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THE REPORT OF THE UNITED STATES TO THE INTERNATIONAL FISCAL ASSOCIATION ON THE COSTS OF TAX ADMINISTRATION AND COMPLIANCE

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ABSTRACT

This is a report prepared for the International Fiscal Association on the costs of tax administration and compliance in the United States. At the federal level, we present comprehensive data on administrative costs and review recent estimates of compliance costs. At the state level, we present new data on the administrative costs of state income taxes and general sales taxes, and review the very limited data on state level compliance costs. We also discuss the growing role of tax preparers, including new empirical results of our own. Finally, we review the recently enacted "Taxpayer Bill of Rights."

SUMMARY

Examining the costs of tax administration and compliance in the United States is difficult for two very different reasons. With respect to administrative costs, there are too many facts; with respect to compliance costs, there are too few facts. The task is to sift through the voluminous data on the administrative side and to gather what little exists on the compliance side.

There are two persistent themes that emerge from the data. First, there is the role of multiple sovereignty, called federalism in the United States. Taxes are levied by federal, state and local governments, with each administering and enforcing its own tax laws. Taxes at the three levels overlap somewhat, but their taxing structures vary widely. Lack of coordination among the three results in inefficient collection of tax, and duplicative burdens on taxpayers. Second, new technology is rapidly changing tax administration and compliance. For example, all levels of government are making increasing use of computers to match information on returns with information reported to the government by third parties. This dynamic suggests great caution in drawing firm conclusions from the data.

At the federal level, the data on administrative costs are extensive. They indicate that the real operating costs of the Internal Revenue Service (IRS) have increased during the last ten years while the cost of collecting revenues has remained fairly constant. There has also been a substantial growth in IRS personnel during this period. In addition, a significant shift in budgetary allocations has occurred. Resources are increasingly being devoted to returns processing and computer services, while the money allocated to audits has declined.

Although the audit remains the primary enforcement tool at the federal level, audit rates have fallen dramatically in the last ten years. The rate for individual returns is now about 1 percent, less that half of what it was in 1977. The corporate rate is also about 1 percent, less than one sixth of the 1977 rate. At the same time, however, new penalties have substantially increased the gross and net penalties imposed on individuals and corporations.

An analysis we performed for this project gives some idea of how the IRS allocates its audit resources. The data indicate that IRS audit rates by state tend to increase with increases in the IRS budget per return filed, unemployment rates, and education levels. The rates tend to decrease with increases in the age of the population, the proportion of the workforce in service industries, and per capita income. The data also show that the IRS state level budget per individual return increases with increases in the unemployment rate, per capita income, and individual returns filed per capita. It decreases with increases in age, percent of the workforce in manufacturing, and education.

Although the data on compliance costs are not nearly as extensive, there are some recent studies worth noting. Slemrod and Sorum, using a recall survey questionnaire, estimated that in 1982, the average compliance time for individuals was 21.7 hours. By imputing a monetary value to this time, they estimated the average cost of compliance to be $231 plus "additional expenses" of $44. Aggregating this to the country as a whole, they estimated the total burden for individuals to be 2.13 billion hours and $26.7 billion. The latter amounts to 1.4 percent of aggregate adjusted gross income and almost 7 percent of total federal and state income tax revenue.

In a much more comprehensive study, the Arthur D. Little Corp. conducted three national surveys in 1984. Unlike Slemrod and Sorum, this study focussed solely on federal taxes. It estimated the average individual burden to be 26.4 hours (no monetary values were imputed). The aggregate figure for the country was 1.59 billion hours, after applying a correction factor to account for variations in the three surveys. If this correction factor is applied to Slemrod and Sorum's data, their estimate for the aggregate burden becomes 1.66 billion hours and 20.8 billion dollars. This is roughly similar to the Arthur D. Little results.

Three other points are worth noting. First, in both studies, there is considerable variation in time spent, ranging from 9.5 to 45.6 hours in the Slemrod and Sorum study, and from 14.6 to 56.5 hours in the Arthur D. Little study. Second, in both cases, the highest burdens appear in the highest income classes, due to more complex returns and probably also to efforts to minimize taxes. Third, Slemrod and Sorum found very high burdens in the lowest income classes, an effect not found by Arthur D. Little Corp.

Two other studies provide limited additional evidence on individual compliance costs. One, conducted in 1987, estimated that about 75 percent of households spend 20 hours or less on the tax process. This is comparable to Slemrod and Sorum's results. However, this later study found a general upward shift in the distribution of hours spent, possibly reflecting an increase in the complexity of filing requirements in the three years separating the surveys. The second study looked solely at the costs involved it itemizing deductions. Its estimated that in 1982, the total private costs of itemizing deductions were $1.44 billion, or $43 per itemizing taxpayer.

At the state level, structures of taxation vary considerably. In general, sales and income taxes provide the largest sources of revenue for states, and at the local level, the property tax is the primary source. Unfortunately, there are no data that would allow us to isolate the administrative costs of particular state taxes. Instead, we have data on the overall costs of "financial administration," which includes most activities involving state finances and taxation. As a percent of total state revenues, there has been only a slight rise in such costs over the last ten years, but in real terms, they have grown substantially.

With respect to state income taxes, the data on administrative and compliance costs are also sparse. These costs are likely to vary significantly across states. In connection with this paper, we conducted a preliminary analysis of some state level data for one year, 1985. Our results, although very tentative, suggest that state individual collections per return increase with increases in the state audit rate, the average state income tax rate, and per capita state income.

One persistent theme in the state income tax area is the increasing sophistication of state tax collectors. Many states now require information returns for certain types of income, e.g., dividend income and rents and royalties. Computer technology is also being used more frequently to match state information against information filed at the federal level. And although some states still do no auditing at all, some conduct audits using integrated federal and state data, and many now have centralized office auditing of individual income tax returns.

Information on the administrative costs of state sales tax is available for only 18 states. The data indicate that the average administrative cost of the sales tax in these states is roughly .7 percent of total state sales tax revenue, and ranges from .3 to 1.68 percent. Extrapolating to the country as a whole produces an estimate for total administrative costs of $336 million in 1982. With respect to

the compliance costs of state sales taxes, a 1961 study concluded that the average cost of compliance for all vendors in Ohio was 3.93 percent of tax liability.

Tax preparers play an important and special role in the United States tax system. In 1986, nearly half of the 100 million federal individual tax returns were signed by paid preparers. Recent research suggests that an individual's decision to use a preparer is influenced by several factors. In general, use of a preparer appears to increase with income, age, self-employment status, and the complexity of the return. In connection with this paper, we have estimated a new model of the decision to engage a preparer. Our results generally comport with these other studies but also show a positive relationship between audits and paid preparer usage.

Tax preparers do not seem to reduce the amount of time taxpayers spend on compliance activities. Rather, time spent appears to be more dependent on return complexity and income. At this stage of the research it is not possible to draw firm conclusions about the effect of preparer use on compliance. One study found no difference in compliance between those using preparers and those self-preparing. Another found some evidence that, at least for higher income taxpayers, preparer use is associated with compliance on unambiguous return items, and with noncompliance on ambiguous ones.

The last few years have seen a flurry of legislative activity in the federal tax area. One of the more noteworthy developments is the new Taxpayer's Bill of Rights, which was enacted in November, 1988. In large measure, the Bill was a response to negative taxpayer attitudes toward the IRS and to taxpayer concerns with increasing exposure to penalties. The Bill codifies certain IRS practices and delineates some new taxpayer rights and IRS duties. Essentially, it attempts to shift the taxpayers' costs of compliance to the government whenever the government takes positions not justified under the law.

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I. INTRODUCTION

Due to the nature of this project, the discussion that follows is only a beginning of research rather than the final word on the subject. Assessing the administrative and compliance costs of taxation in the United States is made difficult for two very different reasons. With respect to administrative costs—at the federal level at least—there are too many facts; the problem becomes one of selecting the most informative and intelligible. With respect to compliance costs, to the contrary, there are too few facts. There is some recent survey work on the costs of complying with income taxes, but there is little information on the compliance costs of other taxes and nothing on the costs to business of facilitating income tax compliance by third parties through withholding and information reporting, etc.

Notwithstanding the difficulties, several themes emerge, most of which will be discussed in connection with particular data. Two facets are so pervasive, however, to merit brief discussion at the outset. The first is the role of multiple sovereignty (in the United States called federalism). Taxes are imposed by the federal government, by the fifty state governments and by many local governments. On the government side, multiple resources are devoted to tax collection, and there is entirely too little coordination among governments, although there has been some recent improvement. From the taxpayers' point of view, multiple filing requirements and a variety of taxing structures at best overlap occasionally. Substantial opportunities exist for significant efficiency gains for taxpayers and governments alike.

