATE</td>
</tr>
<tr>
<td>$x_2$</td>
<td>V11</td>
<td>HIGH(1)/NON-HIGH(0) MARGINAL RATES</td>
</tr>
<tr>
<td>$x_3$</td>
<td>V14</td>
<td>PERCENT OF INTEREST INCOME</td>
</tr>
<tr>
<td>$x_4$</td>
<td>V15</td>
<td>PERCENT OF DIVIDEND INCOME</td>
</tr>
<tr>
<td>$x_5$</td>
<td>V16</td>
<td>PERCENT OF SCH. C. INCOME</td>
</tr>
<tr>
<td>$x_6$</td>
<td>V8</td>
<td>RETURN PREPARE (0 = PAID, i = OTHER)</td>
</tr>
</tbody>
</table>
### TABLE 7

**RESULTS OF THE 1979 REGRESSION**

<table>
<thead>
<tr>
<th>VARIABLE</th>
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<th>SE B</th>
<th>BETA</th>
<th>T</th>
<th>SIG-T</th>
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<td>.62472</td>
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<td>156.053</td>
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TABLE 8
RESULTS OF THE 1982 REGRESSION

MULTIPLE R .09997
R SQUARE .00999
$F = 122,488.09560$  SIGNIF $F = 0.0$

VARIABLES IN THE EQUATION (ALL)

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<thead>
<tr>
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<th>BETA</th>
<th>T</th>
<th>SIG-T</th>
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<td>X</td>
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<td>.21921</td>
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<td>X</td>
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<td>6</td>
<td>X</td>
<td>2.95639</td>
<td>.01456</td>
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<td>(CONSTANT)</td>
<td></td>
<td>99.38933</td>
<td>.73756</td>
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<td>132.755</td>
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The $R^2$, or the multiple coefficient of determination for the model (which represents the percent of change in the dependent variable which is explained by the independent variables), was very low for both 1979 and 1982. It was about 1 percent for 1982 (.00999) and less than 1 percent for 1979 (.00866).

The inability to perform a logit transformation, the use of cross sectional data, the lack of information on the TCMP file pertaining to many factors believed to effect compliance, and a relatively small amount of change in $Y$, the dependent variable, may all partially explain the low $R^2$. However, prediction of the value of the dependent variable, the voluntary compliance level (VCL) was not a research goal. It was not hypothesized in the previous chapter that the model would do this. When some of the coefficients may be significant, it is not correct to say that a low $R^2$ means a regression has no value (Wesolowsky, 1976). Of primary interest in this research is whether or not TCMP data can shed any light on the effectiveness of tax compliance legislation. This is exploratory research. It is believed that these results provide some insight into the effectiveness of tax compliance legislation passed during the period 1979-1982. While the $R^2$ and the Beta coefficients are small, it should be recognized that even very small changes in the dependent variable, voluntary
compliance level, can equate to billions of dollars and be quite significant from a policy perspective.

In order to support comparison of the Beta coefficients from the two different populations (it was not possible to get the 1979 and 1982 TCMP data combined into one file as originally intended), it was necessary to compute a $T$ ratio to test for the significance of the differences in the two populations. This is described by Cohen and Cohen (1975) and the details are contained in Appendix D.

Comparison of the partialled Beta coefficients between 1979 ($-0.000325$) and 1982 ($-0.000710$) for variable $X$ ($0 =$ at or below the mean income, $1 =$ above the mean income) seems to indicate a tendency for a higher voluntary compliance level for taxpayers with income below the mean. The $T$ ratios ($-2.701$ for 1979, $-5.837$ for 1982) indicate that we can reject the null hypothesis that the true $B$ equals 0, since the probability that the $B$ obtained here could have happened by chance is .69 of 1 percent for the 1979 equation and less than 1/100th of 1 percent for the 1982 equation. It is recognized the lack of a normal distribution can raise the question of the reliability of the $T$ ratios. But the large sample sizes tend to support the reliability of the $T$ ratios.
Comparison of the partialled Beta coefficients between 1979 (-.01540) and 1982 (-.002459) for variable $X^2$ yields interesting results. Variable $X$ categorized taxpayers in two groups:

- $0 =$ all taxpayers whose marginal rate was less than 49 percent

- $1 =$ all taxpayers with a marginal rate of at least 49 percent.

The $T$ ratios for both are .0000 (probability we could get these results if the true $B = 0$).

A breakdown of the mean values of the VCL by the marginal rate categories was accomplished by using the $B$ values from the regression equation and the estimated values of the $X$'s (the independent variables) from the IRS statistics on income (SOI). The results are shown below, in Table 9.