Second, the technology of both tax administration and tax compliance is rapidly changing. For example, tax preparation software for personal computers may soon threaten the tax preparer industry. Tax preparers themselves are developing more sophisticated technologies for processing tax returns and evaluating tax related information. Tax filing by magnetic tape should increase in the future. The budget of the Internal Revenue Service ("IRS") and state tax agency budgets for computer processing have been increasing apace, and, as a result, governments are better able to match third party information reports with tax returns and to accomplish a variety of other enforcement tasks. Technological change threatens to render obsolete virtually any snapshot of tax administration and compliance. This suggests great caution in drawing firm conclusions from the

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data, even relatively recent data.

The Tax System as a Whole

Taxes in the United States are levied by federal, state, and local governments, with each administering and enforcing its own tax laws. Taxes in the three levels overlap somewhat, especially between the federal and state governments, but their taxing structures vary widely.

At the federal level, responsibility for tax policy and tax administration resides in the Department of the Treasury, a Cabinet level agency, although tax legislation must be enacted by Congress and signed by the President. The Commissioner of Internal Revenue is responsible for tax administration. The Internal Revenue Service is extremely large, with a $4.37 billion budget and more than 100,000 employees in 1987.

The total United States tax burden relative to gross national product has remained fairly constant over the last twenty years— in the range of 20 percent.[1] In 1986, tax revenues were about 27 percent of gross domestic product, having remained around that level (27 to 30 percent) since the late 1960s.

Table 1 presents the components of total government revenue for selected years since 1960. Individual income taxes are the largest single source of tax revenue, about 37 percent in 1986. This figure has also remained fairly constant over the last twenty years. In contrast, corporate income taxes contributed about 7 percent of all tax revenues in 1986, down from about 16 percent in 1965 and nearly 28 percent in 1953. This downward trend may have been halted by the passage of the Tax Reform Act of 1986.

[Table 1 approximately here]

Social security contributions are another major source of revenue. In 1985 they provided about 23 percent of all revenues. This amount has risen steadily since 1965 when it was about 13 percent. Finally, general sales taxes accounted for about 5 percent of tax revenues in 1985. This has remained fairly constant since the late 1960s (5 to 7 percent).

II. FEDERAL INCOME TAXES

Description of the Federal Income Tax

The primary source of federal revenue is the income tax, which accounted for 58.1 percent of all federal tax revenues in 1987 (47.9 percent from individual and 10.2 percent from corporate income taxes).[2] The structure of the individual income tax is straightforward. Individuals add up their gross income, then subtract deductions and exemptions, and pay a specified rate on the remainder. Certain credits are allowed directly against tax liability. Prior to 1986, rates on

1. The data in this section of this report are from one or more of the following: *Statistical Abstract of the United States* (Selected Years); *Economic Report of the President* (Selected years); Organization for Economic Cooperation and Development, *1987 Government Finance Statistics Yearbook*; United States Department of Commerce, Bureau of the Census, *State Government Finances in 1987*, and *Local Government Finances in Major County Areas: 1985-1986*; International Monetary Fund, *1987 Government Finance Statistics Yearbook*; Graetz (1988).
2. Source: *Economic Report of The President* (1988).

individual income ranged from 11 percent to 50 percent (before 1964, the top rate was as high as 91 percent). The Tax Reform Act of 1986 nominally provides for only two brackets: 15 percent and 28 percent, but there is also a third "bracket" which taxes certain income at a 33 percent rate.

Taxpayers are allowed a "standard deduction" and "personal exemptions," which establish a threshold for the imposition of the income tax. For example, an unmarried individual with no children is exempt on the first $4950 of income. The income tax is generally imposed upon individuals or married couples, but not upon families as a unit. Thus children who earn income are typically taxed separately at their own rate; however, beginning in 1987 certain unearned income of children under age 14 is taxed at their parents' marginal rate.

In addition to the regular tax computations, there is a minimum tax, a tax imposed at a lower rate on a broadened income base. To the extent that this broadened base exceeds a certain threshold ($30,000 for single individuals), a 21 percent tax is imposed if that tax is greater than what the taxpayer's liability would otherwise be. The minimum tax was strengthened in the 1986 Tax Reform and is expected to increase individual tax receipts by $3.9 billion in 1988, in contrast to $2 billion in 1985 under prior law. (Graetz, 1988 p. 1064.)

In general, corporations calculate income tax in the same way as individuals. The corporation adds up its gross income, subtracts deductions and exemptions, and pays a specified rate on the remainder. Corporations are treated as separate taxable entities and are taxed on their earnings apart from shareholders. Dividends are not deductible by the corporation, and are income to shareholders. In contrast, interest is deductible by corporations and is taxed only to the recipient.

The corporate tax rate is 15 percent of the first $50,000 of taxable income, 25 percent on the next $25,000, and 34 percent on income over $75,000. In addition, a 5 percent surcharge at certain income levels phases out the benefits of the graduated rates for higher income corporations. Personal service corporations (e.g., incorporated law and medical firms) are taxed at a flat 34 percent rate. The corporate rate structure adopted in the 1986 Act taxes, for the first time in the United States, corporate income at a higher top marginal rate than individual income.

The law prior to 1986 set the top corporate rate at 46 percent. The reduction to a top rate of 34 percent was accompanied by a redesigned corporate minimum tax and by the repeal of an investment tax credit and other special deductions previously available to corporations. One of the major purposes of these changes was to make more equal effective corporate tax rates, which under prior law had varied dramatically from industry to industry and even within particular industries.

In 1986 the structure of the corporate minimum tax was changed, and the base on which it is computed was broadened. One of the more important new provisions imposes a minimum tax on the "book income" corporations report to shareholders, an amount which often bears little resemblance to the amount of income otherwise reported to the government. The new minimum tax is expected to produce an additional $5.3 billion in corporate tax receipts, compared to $500 million under the minimum tax of pre-1986 law. (Graetz, 1988, p. 1064.)

The income tax is a so-called self-assessing system. The taxpayer performs the required calculations and files a return, which constitutes the final determination of tax unless challenged by the government. In this context, considerable debate occurs about whether the return should be the taxpayer's best estimate of tax liability of whether it is merely an opening bid in what is essentially an adversarial proceeding with the government, with the taxpayer in effect playing an "audit lottery"

in which only about 1 percent of individual returns are now audited.

A primary administrative feature of the tax is mandatory wage withholding. Employers withhold taxes on employees' wages, and typically deposit these amounts with authorized banks. In 1986, gross collections of individual income taxes amounted about $416.6 billion, of which withholding accounted for $314.4 billion.[3]

Administrative Costs

Table 2 summarizes the costs of administering the federal tax system for selected years since 1960. The real operating costs of the IRS increased 38 percent during the last ten years. In contrast, the cost of collecting one hundred dollars of net tax has fluctuated somewhat during the period, but in recent years has remained about 55 cents, roughly the same as in 1960; real costs per return filed show a somewhat similar pattern. During the same period, real net collections per capita increased by about 16 percent.

There has also been substantial growth in IRS personnel. The method of calculating the number of employees changed between 1982 and 1983, so it is difficult to make comparisons before and after that transitional period, but it is significant that the total number of personnel grew by roughly 20,000 employees between 1983 and 1987, amounting to an almost 25 percent increase. During this period the real cost of collecting $100 net of refunds was virtually flat, and total returns filed only grew from 171 million to 193 million, less than 13 percent.

[Table 2 approximately here.]

Table 3 indicates that a significant shift in the allocation of IRS resources has occurred over the last ten years. While "returns processing and computer services" increased from about one quarter to one third of the IRS budget, almost all other activities saw their total budgetary share decline. The only other activity which has grown significantly is "appeals," up from 2.2 percent to 4.3 percent. "Taxpayer service" is down (7.9 percent to 5.7 percent) and "technical rulings and enforcement litigation" is also down (3.3 percent to 1.5 percent). Of particular importance, the share devoted to audits ("examinations") declined from about 35 percent to slightly less than 30 percent of the total budget.

[Table 3 approximately here.]

Indeed only 1 percent of returns are now audited. Audits, however, remain a major enforcement tool at the federal level, and the IRS uses a variety of mechanisms in an attempt to increase audit effectiveness. The most important of these is the Taxpayer Compliance Measurement Program (TCMP), which is a series of special audits the Service conducts about every three years. These audits cover about 50,000 randomly-selected taxpayers, and are quite comprehensive.[4]

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3. Source: *Statistical Abstract of the United States.* Gross collections are not the same as total revenues; gross collections are not reduced by amounts eventually refunded.

4. TCMP audits are not quite random because higher income taxpayers are sampled more heavily.

The data collected from these special audits are analyzed using a statistical technique known as discriminant function analysis (DIF). The details of the analysis are one of the best kept secrets in government, but the goal is to identify the characteristics of returns that are likely to yield additional revenue if audited. The higher the DIF score associated with a return, the more likely that an audit of the return will yield additional revenue above a threshold amount. The primary use of DIF scores is to select returns for routine audits.

The process of selecting returns for routine audit begins when the return is entered into the IRS computers shortly after it is filed. The computer first looks for obvious mistakes, like simple computational errors, and then calculates a DIF score based on the most recent TCMP data. Within the next eighteen months or so information from third parties (e.g., employers and payors of interest and dividend income) is matched against the self-reported information on the return. An audit is triggered either by a sufficiently high DIF score or by a sufficiently large discrepancy between self-reported and third party-reported information.[5] Routine audits are considerably less detailed than TCMP audits and typically focus on a fairly narrow range of return items.

Table 4 demonstrates that the audit rate for individual returns (nonbusiness) varied from 0.35 percent to 3.53 percent in 1985, and the marginal yield to cost ratio ranged from $3 to $7.[6] In contrast, the audit rate for noncorporate business and farm returns ranged from 1.45 percent to 5.4 percent, while the marginal yield to cost ratio varied from $3 to $4. The Service's estimate of voluntary compliance for noncorporate businesses is about 15 percent lower than that for individuals without business income. Even though voluntary compliance is estimated to be lower for noncorporate businesses, marginal yield to cost ratios are also lower despite relatively high audit coverage.

The process for auditing corporations is quite different. Most large corporations are audited regularly, and audit rates are quite high for corporations over $1 million. The marginal yield to cost ratios, however, are about the same as for individuals, except for the largest corporations; the estimated marginal yield to cost ratio for the very largest corporations (over $100 million), for example, is too high to measure meaningfully.

Several aspects of these facts merit consideration. First, the marginal yield to cost ratios include only direct IRS costs. They exclude the costs that taxpayers incur when they are audited. These may be substantial even if the audit yields no change in the taxpayer's assessed tax liability— for individuals and smaller corporations about 15 to 25 percent of audited returns result in no-change in tax liability. There are also other less quantifiable taxpayer costs associated with audits— the loss of privacy and the resources devoted to tax or penalty avoidance, to name but two.

Second, the marginal yield to cost estimates do not include the indirect revenue associated with the general deterrence effect of audits. Our estimates suggest that the ratio of indirect to direct revenues could be as high as 7 to 1 for individual returns. (Dubin, Graetz and Wilde, 1988)

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5. In fact, an automatic notice that additional taxes are due is sent whenever the discrepancy between self-reported and third party reported information is above a threshold.

6. Data on 1985 audit rates and yields are from Steuerle (1987). "Marginal yield" refers to the additional revenue per dollar of cost that would be realized if one more return were audited. Since the audit process is based on DIF scores and thus selects first the returns with the highest yield potential, "average yield" is based on audits of returns that generate relatively large additional revenue. The marginal yield therefore generally will be lower than the average yield.

Finally, marginal revenue estimates of audits based on TCMP data typically include penalties as well as additional tax revenue from audits. Thus, while the estimated marginal yield to cost ratios may indicate where the IRS is best at discovering unpaid taxes through audits, they do not provide a complete picture of the role auditing plays in maintaining compliance with the tax laws. For example, they provide no information on the trade-off between audits and penalties.

[Table 4 approximately here]

Table 5 provides information on audit rates and aggregate civil penalties over the last ten years for individuals and corporations. Several interesting facts emerge from this table. First, audit rates have fallen dramatically in the last ten years. Despite a small increase in the number of individual returns examined in 1987, the individual audit rate is about 1 percent, less than one half of what it was in 1977. The corporate audit rate is now also about 1 percent, less than one sixth of the 1977 rate.

Second, new and larger penalties enacted during recent years have dramatically increased the gross and net amount of penalties assessed for both individuals and corporations. For individuals, the average amount of penalties levied per return increased from $19 to $914 between 1979 and 1987, while for corporations it increased from $94 to $4,083 during the same period. Note however, that while the dollar amounts of net penalties per return examined are greater for corporate returns, the net average penalty rate, which is net penalties divided by additional tax due resulting from an examination, is much greater for individuals.[7] The net average civil penalty rate for individuals has risen steadily to 20.7 percent in 1987, while the analogous rate for corporations is only 1.7 percent. On the average for the years 1977-87, the net average civil penalty rate for individuals is 14 times that for corporations.

[Table 5 approximately here.]

While the data reported here give a rough overview of IRS activity, they really do no more than that. We have, however, performed some additional analysis of IRS audit rates and budgets, by state, over the period 1972-86 using the data set described in Dubin, Graetz and Wilde (1988). We find that individual audit rates increase with increases in the budget per individual return filed, unemployment rates and the percent of the adult population with a high school education or more. Audit rates decrease with increases in the percent of the adult population over 65 years old, the percent of the work force employed in service industries, per capita income and time.

We have also analyzed the IRS state level budget per individual return using lagged values of the budget per return and a set of demographic and tax administration variables similar to those just listed. The lagged value of the budget per return is included as it is generally difficult dramatically to change the budget allocation in a single year. Factors which affect the residual positively are the unemployment rate, per capita income and individual returns filed per capita. Those variables which affect it negatively are the percent of the adult population between 45 and 65,

7. The average penalty rates are approximate because we arrive at them by subtracting civil penalties assessed during examinations from total additional tax and penalties assessed during examinations to arrive at an estimate of total additional taxes alone. We then divide total penalties by total taxes to get a rate.

the percent of the work force employed in manufacturing, the percent of the adult population with a high school education or more and time. These results reveal anomalies only with respect to education and income. The former is positively associated with audit rates but negatively associated with the budget per return, while the opposite holds for income per capita.

Compliance Costs

While we have relatively good data on the administrative costs of enforcing the federal income tax, we know far less about compliance costs— the costs borne by taxpayers, either in attempting to comply with the law or in attempting to minimize their taxes, lawfully or otherwise. These costs may be explicit, as in the costs of fees to tax practitioners, or implicit, as in the opportunity costs of time spent keeping records or filling out tax forms. Intangible costs are also involved, such as psychic costs incurred by those who do their best to comply but nevertheless fear unfair treatment at the hands of the IRS. Fortunately, some recent progress has been made on estimating these costs, although the estimates are not without their problems.

Two detailed studies based on survey data attempt to estimate aggregate compliance costs to the entire U.S. of filing federal and/or state income tax returns. The study by Slemrod and Sorum (1984) considers only individuals but includes both federal and state income taxes. The Arthur D. Little Corp. (1988) study considers individuals and businesses but includes only federal income taxes. Slemrod and Sorum's results relate to 1982 and Arthur D. Little's results relate to tax year 1983, although projections for 1984 and 1985 are also provided in the latter case. Tables 6, 7 and 8 summarize some of the relevant results from these studies.

The Slemrod and Sorum study is based on a recall survey mailed to 2,000 Minnesota residents immediately after the deadline for filing 1982 income tax returns (April 15, 1983); 600 usable replies were received. In addition to soliciting basic demographic information, the survey requested information about the household's federal and state income tax returns and the costs of filing those tax returns. The authors asked for total hours spent on tax compliance during the year and for a breakdown of those hours into various categories. In addition, they asked about money spent on tax assistance or otherwise spent on filing returns. The survey included a question on the individual's attitude toward filing returns and a question designed to elicit an estimated dollar figure for the value of all time, effort and money spent on tax affairs. Taxpayers were also asked whether they had ever chosen not to undertake some business activity because of the difficulty or expense of complying with tax laws. No attempt was made to distinguish between discretionary costs (e.g., time spent trying to reduce tax liabilities) and nondiscretionary costs (e.g., time spent simply filling out required forms), and in some cases normal business accounting costs might have been included in the estimate of tax compliance costs (e.g., for the self-employed).

Slemrod and Sorum's results are presented in terms both of total hours and total resource costs. In estimating the latter, they impute a monetary value of time to each taxpayer and add that amount to any direct pecuniary costs. This imputed value is based on an estimate of the taxpayer's hourly rate of compensation, after taxes.[8] To estimate aggregate U.S. compliance costs, the

8. In some cases the value of time was not provided by the survey respondents and instead was estimated from other demographic information.

Minnesota sample was "reweighted to more closely represent the actual U.S. taxpaying population."

The primary results of the Slemrod and Sorum survey are given in Tables 6 and 7.

[Tables 6 and 7 approximately here.]

Total hours spent on tax compliance was estimated to range from 9.5 hours to 45.6 hours per return, and "the average compliance time" was estimated to be "21.7 hours, valued at $231, and $44 in additional expenses, for a total of $275 per household." The authors then applied reweighted averages to an estimated 97 million taxpaying units in 1982, yielding aggregate estimates for the U.S. as a whole of "2.13 billion hours and a total resource costs of $26.7 billion." The latter is approximately 1.4 percent of aggregate adjusted gross income, and nearly seven percent of total federal and state income tax revenue.

The recent study by Arthur D. Little is far more ambitious than the Slemrod and Sorum study and thus more difficult to describe or critique succinctly. The overall goal of the project was to develop a methodology for estimating "the paperwork burden" imposed on taxpayers by the federal tax reporting system. In particular, the study estimated this burden, measured in hours, for 1983.