**TABLE 9**

**BREAKDOWN OF VOLUNTARY COMPLIANCE LEVEL**

<table>
<thead>
<tr>
<th></th>
<th>1979</th>
<th>1982</th>
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<tr>
<td>Low Marginal Rates</td>
<td>93.93%</td>
<td>97.15%</td>
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<tr>
<td>High Marginal Rates</td>
<td>92.24%</td>
<td>92.66%</td>
</tr>
<tr>
<td>Mean VCL</td>
<td>92.92%</td>
<td>94.45%</td>
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</tbody>
</table>
The overall VCL increased by 1.53 percent according to the data in Table 9. But the VCL for the above the mean marginal rate group (the one (1) for variable $X$) only increased by .42 percent, while the below the mean marginal rate group VCL increased by over 3 percent. These results strongly refute the notion that high marginal rates significantly effect compliance. The biggest rate cuts were for taxpayers in the above the mean marginal rate groups (for example 70 percent to 50 percent, 68 percent to 48 percent, etc.). Yet the VCL increased only very slightly for the above the mean marginal rate group.

In attempting to further break down the above the mean marginal rate group into two groups (middle (0) and high (1)), the results obtained indicated a huge difference in the VCL of the two groups, with the middle group having a much higher VCL for both 1979 (5.67 percent higher) and 1982 (4.43 percent higher). These results are very inconsistent with all of the IRS aggregate reports and are perplexing from an intuitive standpoint. Review of the IRS estimates of the VCL for different types of returns (business, non-business, farm) by income groups fails to show any differences in VCL which are even any where near as large as these indicated by the $B$ values for $X$, for any time period (see Table 2). Therefore, it is believed that these $B$ values for variable $X$ ($0 = \text{middle}, 1 = \text{high}$) are
unreliable. A review of the TCMP data base and the data selection methods used disclosed two factors which could explain much of this lack of reliability.

First, the TCMP survey does not include the results of appeals of additional tax per exam. The IRS estimates that incorporation of the appeal results would have only a small effect on the overall results. While this is probably true for the overall results, it may be far less true for the "1" group in $X^2$, for this group represents taxpayers in the very top rate groups (49% and up). It is very logical to expect that the appeal rate for taxpayers in this relatively small group (less than 5 percent of all returns) would be much higher than for the general population. This could bias the results and may partially explain why the $B$ values for $X^2$ are so large (-5.67 for 1979, -4.43 for 1982).

Also, it was necessary to eliminate all observations (TCMP audits) where the tax liability was not calculated by the tax rate tables or rate schedules. Neither the marginal rate or the taxable income was shown on both years TCMP surveys as a separate line item. The best method that could be found to compute the marginal rate was the tax liability, which was shown on the TCMP surveys as a separate line item. However, this would only work if the tax liability was computed using the tax rate tables or
rate schedules. While it was not initially expected that this would significantly distort the results, it may actually have seriously biased the results. For the overall results, it probably didn't. But for this small group, the high marginal rate group (1 for variable $X$), it may have. Calculation of the tax liability by such things as income averaging, 10 year lump sum averaging for certain qualifying distributions and alternative minimum tax, all could be expected to occur much more often for taxpayers in this top rate group than for the general population.

Equity-in-exchange theory suggests that when taxpayers benefit from favorable exchange conditions (such as preferential tax treatment in the form of deductions, credits, and exclusions, etc.), they may actually increase their input to the exchange (Porcano, 1984). Tax avoidance success makes tax evasion less likely. Therefore, elimination of this group may have seriously biased the results, in that the mean VCL for these observations not selected may have been higher than for those selected. While it would have been desirable to include these observations in the sample, there was no other method available to calculate the marginal rate.

While the lack of reliability for the B's for $X$ made it impossible to do a meaningful comparison of the middle and high marginal rate groups, the results still provided
insight into the effectiveness of tax rate cutting legislation. The overall increase in voluntary compliance from 1979 to 1982 can be calculated from SOI Data (IRS, 1984) to have resulted in an increase in tax revenues of approximately $5 billion. But the loss in revenue from the lowering of the highest marginal rates, while it could not be calculated precisely from available IRS data, would appear to be in excess of $10 billion, as IRS SOI Data indicates over $40 billion was collected in 1982 from taxpayers with incomes which would have been taxed at a marginal rate of 70 percent in 1979. Even recognizing that some taxpayers may have modified their economic decisions in 1982 due to the lower marginal rates, it appears highly unlikely from all available data that the rate cuts did not result in a revenue shortfall.