The Arthur D. Little study is based on three national surveys conducted in 1984. The first was a "diary study" in which approximately 750 individual taxpayers recorded daily the time devoted to "performing tax paperwork-related activities." The second was a "recall survey" of 6,200 individual taxpayers which asked for similar information. The third was another recall survey administered to 4,000 partnerships and corporations and their paid tax preparers. Responses to the recall surveys numbered 4,038 and 1,474 respectively.

The questionnaires were similar to the Slemrod and Sorum questionnaire except for a few important details. Arthur D. Little tried to exclude (a) activities that were not uniquely related to filing federal tax returns (e.g., certain elements of financial planning); (b) out-of-pocket financial costs, except paid preparer fees; and (c) time spent on state or local taxes. Information was also sought on the incidence of unpaid preparer usage, and the equivalent time that would have been spent by individuals who used paid preparers had they prepared their own returns.

The final Arthur D. Little report includes a vast amount of technical detail and a variety of results. The aggregate burden estimates for individuals are contained in Tables 6 and 7 and estimates for businesses are found in Table 8.

[Table 8 approximately here.]

A cautionary note is necessary with respect to the results in these tables. Burden estimates from the Arthur D. Little diary survey were systematically less than those from the recall survey, by

a factor of almost one-half.[9] This may be a problem since one tends to trust taxpayer reports from the diary study more than from the recall survey.[10] On the other hand, the sample size of the diary study was much smaller than the sample size of the recall survey. To deal with the inconsistency in the results of the two surveys, a "correction factor" was applied to the recall survey data to obtain the final results given in Tables 6 and 8a. It was not, however, applied to the results given in Tables 7 and 8b.[11]

The use of this correction factor helps explain an apparent anomaly: the overall average burden for individuals in the Arthur D. Little study is 26.4 hours, while in the Slemrod and Sorum study it is 21.7 hours plus $44.20. Yet the former aggregates to only 1.59 billion hours while the latter aggregates to 2.13 billion hours and an overall resource cost of $26.7 billion. If the Arthur D. Little correction factor is applied to Slemrod and Sorum's aggregate estimate, it yields a revised burden of 1.66 billion hours and an overall resource cost of $20.8 billion. These appear roughly similar to the Arthur D. Little estimates. The latter are one year later and do not explicitly include the burden associated with state or local taxes, but these factors should tend to work in opposite directions.

Although the average compliance cost estimates are similar in the two studies, there are some important distributional variations. Slemrod and Sorum found very high burdens in the lowest income class (under $5,000 in their survey), an effect that does not appear in the Arthur D. Little Study.[12] In both studies there is considerable variation in time spent, ranging from a low of 9.5 hours to a high of 45.6 hours in the Slemrod and Sorum study and from 14.6 to 56.5 hours in the Arthur D. Little study. (Some of the differences in these ranges may be due to differences in income class aggregations.)

In both cases, the highest estimates appear in the highest income classes, resulting from more complex returns on average and probably also reflecting efforts to minimize taxes. The extraordinary resource costs attributed by Slemrod and Sorum to the highest income class follows from their decision to estimate the dollar value of hours spent based on imputed wage rates. To the extent that, for both higher and lower income taxpayers, tax compliance substitutes for leisure, this technique may significantly overstate compliance costs and excessively skew their distribution.

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9. The following Table gives "weighted" average individual taxpayer burden estimates by return type and survey type (Arthur D. Little, Inc., 1988, p. IV-36).

Return Type	Diary Study Time (hours)	Recall Survey Time (hours)	Ratio Diary Study to Recall Survey Times
1040EZ	2.59	4.99	0.519
1040A	4.06	7.33	0.554
1040	13.62	24.52	0.555
Average	8.32	14.82	0.561

10. However, the Arthur D. Little Report notes that "even among the respondents who accepted, kept, and returned a diary, we found some evidence suggesting that the diaries were incomplete or that the respondent had simply written in a recall estimate of the time spent on each activity, presumably just before the interviewer returned for the diary, rather than keeping a daily log of the time spent, as intended," (1988, p. IV-37).

11. The formula was $Correction\ Factor = \frac{Diary\ Study\ Time + Recall\ Survey\ Time}{2 \times Recall\ Survey\ Time} = .78$

12. Slemrod and Sorum recognize that this problem may be due to small sample size in that income class.

Limited additional evidence on individual compliance costs for a more recent tax year is provided by Collins, Milliron and Toy (1988). In a mail survey of Oklahoma and Pennsylvania households conducted in the spring of 1987, these authors collected data on "annual hours spent on the tax process," conditioned on whether a tax preparer was used. Where comparable, the results are roughly similar to those of Slemrod and Sorum. In particular, approximately 75 percent of households were found to spend 20 hours or less on the tax process. In comparison to Slemrod and Sorum, these authors, however, found "a large decrease in the percentage spending less than 5 hours (26.9 percent compared to 33.6 percent) and a large increase in the percentage spending 11-20 hours (24.2 percent compared to 14.6 percent), while the percentage spending 5-10 hours [remained] approximately the same (26.0 percent compared to 25.0 percent)." They speculate that this upward shift in the distribution of hours spent on the tax process might reflect an increase in the complexity of filing requirements during the three years separating the surveys. They also found no significant difference in hours spent on the tax process between taxpayers who prepare their own returns and those who use tax preparers.

Perhaps the most interesting recent development in efforts to assess compliance costs is the publication by the Internal Revenue Service of its estimates of the average time required to complete and file various tax forms. The U.S. Office of Management and Budget issued regulations requiring, *inter alia*, that the IRS provide such estimates for each form it issues subsequent to July 1, 1988. In developing such estimates, the IRS is relying solely upon the models for estimation developed in connection with the Arthur D. Little study described above. The first IRS estimates for 1988 tax forms were released December, 1988. These estimates will be updated annually. Each of the IRS estimates for 1988 are divided into four categories: (1) recordkeeping, (2) learning about the law or the form, (3) preparing the form and (4) copying, assembling and sending the form to the IRS. The IRS estimates of average compliance time for the basic 1988 income tax returns and schedules are set forth in Table 9.[13] IRS estimates for certain other commonly used forms, such as those for wage withholding and third-party information reporting were not available as this paper went to press.

[Table 9 approximately here]

13. A brief description of each form of Table 9 follows: Form 1040EZ is the simplest form. It is available only for single individuals with taxable incomes under $50,000. The taxpayer may not itemize deductions, may take only one personal exemption, and must have income only from wages plus a small amount of interest. Form 1040A is also relatively simple. It is restricted to individuals (whether single or married) with incomes under $50,000, and can be used to report income from wages, interest, dividends and unemployment compensation. The taxpayer is permitted to take all allowable exemptions, but cannot itemize deductions. Form 1040, the "long form," is the most complicated. It can be used by an individual to report any type of income and to take all allowable deductions and credits. Schedule A reports itemized deductions; Schedule B is for interest and dividend income; Schedule C is for reporting profit or loss from a sole proprietorship; Schedule D reports capital gains and losses; Schedule E reports supplemental income, including income from rent, royalties, pensions, annuities, partnerships and certain small corporations; Schedule F is for reporting farm income; Schedule R is for calculating certain tax credits for the elderly; and Schedule SE is for reporting tax on self-employment income. Form 1065 is the tax return for partnerships and Form 1120S is for certain small corporations that are taxed essentially like partnerships. Schedules D and K-1 for these forms are for reporting items of income and deduction to partners and shareholders respectively. Form 1120 is the general corporation income tax form and Form 1120A is a more simple version of the corporate tax form that can be used by certain eligible small corporations that are subject to the corporate income tax.

The IRS estimates that the simplest individual income tax return (Form 1040EZ) will require about 1 1/2 hours to complete and that the intermediate form (Form 1040A) will demand 7 to 8 1/2 hours on average. A fairly simple long form with dividend and interest income that claims itemized deductions (Form 1040 with Schedules A & B) is estimated to take slightly more than 15 hours to complete. Although direct comparisons with the Arthur D. Little study are not possible, these estimates seem considerably lower than the totals reported for 1983 by Arthur D. Little, which reported a range from 14.6 hours to 35.2 hours for taxpayers in income classes below $50,000 and an overall 1983 average of 26.4 hours. (See Table 7b.) The IRS estimates imply either considerable simplification for these taxpayers from the 1986 Tax Reform Act or significant variations in the data fed into the model. (Compare, for example, the Arthur D. Little estimate of 5 hours for recordkeeping for taxpayers who have incomes below $10,000 with the IRS estimates of 7 minutes and 1 1/3 hours for recordkeeping for Forms 1040EZ and 1040A respectively.)

Detailed analysis of the IRS data is not possible here, but two other estimates warrant special mention. First, there is considerable variation in the IRS estimates of time required to file small business tax returns. Schedule C (for sole proprietorships) is estimated to require a total of 11 hours and Schedule F (for sole proprietorship farm income) is said to average 17 2/3 hours. By contrast, the corporate income tax form for small corporations (Form 1120A) is estimated to require 113 1/2 hours on average, small corporations taxed essentially as partnerships (Form 1065 plus Schedule K-1) total 166 hours, and partnership (Form 1065 plus Schedule K-1) are estimated to average nearly 229 hours. Each of these estimates is considerably higher than the estimates by Arthur D. Little for 1983. The greatest divergence is for partnerships, for which the IRS estimate is about 5 times longer than the Arthur D. Little estimate. (See Table 8b.)