Comparison of the partialled beta coefficients for $X^3$ (percent of interest income over total income) between 1979 (.00323) and 1982 (.01394) shows that $X^3$ is positively correlated to voluntary compliance, and that this correlation, albeit not a strong one, is stronger in 1982 than it was in 1979. The $T$ ratios (26.896 for 1979, 116.960 for 1982) again indicate we can reject the null hypothesis that the true $B$ equals zero. This finding is consistent with the IRS data and with the expectation that the increased reporting of interest income to the IRS as
required by TEFRA, should increase voluntary compliance reporting of this type of income.

Similar results were not obtained, however, for \( x \) (percent of dividend income) as the 1979 partialled coefficient was .0026 while for 1982 it was -.00057. It would seem curious that dividend income reporting would not react in a similar manner as interest income reporting. This indicates \( x \) was positively correlated with VCL in 1982, in spite of the additional reporting requirements of TEFRA. A possible explanation may be that the coefficients are so small (compared even to \( x \)) that there was just virtually no change from 1979 to 1982 on dividend income reporting. Also, the other variables may be, for some unknown reason, interacting differently with \( x \) in 1982 than in 1979. IRS aggregate data combines interest and dividend income together and the 1979 and 1982 TCMP surveys show the VCL for interest and dividend income as follows: 1979 - 95.5, 1982 - 96.9 (IRS, 1986). This increased VCL for dividend and interest income is about 100 percent more than the overall VCL increase from 1979 to 1982. Total increased revenue, estimated from TCMP and SOI Data is over $3 billion.

The Beta coefficients for \( x \) (percent of schedule C income over total income) were the largest coefficients in the regression equation for both years: -.08512 in 1979
and -.09322 in 1982. This not only indicates that under-
reporting of schedule C income is a continuing problem for
the IRS, but it also indicates the problem is getting
worse, evidenced by the larger coefficient for 1982. IRS
published data (1986) confirms this. According to IRS
estimates from TCMP surveys, the VCL for schedule C income
dropped from 75.8 percent in 1979 to 67.6 percent in 1982.
The T ratios for X were -703.172 in 1979 and -792.928 in
1982. Therefore significance of T is .0000 and the null
hypothesis that the true B equals zero may be rejected.
Estimated amount of tax revenue lost due to this VCL
decline is in excess of $1.5 billion.

For \( X \) (coded 0 = paid return preparer, 1 = other) the
partialled Beta coefficient for 1979 was .02418 and for
1982 it was .02408. This means that having a return
prepared by a paid return preparer is negatively correlated
to VCL, both in 1979 and 1982. The T ratios (199.074 for
1979, 203.011 for 1982) again indicate rejection of the
null hypothesis. While the coefficients are not large, we
should note that both the coefficients and the T ratios
remained virtually unchanged from 1979 to 1982. It is
probable that the relationship to VCL situation is a result
of CPAs taking aggressive positions on complex issues where
there is some question. The coefficient in 1982 is only
very slightly smaller than the 1979 coefficient (.0001).
The effect of the return preparer penalty will need to be tested in future years.
CHAPTER V

CONCLUSIONS AND IMPLICATIONS

A primary goal of this exploratory research was to take a first step in attempting to gain some understanding of the factors influencing tax compliance, using TCMP data. The timing of the TCMP surveys (1979 and 1982) was such that it was felt some insight could be gained about the effectiveness of tax compliance legislation which was passed between 1979 and 1982.

The results of this research provide some interesting insights into the possible effects of ERTA, TEFRA and earlier rate cutting legislation on tax compliance. While the overall voluntary compliance level (VCL) level did increase from 1979 to 1982, the VCL increase for taxpayers in the above the mean marginal rate group was much smaller (.42 percent as opposed to 1.53 percent) than the overall increase. These results are very inconsistent with the notion that high marginal rates are a major cause of tax evasion, and tends to strongly refute the first hypothesis, which was that the VCL should increase in response to lower marginal rates. This suggests marginal rates may not be strong determinants of compliance. Probably other
factors, such as opportunity for evasion and risk of detection may be more important. This is consistent with some of the findings for the second hypothesis, especially with regard to self-employment income as a percent of total income, which had the largest beta coefficients (-.090322 for 1982, -.08512 for 1979) in the model. This is probably due to a lower risk of detection of underreporting this type of income, and may suggest that TEFRA provisions aimed at this problem were ineffective. The third hypothesis related to the impact upon the VCL of returns done by paid return preparers, and the results failed to show any significant change between 1979 and 1982 of the slight negative impact upon VCL of returns done by paid return preparers.