There are also considerable variations in the estimates of average time to report capital gains and losses (Schedules D). For individuals, the IRS estimates an average of about 3 1/2 hours (which seems very low), compared to 12 3/4 hours for partnerships, 17 1/2 hours for taxable corporations, and 23 1/3 hours for small corporations taxed essentially like partnerships. There is no reason, *a priori*, to expect either the existence or the pattern of such divergence.

In addition to the direct compliance cost estimates provided by the IRS and the three studies described above, estimates of a special compliance cost—that of itemizing deductions—have been provided by Pitt and Slemrod (1987). This study analyzes data drawn directly from the 1982 Treasury Tax File, a stratified random sample of individual income tax returns. It thus avoids errors such as faulty memory or deliberate misrepresentation associated with survey methodologies. In addition, the econometric technique employed by Pitt and Slemrod allows them to estimate the total private costs of itemization, including explicit, implicit and intangible costs. They estimate these costs to be $1.44 billion in 1982, or $43 per itemizing taxpayer. Finally the compliance costs associated with itemization dissuaded, according to Pitt and Slemrod, over 650,000 taxpayers from itemizing in 1982 even though they would have saved nearly $200 million in taxes from doing so.[14]

14. Of course, the Pitt and Slemrod results require qualification. Their econometric technique requires a specific set of "identification restrictions," which may or may not be valid. For example, the authors assume that the level of positive investment income, average state income and sales taxes, average property taxes, and an index of state medical costs affect the tax savings associated with itemization but do not affect the costs of itemizing.

Employer and Other Third Party Compliance Costs

The Federal income tax imposes direct costs on private parties other than the costs of filing tax returns. In particular, there are substantial costs imposed on "third parties" in the form of withholding requirements and information-reporting requirements connected especially to wage and investment income. We know virtually nothing quantitative about these costs, although we can predict with some confidence that they are significant and have increased over the last decade as Congress has mandated additional requirements of both types, especially for information reporting.

III. STATE TAXES

Description of State and Local Taxes

State and local governments play an important fiscal role in the United States federal system. State governments are explicitly recognized in the federal Constitution and have independent powers to regulate their internal affairs, including fiscal matters. In contrast, local governments have no constitutionally recognized status and derive all of their powers from the states. In 1987, state and local governments spent a total of $607 billion, which was about 60 percent of total federal expenditures.[15]

The fiscal arrangements among the three levels of government are complex. Each raises revenue on its own, but there is also a substantial intergovernmental flow of revenue. Some states add the local tax rate to their own, collect the funds and then disburse them to the localities. Another arrangement is tax sharing under which the state earmarks a particular statewide tax for distribution at the local level. State tax credits for local taxes paid are also used to affect the flow of revenue between state and local governments.

At the state level, the sales tax and the income tax are the main sources of tax revenue: 43 states have an individual income tax; 45 have a corporate income tax; and 45 have a general sales tax. In 1987, general sales taxes accounted for about 32 percent of all state tax revenues.[16] "Selective" sales taxes, i.e., those levied on particular goods like alcohol and tobacco, accounted for another 16 percent. Individual income taxes accounted for about 31 percent, and corporate income taxes accounted for 8 percent. This represents a dramatic shift from the earlier part of this century when almost half of state tax revenues came from property taxes (Pechman, 1983, p. 250).

The structure of state taxation varies. For the income tax, most state schemes resemble the federal system. They are self-reporting systems that rely heavily on mandatory withholding. The tax computation is similar, i.e., deductions and other allowances are taken against gross income and a certain rate is applied to the remainder to produce tax liability. State rates are lower than federal rates, and personal exemptions typically are higher. Some states use the amounts reported on federal returns as starting points for completing state returns. Significant compliance costs, however, are incurred due both to variations between state and federal income taxes and variations among the states. Many individual and business taxpayers are required to file more than one state tax return.

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15. Source: *Economic Report of the President* (1988).

16. Source (except where otherwise noted) for state tax data: United States Department of Commerce, Bureau of the Census, *State Government Finances in 1987*.

Sales taxes are collected by vendors at the point of sale. Vendors are required to register with the appropriate state revenue agency and, in some states, are required to pay a licensing fee. Returns are filed at various intervals, depending on the amount of tax paid, although those states with quarterly or semi-annual intervals typically require monthly prepayments. The distribution of payments is highly skewed by firm size. Due and Mikesell, for example, report that "1 percent of the vendors pay about 40 percent of the tax; 10 percent about 80 percent; and the upper half of the firms pay over 95 percent of the total" (1983, p. 170). A variety of exemptions and rate differentials across the states add to the complexity of sales tax systems. For example, many states attempt to soften the regressivity of sales taxes by exempting certain essentials like food or medicine. In 1987, sales tax rates ranged from 3 percent to 7.5 percent; by comparison, in 1938 they ranged from 2.5 percent to 3 percent. Sales taxes have come to play an increasing fiscal role for state governments, one that varies more from state to state than it did in the past.

At the local level, the major source of tax revenue is the property tax, which in 1986 accounted for almost three-quarters of all local tax revenues. By comparison, local sales taxes contributed about 11 percent in the same year.[17] This reliance on property taxes is not new. Local governments have always relied heavily on the property tax and have assigned nonproperty taxes a relatively unimportant place in their financial structures. (Pechman, 1983, p. 252)

Property taxes are levied on the assessed value of property and they are imposed primarily on real property and on business inventory and equipment. The assessment is carried out by local government officials. There is apparently great variability in the assessments of property of equal value even within the same state, and underassessment seems to the "the rule rather than the exception." As a result, the property tax is the subject of "widespread and vehement criticism." (Id., p. 260-261)

There has been some tendency by local governments to diversify their revenue sources. In 1960 the property tax accounted for nearly 90 percent of local revenues. During the interval from 1960 to 1985, local sales taxes have increased from 5 to 11 percent of local taxes, income taxes from 1 to 6 percent, and excise taxes from 6 to 9 percent; during that same period, the property tax declined to 74 percent. We do not here present any data estimating administrative or compliance costs of property or other local taxes.

Overall Costs of State Financial Administration

State fiscal administrations are typically organized in a way that makes it difficult to isolate the administrative costs associated with particular taxes such as income, property, or sales taxes. In fact, it is difficult to disaggregate administrative costs even for state tax systems as a whole in any consistent way across states over time. We do, however, have data on the overall costs of "financial administration" by state over time. Financial administration here includes most activities involving finance and taxation: accounting, auditing, and budgeting by central state agencies; supervising local government finances; administering the tax system; collecting, maintaining, and disbursing funds;

17. Source: United States Department of Commerce, Bureau of the Census, *Local Government Finances in Major County Areas: 1985-1986.*

administering employee-retirement systems; and administering state debt and investments.

Table 10 presents total financial administration costs by state for selected years since 1977. It also gives the ratio of financial administration costs to total state revenue for the same years, and the percentage change in real financial administration costs over the 1977-87 period. While there is considerable variation across states and over time, the average across the states of the percent of total state revenue allocated to fiscal administration has risen only slightly in the last ten years, from 1.24 percent in 1977 to 1.33 percent in 1987.[18] In 1987 it ranged from a low of .63 percent in Louisiana and Mississippi to highs of 2.23 percent and 2.32 percent in Rhode Island and Montana respectively. In absolute terms, however, fiscal administration costs have grown substantially in the last decade; in real terms, by a low of 86 percent in South Dakota to a high of 314 percent in Alabama.

[Table 10 approximately here]

State Income Taxes

In 1987, 43 states imposed some form of income tax, collecting a total of $76.04 billion. Rate structures varied significantly from state to state, but of the 39 states with non-trivial income taxes,[19] average realized income tax rates in 1985 varied from lows of .9 percent and 1.0 percent for North Dakota and Mississippi respectively to a high of 3.8 percent and 3.9 percent for Minnesota and Oregon respectively.

Although a picture of state income tax administrative activities is beginning to emerge and is described below, we have no systematic data on the administrative or compliance costs of state income taxes.[20] These costs are likely to vary significantly across states since the structure of state income tax systems varies significantly in terms of level, coverage, and complexity. For example, Colorado, Rhode Island, South Carolina and Vermont currently base their state income tax on federal tax liability or federal taxable income. Thirteen states allow federal income taxes to be deducted in whole or in part, while seven states allow state income taxes to be deducted; seven states allow no itemized deductions at all.[21]

All states with state income taxes now use payroll withholding almost exclusively, although increasingly "attention has been paid to interest and dividends" (Penniman, 1980, p. 152). As of 1980, Louisiana, Massachusetts and Missouri actually reimbursed employers for the effort of withholding and depositing and reporting withheld taxes. (Id., p. 158). While policing withholding adds to the enforcement costs of state revenue departments, overall it has improved collections. (Id., p. 172).