Indicators of areas of interest for possible future research may be obtained by looking at the list of factors which the IRS (1986) believe may explain the primary reasons which underly this increase in compliance which took place in 1982 after many years in which compliance had always been decreasing. (By the way, the IRS estimates that TCMP surveys only detect about 1/3 of the total amount of underreported taxable income).

The factors IRS believes may have contributed to this increase in compliance in 1982 are:

1. less progressive tax rates resulting from the Economic Recovery Tax Act (ERTA) of 1981;
2. the redistribution of taxpayers into traditionally high compliance examination classes;

3. changes in the quality and depth of the TCMP examinations between 1979 and 1982; and


Analysis of these "factors" leads one inevitably to conclude that several interrelated variables are actually involved. Many of these have been previously listed and they will not be repeated here. At the heart of the problem is the choice of the proper methodology. In order to set up an hierarchical regression, it is necessary to assume a causal priority. Attempts to develop "causal models" has led to the development of a new field which sociologist and psychologists, in particular, have begun to use, and which is referred to as "path analysis." This is an exciting new methodology which may lend itself particularly useful to analysis of a causal model for income tax compliance. This may be the great challenge of the future for the researcher in the field of tax compliance.
APPENDIX A
# Summary of Tax Compliance Research in Accounting

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<tr>
<th>Year</th>
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<th>Publication</th>
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<td>Vogel</td>
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<tr>
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<tr>
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<td>Kaut</td>
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<td>1975</td>
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<tr>
<td>1975</td>
<td>Jackson &amp; Holmes</td>
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<tr>
<td>1975</td>
<td>Higginboth</td>
<td>JAM</td>
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<td>Spicer &amp; Lindhurt</td>
<td>JPE</td>
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<td>Kilian</td>
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<td>Schwartz</td>
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<td>Choate</td>
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**Methodology:**
- EXP. SURVEY
- TAX
- ETH PROSP.

**Theory:**
- EQUITY

**Non-Accounting Studies on Tax Compliance**

**Abbreviations:**
- NTJ - NATL TAX J
- BTK - BRITISH TAX REV
- JPE - J PUBL ECON
- PUB. FIN. - PUB. ADMIN.
- J of AMERICAN TAXATION ASSOC

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64
## Estimation of Underground Economy and Tax Evasion in the U.S., 1930-1980

### Table: Yearly Estimates of Underground Economy and Tax Evasion

<table>
<thead>
<tr>
<th>Year</th>
<th>Illegal Money (1)</th>
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<th>Underground Economy (4)</th>
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<td>0.62</td>
</tr>
</tbody>
</table>

### Source:
APPENDIX C
SPSS INPUT INSTRUCTIONS

I. DATA LIST FILE

Listed below is all the data appearing on the TCMP checksheets (form 3628) which will be needed for the regression. Reference numbers shown are the checksheet item numbers.

Source: TCMP Handbook Doc. 6457 (Rev. 9-84). All references are to the data "as corrected" with the one exception, as noted, in computing the level of tax compliance.

<table>
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<tr>
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<td>Filing status</td>
<td>20-24</td>
<td>11-16</td>
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<tr>
<td>2</td>
<td>Total income taxes, per return *</td>
<td>116 (1)</td>
<td>111 (1)</td>
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<tr>
<td>3</td>
<td>Total income taxes as corrected *</td>
<td>116 (2)</td>
<td>111 (2)</td>
</tr>
<tr>
<td>4</td>
<td>Interest income</td>
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<td>65</td>
</tr>
<tr>
<td>5</td>
<td>Taxable dividends</td>
<td>50</td>
<td>66</td>
</tr>
<tr>
<td>6</td>
<td>Schedule C income</td>
<td>53</td>
<td>69</td>
</tr>
<tr>
<td>7</td>
<td>Total income</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>8</td>
<td>Paid return preparer</td>
<td>8</td>
<td>53</td>
</tr>
</tbody>
</table>

* only taxes computed per tax table and tax rate schedules X, Y, or Z. Will ignore all cases of sch. G, form 4970, 4972, 5544, and section 72 penalty taxes.