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18. Data on state govenment financial administration costs are from United States Department of Commerce, Bureau of the Census, *State Government Finances* for years 1977-1987.

19. Connecticut taxes interest, dividends and capital gains while Tennessee and New Hampshire tax only interest and dividends. New Mexico's income tax system is used as a conduit for rebates. Thus while the statutory rates of New Mexico range from 1.8 to 8.5 percent, the average realized tax rate is only 0.5 percent.

20. Penniman (1980) analyzes several individual state income tax systems in detail, providing some data on administrative and enforcement costs. As indicated, Slemrod and Sorum (1984) include state income tax compliance costs in their study of Minnesota taxpayers, but they do not separate these costs from federal income tax compliance costs.

21. *Significant Features of Fiscal Federalism, 1988 Edition, Vol. 1*, Advisory Commission on Intergovernmental Relations (Washington, D.C. Dec. 1987).

In terms of enforcement of taxpayer compliance, as of 1980, all states except Virginia had, to the extent they audited at all, centralized office auditing of individual income tax returns. In many cases, states engaged in integrated auditing not only of corporate and individual income tax returns but also of sales tax returns. (Id., p. 175). A recent survey conducted by the authors, to which 34 of the 39 states with nontrivial state income taxes have responded so far, has revealed that Kansas and Pennsylvania do no auditing at all, and Michigan does virtually none. Virginia, Ohio, West Virginia, North Dakota, Nebraska, Colorado, Louisiana, Oklahoma and Hawaii depend entirely on information provided by the IRS in conducting state income tax audits. Other states integrate IRS information with information gathered independently. Where available, overall state audit rates for 1985 are given in Table 11.

[Table 11 approximately here.]

No systematic analysis of state income tax administration and compliance, or of federal-state linkages now exists. In principle, a state-level time-series cross-section data base could be collected and integrated with the data base on federal tax administration and compliance described in Dubin, Graetz and Wilde (1988). Table 11 is essentially a snapshot of such a data base for 1985. We have performed a superficial study of the data presented in Table 11 which suggests that collecting such additional data would be worthwhile. In particular, if one regresses state individual collections per return on the state audit rate, the average state income tax rate and per capita income for the 34 states for which complete data is available for 1985, all three variables have positive coefficients, with the latter two significant at conventional levels.[22] While issues of endogeneity are clearly important, this result implies considerable promise for future empirical work.[23]

A recent survey by Keith Snavely (1988) provides additional detail about current state income tax administration policies, which are becoming increasingly sophisticated, as Tables 12, 13 and 14 illustrate. Over half of the thirty-eight states that responded to Snavely's survey now require information returns on earnings from dividends, interest and rents and royalties. Roughly one-quarter to one-third also require information returns on income derived from capital gains and losses and from stock and commodity brokers, promoters of tax shelters, and transferers or sellers of real property.

[Table 12 approximately here]

Modern computer technology has been a great asset to state income tax administrators. Table 13 gives data on the number and percent of states that perform various return matches. Of the thirty-five states responding to this portion of Snavely's survey, all cross-reference state income tax return data with IRS federal income tax returns data for that state. Roughly two-thirds use federal 1099 reports and the IRS business master file. (The former supplies information on nonsalary income, and the latter helps identify businesses that are subject to state income tax withholding

22. The t-statistics are 1.06, 2.53 and 3.57 respectively.

23. The appropriate instrument for the state audit rate is state fiscal administration costs per capita (see Table 10). In an ordinary least squares regression of the state audit rate on this variable, the average state tax rate, and per capita income, the coefficient on the instrument is positive with a t-statistic of 1.97.

requirements.) About the same percentage use the IRS individual taxpayer master file. Snavely reports that matches of eleven additional information sources, including other IRS data sources and state sources such as state licensing records, are performed by fewer states at more modest levels.

[Table 13 approximately here]

Finally, Snavely provides data on specific audit functions performed by the thirty-eight states that responded to his survey. These are reported in Table 14. Most states perform a variety of audit functions using automated data processing systems, but few (approximately 25 percent) use DIF-type mechanisms or TCMP-type studies to select returns for audit.

[Table 14 approximately here]

Another state income tax compliance program which became popular in the 1980s is the amnesty. There was one state income tax amnesty each year in 1981 and 1982, three in 1983, and then seven, six, five and four in 1984-87 respectively, totaling 27 amnesties in 25 states.[24] As Table 15 shows, such amnesties are estimated by state revenue authorities to have produced gross revenues ranging from a low of $150,000 in North Dakota to a high of $401 million in New York. Gross amnesty revenue as a percent of the prior year's tax collections of the state ranged from a low of .2% in Idaho to 2.36% in New Jersey. State income tax amnesties often were coupled with increased state enforcement activity, such as audits, but their overall effects are not known at this point.

[Table 15 approximately here]

Sales Taxes

General and selective sales taxes and gross receipts taxes are the most important source of state tax revenue, amounting to $120 billion in 1987. This accounted for about 48 percent of total state tax revenue ($247.15 billion). Of this $120 billion, $79.8 billion was produced by general retail sales taxes, slightly more than the $76 billion of tax revenues generated by state individual income taxes.[25] As of July 1, 1987, the retail sales tax was used by 45 states.[26]

Until 1986, the trend in general sales tax rates had been steadily upward.[27] Prior to 1986, only four states had lowered general sales tax rates. In 1986, seven states lowered their general sales tax rate, and two more followed suit in 1987. During these two years, only one state increased its general sales tax rate (Kansas, from 3 percent to 4 percent in 1986). Most states now use a sales tax rate between 4 and 6 percent.

Because roughly three-fourths of the states with a general sales tax organize their tax administration by function rather than by type-of-tax, it is difficult to isolate the administrative costs associated with the general sales tax alone. In addition, a number of states fail to collect

24. Data on amnesties are from the Federation of Tax Administrators.
25. U.S. Bureau of the Census, *State Government Tax Collection in 1987*
26. The exceptions were Alaska, Delaware, Montana, New Hampshire, and Oregon.
27. Data on state sales tax rates and administrative costs are from Due and Mikesell (1983); and Advisory Commission on Intergovernmental Relations, *Significant Features of Fiscal Federalism*, 1988 Edition, Vol. 1, (Washington, D.C., Dec. 1987).

administrative cost data. Nevertheless, some information is available, although it is rather dated and incomplete.

For the 18 states where data are available (see Table 16), average administrative costs of sales taxes as a percentage of total state tax revenue is .723 and ranges from .30 to 1.68. For an additional 5 states, the total administrative costs of state taxation, again expressed as a percentage of total tax revenue, is .786, and ranges from .59 to 1.20 percent.[28] Both of these averages are significantly greater than the comparable figure for the federal government during the same time period, .51 percent. Even so, Due and Mikesell, who collected the sales tax data, have concluded that "many states are spending too little and their costs per dollar collected are too low" (1983, p. 325). Extrapolating from the data reported by Due and Mikesell to the country as a whole produces an estimate for total sales tax administrative costs in 1981 of $336 million.

[Table 16 approximately here]

Not surprisingly, we do not have detailed breakdowns of resources allocated to separate sales tax administration activities comparable to that given in Table 3 for the federal government. Due and Mikesell, however, do provide the total number of sales tax auditors by state for 1981 and also list by state the salary ranges of those auditors. This enables us to estimate (roughly) the portion of total state sales tax administration costs that are attributable to audit personnel costs in those states for which we have sales tax administrative cost data. Most of these estimates range from 20-40 percent, with an overall average of approximately 29 percent. By comparison, the percent of the IRS budget allocated to audit activities ("examinations") ranges from 35.30 in 1977 to 29.87 in 1987, but that figure includes costs other than salaries.

Due and Mikesell also report by state the number of registrants per auditor in 1981 and the average audit rate for sales tax returns for 1979-81. Registrants per auditor varies from 375 and 500 for New York and Arkansas respectively to 5,813 and 1,862 for Kansas and New Mexico respectively, while average audit rates vary from 0.4 percent for Connecticut, Nebraska and West Virginia to 8.8 and 8.1 percent for Mississippi and Utah respectively. The overall average audit rate is 2.3 percent. By comparison, the IRS audited 1.97 percent of individual income tax and 4.92 percent of corporate income tax returns in 1980.

As with other taxes, the total costs of sales tax collection include taxpayer compliance costs, principally arising from recordkeeping and return preparation. A rather dated study by J.C. Yocum in 1961 concluded that the average costs of compliance for all vendors in Ohio was 3.93 percent of tax liability. As Table 17 illustrates, costs were highest for vendors that had low revenue per-unit sales and/or a high percentage of exempt items. The advent of modern computer technology has presumably mitigated this bias to some extent.

[Table 17 approximately here.]

28. These percentages constitute more than one-half of the ratios of total state fiscal administration costs to total state revenues for 1979 given in Table 10. The average of those ratios is 1.25, and they range from .63 to 2.32.

It is also interesting that some states compensate vendors for collecting sales taxes; Due and Mikesell, report that in 1980 the states were about equally divided on this practice. Table 18 gives the compensation rates in effect in 1980. Due and Mikesell also report that "no particular correlation appears between the provision of compensation and the basic nature of the tax" (1983, p.327).

[Table 18 approximately here.]

IV. TAX PRACTITIONERS: TAX PREPARERS

Tax preparers play a special and important role in the United States tax system. In 1986, nearly half of the 100 million individual federal returns filed were signed by paid preparers.[29] This widespread reliance of U.S. taxpayers on paid tax preparers raises a variety of compliance issues, and substantial research into these questions has recently commenced.

A Description of the Preparer Industry

At the purely descriptive level, a recent study by Smith, Stalans, and Coyne (1987) provides a detailed taxonomy of the preparer profession, which includes lawyers, CPAs, enrolled preparers, and unenrolled preparers. These authors found that about 44 percent of tax practitioners work in accounting firms, 40 percent in tax preparation firms, 6 percent in law firms and 7 percent in bookkeeping firms.

The clients who use tax preparer services are also heterogeneous. All of the preparers in the survey serve individual clients, but only about 2 percent do so exclusively. The median income level for these individual clients was $20,000. Twenty-five percent had pre-tax incomes less than $15,876, and another quarter had incomes greater than $28,525. As for business clients, about 54 percent are small corporations and partnerships (assets of less than $1 million); and about 21 percent are self-employed business clients. Those preparers who serve large businesses tend to have richer individual clients as well.

Tax practitioners devote the bulk of their time to preparing returns. According to Smith, Stalans and Coyne, about 90 percent spend at least half of their tax time on return preparation, while 98 percent spend 5 percent or less of their time on tax appeals and 96 percent spend less than 5 percent of their time on litigation. Tax planning is another important activity for practitioners. Forty-six percent spend from 6 to 24 percent of their time on planning.

The Decision to Engage a Preparer

Recent research suggests that the decision whether to use a preparer is influenced by income, self-employment status, age, and tax return complexity. In an interesting first effort, Collins, Milliron, and Toy (1988) found that the factors influencing the decision may vary with taxpayers' goals. Their survey found that the overwhelming majority of taxpayers—seventy percent—want to file the most correct return. Twenty five percent are primarily concerned with tax minimization, and only a handful seek to minimize effort. These authors tentatively conclude that for those seeking to

29. Source: Department of the Treasury, Internal Revenue Service, *SOI Bulletin*, vol. 7, number 1, p. 91.

minimize taxes, the decision to engage a preparer appears to be influenced by income level, tax knowledge, and age. As income or age increase so does the likelihood of engaging a preparer (all else remaining constant). In contrast, the less tax knowledge one has, the more likely one is to engage a preparer. For those whose main goal is to file the most correct return, the decision to use a preparer is influenced positively by return complexity, and negatively by tax knowledge.

The authors speculate that the results for both groups in terms of age, tax knowledge and return complexity are consistent with a theory that the decision to engage a preparer is determined, at least in part, by the "costs" of preparing one's own return. Older taxpayers with complicated returns and little tax knowledge "may incur higher preparation costs and hence be more likely to use a preparer."

Similar results were obtained by Hite (1987), who found that taxpayers who use preparers tend to be older, self-employed itemizers who felt that their taxes were too high and too complex, and who thought the chance of an audit was too high. That complexity of return affects tax preparer usage is confirmed generally by the IRS data of Table 19.

[Table 19 approximately here.]

We have recently estimated a new empirical model of individual tax return preparation. Our model assumes that the probability that an individual uses a tax preparer depends broadly on three sets of factors. The first set of factors distinguish taxpayers by their own attributes: age, employment, and education. The second set of factors are associated with the complexity of the tax return and are measured by the presence or absence of certain complicating schedules. The third set of factors take into account the role of the tax system and the tax collection agency principally through the implicit marginal tax rate and thorough enforcement activity as measured by the rate at which returns similar to the ones filed are audited.

The Appendix details our methodology and our results. In summary, our data on individual income tax returns come from the 1979 Taxpayer Compliance Measurement Program. As described above, these data consist of approximately 50,000 randomly chosen tax returns from the population of all 1979 federal individual income tax filers, here aggregated to the IRS district office level by audit class.

For each audit class in each of the districts the amounts reported on every line item are given as well as the "correct" amounts as determined by the TCMP audit. To construct an audit rate by audit class, we used IRS operational data on examinations for each district by audit class. Socio-economic data was obtained from Statistical Abstracts of the United States.

Our analysis requires sophisticated econometric techniques and two alternatives were used. Under the first procedure, we find that an increase in the percentage of returns filed by individuals over 65, or an increase in the federal audit rate, *ceteris paribus*, increases the probability of paid preparer usage. Additionally, an increase in the percentage of returns reporting unemployment income, or an increase in the percentage of returns filed by taxpayers with at least a high school education, or with ages between 45 and 65 years decreases the probability of paid preparer usage. Turning to return complexity, we observe that an increase in the percentage of returns reporting

dividend, pension and annuity, or Keogh income[30] increases the probability of paid preparer usage (as does an increase in the frequency of returns claiming employee business expenses). Of the three income items reported on Schedule E, partnership, small corporation, and pension and annuity income only the latter yields a significant positive effect on paid preparer usage.

Our second estimation finds the audit rate effect is still positive and significant but the proportion of the population over 65 years of age is no longer significant. Moreover, the state tax rate is positive and significant as are both percent of labor force employed in manufacturing and the percent of labor force employed in services. Unemployment, education, and proportion of the population between the ages of 45 and 65 years are negative and significant as in the prior estimation. The tax return items show the greatest divergence from the first estimation; only partnership, and rent and royalty income yield positive significant coefficients.

It is not at all clear whether tax preparers, whatever their roles, reduce the time taxpayers spend on compliance activities. Collins, Milliron, and Toy found that time spent on the use of a preparer does not significantly effect time spent on the tax process. They found, instead that time spent was more dependent on return complexity and income.[31] They speculate that this may be due to the fact that most of the time spent on the tax process is in record keeping activities, which are similar whether or not a preparer is used.

At this stage of research, it is not possible to draw any firm conclusions about the effect of preparer usage on compliance. For example, Collins, Milliron, and Toy found that taxpayers who want to minimize their taxes are just as likely to misreport by themselves as they are to give wrong information to their preparer. This suggests that preparers may be neutral in their effect on compliance. In fact, at least for lower income taxpayers, there is some evidence that, preparers are often nothing more than "scribes." In contrast, Klepper and Nagin (1987) conclude that, at higher levels of income, the use of preparers is associated with compliance on unambiguous items and with noncompliance on ambiguous ones.

There are no systematic data on fees charged by tax return preparers. A survey distributed during the week of April 15, 1988 to employers of Syracuse University by Judyth Swingen and Susan Long shows that the average costs of tax return preparation by paid preparers ranged from $25 to $100 for short forms (forms 1040EZ and 1040A) and from $143 to $1500 for long forms (form 1040 with a variety of schedules). Swingen and Long report that the average cost of all returns was $153 in 1987, up from $145 in 1986 and for more complicated forms (those containing schedules A,C,D and E) was $360 in 1987, up from $184 in 1986.[32]

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30. Prior to congressional approval of so-called Koegh Plans, self-employed individuals could not take advantage of the tax benefits given to employees who participated in qualified deferred compensation plans. Keogh income refers to the income of a self-employed individual which qualifies for those benefits.

31. Their conclusion that time spent was not significantly different for those using preparers was based on a simple chi square test. But their conclusion about return complexity and income is based on a multiple regression with time spent as the dependent variable, and income, return complexity and use of preparer as the independent variables. Here, the results should be viewed with more caution. Although they are useful to support the conclusion that time spent is not related to preparer use, this is at best a tentative assessment of the impact of these other variables.

32. Judyth A. Swingen and Susan B. Long, "A Look Back at the 1988 Filing Season," *Tax Notes* Vol. 41 pp. 1243-1347, December 19, 1988.

Informal conversations by the authors with accountants confirm that the 1986 legislation has increased the costs of tax compliance for high income individuals who have complex tax situations. For example, an individual with $100,000 of income but without tax complications might spend $500 on tax return preparation in comparison to the $1500 to $2000 that would be spent by a person with similar income who had either complex filing transactions or tax shelter investments and required computations of the alternative minimum tax. The 1986 Tax Reform Act has apparently increased tax return preparation costs in the latter case by 50 to 100 percent.

In the case of manufacturing businesses with sales in the range of one million dollars, tax accounting and return preparation costs would be in the $1500 range. By comparison, a manufacturing company with ten million dollars in sales can expect to pay an accountant $5000 – $5500 in tax return preparation and tax accounting costs. Comparable expenses for retailing and wholesaling companies are somewhat less than for manufacturing companies.

It is important to emphasize the voluntary aspect of certain compliance costs. To take one example, 1986 revisions in nondiscrimination requirements for pension plans are apparently quite costly. Some companies are simply bearing these costs, while others have chosen to eliminate pension plans.