II. VARIABLE LABELS

V1          Filing status
V2          Total income taxes, per return
V3          Total income taxes, as corrected
V4          Interest income
V5          Taxable Dividends
V6          Sch. C income
V7          Total income
V8          Paid return preparer

Other variable labels will be assigned after the compute command has calculated these variables.
III. COMPUTE (DEPENDENT VARIABLE)

The one dependent variable is PCT of voluntary compliance. It should be computed to 3 decimal places (for example: 95.6%) and will be the total taxes, per return, over total taxes, as corrected, times 100. Assigning on 8 digit variable name and in accordance with the SPSS-X user's guide, calculation of this could be coded as follows:

\[
\text{COMPUTE V9 = (V2/V3) * 100}
\]

Now, another VAR label command could be used, with V9 = percent of voluntary compliance.

IV. COMPUTE (INDEPENDENT VARIABLES)

Summary of independent variables for the regression:

X1  Low vs "non-low" marginal rates
X2  Middle vs "non-middle" (high) marginal rates
X3  year
X4  (interaction variable - year & marginal rates
X5  PCT of interest income
X6  PCT of dividend income
X7  PCT of schedule C income
X8  Paid return preparer

1. For variable X1, the compute command could specify if the taxpayers total income taxes, per return (V2) are less than $2,993 (1979 mean tax liab. per S01 is $2,992), V10 (Prev. X1) equals zero (0). If V2 is greater than or equal to $2,993, V10 equals one (1).

2. For regression variable X2, the compute command could specify if the taxpayers total income taxes exceed those which would just result in a marginal rate of at least 49%, depending on the filing status, then new variable, V11 (X2) equals 1. Otherwise it would equal zero.

\[
V11 = 1 \text{ if taxable income is equal to or greater than:}
\]
Married, joint return  $45,800  $60,000
Head of household  $44,700  $44,700
Single  $34,100  $41,500
Married, separate return  $22,900  $30,000

3. This variable (X3 in regression equation), now V12, will be the result of combining the two data bases, 1979 and 1982 TCMP into one. 1979 = 0, 1982 = 1.

4. This interaction variable is computed by literally multiplying together the two variables (X1 and X2 above), now V10 and V11. V13 = V10 * V11.

5. Compute percent of interest income (V14) as follows:

(round to 3 decimals for all variables using a percent)

COMPUTE V14 = (V4/V7) * 100

6. COMPUTE V15 = (V5/V7) * 100
7. COMPUTE V16 = (V6/V7) * 100

8. Compute so that 1 = self or other preparer, 0 = paid return preparer.

1979 TCMP lines 7-13 = 0 all other lines = 1
1982 TCMP - line 53 asks if paid return preparer: 0 = yes on line 53
                                               1 = no on line 53

V. VARIABLE LABELS (Additional)

V10  Low-middle marginal rates
V11  Middle-high marginal rates
V12  TCMP year
V13  Interaction variable
V14  Percent of interest income
V15  Percent of dividend income
V16  Percent of Schedule C income
VI. VALUE LABELS

V1  (The computer codes assigned by IRS to represent the filing status)
     (0) paid return preparer (1) other
V8  (0) at or below mean marginal rate
     (1) above mean marginal rate
V10 (0) middle marginal rate
     (1) high marginal rate
V12 (0) 1979 (1) 1982

VII. SELECT IF

We will want all observations (TCMP audits) selected for which there was an income tax liability (computed with tax tables or tax rate schedules), as corrected. Therefore the SPSS coding could be as follows:

Select IF (V3 GTO)

VIII. REGRESSION

REGRESSION VARIABLES = V9 to V8/DEPENDENT = V9/ENTER
V10/ENTER V11 V13/ENTER V14/ENTER V15/ENTER V16/ENTER V18
FORMULA FOR T RATIO FOR COMPARABILITY OF REGRESSION COEFFICIENTS FROM DIFFERENT POPULATIONS

Source: Jacob Cohen and Patricia Cohen, Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences (1975), 53.

\[
t = \frac{B_E - B_F}{\sqrt{\frac{\sum(Y_E - \bar{Y}_E)^2 + \sum(Y_F - \bar{Y}_F)^2}{n_E + n_F - 4} \cdot \frac{\sum x_E^2 + \sum x_F^2}{\sum x_E^2 \cdot \sum x_F^2}}}
\]

E = 1979 TCMP Survey
F = 1982 TCMP Survey

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<tr>
<th>VARIABLE</th>
<th>T VALUE</th>
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<td>X6</td>
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BIBLIOGRAPHY


Dunn, D. H. "The Odds are Greater That the IRS Will Audit You." *Business Week* (1 November 1982), pp. 105-106.


____, *Conference of Tax Administration Research Strategies* (IRS, November 1983).