V. ATTITUDES OF UNITED STATES TAXPAYERS

Americans seem to have rather complicated attitudes toward the tax system. For example, a recent Harris survey found an even division between those who think the system is quite fair or reasonably fair (46 percent) and those who think it is unfair or quite unfair (44 percent).[33] Almost three-quarters believe that "[t]he present tax system benefits the rich and is unfair to the ordinary working man or woman."

It appears that most people do not feel that the Tax Reform Act of 1986 will make the system more fair even though the 1986 Act has been touted as ushering in a new era of tax fairness and simplicity. Only 12 percent believe the new system will be more fair; 39 percent think it will make little difference. Sixty-one percent do not believe that tax reform will "ensure that each group in society will pay its fair share. . ." or that the wealthy "will pay a progressively larger share of their income."

The Harris survey also probed taxpayers' attitudes toward cheating and other compliance related issues. Overall, 22 percent admitted to some form of cheating. Eleven percent said they overstated deductions. Sixteen percent said they underreported income, and 5 percent admitted to both. The 1984 Harris survey found the incidence of admitted cheating to be roughly the same. Only admitted cheaters are captured by the surveys, however, and that may mean that the extent of cheating is underestimated.[34]

Admitted cheaters share certain characteristics. They tend to live in certain IRS administrative regions and to be between ages 26 to 64, male, and in the highest income and

33. Lou Harris and Associates, Inc., *1987 Taxpayer Opinion Survey*, conducted for The United States Internal Revenue Service July - August, 1987, p. 15. Unless otherwise noted, all data reported in this Section are from this survey or from two earlier Harris surveys (1966, 1984) the results of which are reported along with the results of the 1987 survey.

34. It also means that the survey fails to explore any differences between cheaters who deny and admit cheating.

educational brackets. They also tend to justify their cheating on the basis of their attitudes toward the fiscal system.

The Harris survey also found that admitted cheaters do not seem to be deterred by a sense that the IRS is watching. Only 12 percent had been contacted by the IRS in the last three years. The survey concluded that "IRS observation is not so omniscient as to have a substantial impact on cheaters. . . ."

These attitudes coexist with a fairly widespread belief that a cheater is more likely than not to be caught when large amounts of money are involved (53 percent). This figure has remained fairly constant since 1966. In contrast, when small amounts of money are involved, only 28 percent believe the cheater is more likely than not to be caught. This figure has increased since 1984, when it was 15 percent, but it is about the same as it was in 1966. Admitted cheaters, however, are much less likely than non-cheaters to think that small cheaters will be caught and are somewhat less likely to think that "big" cheaters will be caught.

Taxpayers generally overestimate the probability of an average taxpayer being audited, but are less likely than in the 1966 and 1984 surveys to think they personally will be audited. Seven percent thought they had a very good chance to be audited, compared with 10 percent in 1984 and 16 percent in 1966. Apparently, the decline over this period in IRS audit activity is reflected in taxpayers' beliefs. Admitted cheaters have the most realistic, i.e., lowest, perception of the probability an average taxpayer will be audited, but have the same perception of the chance of personally being audited.

The Taxpayers' Bill of Rights

Taxpayers' concerns with increasing exposure to and imposition of penalties and negative attitudes toward the IRS have recently found political expression in a taxpayers' "Bill of Rights" which was included in the Technical and Miscellaneous Revenue Act, signed by President Reagan in November, 1988. The Act, for example, requires the Secretary of the Treasury to prepare a nontechnical statement of taxpayer rights and IRS obligations during the audit, appeals, and collection processes and also adopts new procedures to insure that taxpayers do not receive more than one notice of a single audit or proposed deficiency, a provision which will be welcome among taxpayers who are often deluged with repetitious IRS notices.

Provisions governing the taxpayer interview process are also included, one of which requires the officer conducting the interview to provide the taxpayer with an explanation of the audit or collection process and the taxpayer's rights under those processes. The IRS may not require the taxpayers to accompany the representatives to an interview unless a summons is issued. In general, the act requires interviews to be held in the IRS office closest to the taxpayer's home and prohibits interviews from forcing the small business owners to close shop. The Taxpayers' Bill of Rights also now generally require abatement of any portion of a penalty which is attributable to a mistake in written advice from the IRS and strengthens the Taxpayer Ombudsman office. Levy and lien procedures have also been significantly revised in ways beneficial to taxpayers under this legislation.

Before this legislation was enacted, a taxpayer who prevailed in a tax case in federal court could be awarded reasonable litigation costs if the position of the government was not "substantially

justified." However, costs incurred during the administrative process were generally not recoverable. This right of recovery now is extended to administrative proceedings. Reasonable administrative costs are defined as 1) administrative fees imposed by the government, and 2) reasonable expenses for attorneys, expert witnesses, and the preparation of certain studies and reports. The taxpayer must substantially prevail with respect to the amount in controversy, and must show the position of the government not to have been substantially justified.

Another important addition to the taxpayers' rights is the ability to bring a civil damages action in federal court against the government for improper failure to release a lien or for recklessly or intentionally taking an action unauthorized by law when trying to collect a tax. Damages recoverable include the actual economic damages, up to $100,000.

On the whole, the Taxpayers Bill of Rights signals increasing Congressional concern with assuring fairness in the tax compliance process and ensuring that the government ultimately bears the taxpayers' costs of compliance whenever it advances positions that are not "substantially justified" under the law. In contrast, the 1986 legislation significantly increases taxpayers' costs of tax compliance by enacting new limitations on income tax deductions for expenditures in connection with tax advice, tax return preparation and tax compliance and by eliminating the deduction for interest on tax understatements. Both of the 1986 actions, in effect, indirectly increased costs of tax compliance and reduced costs of tax administration, albeit costs that had never appeared in the IRS's administrative budget. At this date, it is not possible to perceive a trend.

VI. CONCLUSION

One conclusion that clearly emerges from recent research is that both administrative and compliance costs are substantial. What is less clear, but nevertheless important, are trends in the magnitude and distribution of those costs. We do not even know, for example, whether such costs in the aggregate are increasing, although it seems reasonable to speculate that they are, at least for taxpayers with complex situations. Nor do we know how the burden of these costs is allocated among the various levels of government or between government and individual taxpayers. Moreover, despite recent claims of the IRS we can not be certain whether tax noncompliance itself is increasing or decreasing. Uncertainty is especially great with respect to state taxes. But whatever the trends, the advent of sophisticated data processing capabilities promises potential efficiency gains from improved federal-state coordination, and the increased availability of electronic filing for taxpayers may well reduce both administrative and compliance costs in the future.

The research discussed here is in its infancy. In many areas, there is a dearth of information, and questions remain as to appropriate methodologies of data collection and analysis. As with all empirical research, we believe data collection should be informed by theory; otherwise sound analysis is impossible. Most of the data discussed here, for example, was gathered in a way that facilitates a descriptive accounting rather than a structural analysis of the determinants of administrative and compliance costs. Ultimately, the goal is to accurately estimate compliance and administrative costs and to assess the role those costs play in the tax process and how they interact with substantive provisions of the tax law. Much remains to be done.

APPENDIX

We have recently specified and estimated a new empirical model of individual tax return preparation. Our model assumes that the probability that an individual uses a tax preparer depends broadly on three sets of factors. The first set of factors distinguishes the class of taxpayers by their own attributes-age effects, employments effects, and education. The second set of factors is associated with the complexity of the tax return, measured by the presence or absence of certain schedules that complicate the preparation of the return and make the use of a paid preparer more efficient, and therefore more desirable. The third set of factors allows for the role of the tax collecting agency principally through the marginal tax rate and through enforcement as measured by the rate at which returns similar to the ones filed are audited.

No single source of data is available to provide all of this information. Our data on individual income tax returns come from the 1979 Taxpayer Compliance Measurement Program. As described above, these data consist of approximately 50,000 randomly chosen tax returns from the population of all 1979 federal individual income tax filers. The amounts have been weighted and aggregated to the IRS district office level for each of twelve mutually exclusive and exhaustive audit classes, which for all states but New York, Pennsylvania, Ohio, Illinois, Texas, and California represent state level aggregation. The latter six states each have more than one IRS district office, and for these states district office aggregation does not represent aggregation to the state level. The audit classes consist of six for returns where income was not derived principally from farm or sole-proprietorship activities, three where income was derived principally from sole-proprietorships, and three where income was derived principally from farm activities.

For each audit class in each of the districts the amounts reported on every line item are given as well as the amounts that should have been reported as determined by the TCMP audit. For the 1979 TCMP, additional information was recorded on the amount of line item misclassification as well as the type of return preparation used by the taxpayer. The later is used to form our dependent variable; the log of the frequency with which paid preparers were used.

To construct an audit rate by audit class, we used IRS operational data on examinations accomplished during fiscal year 1981 for each district by audit class, as reported in the Service's Audit Information Management System Table 20.0. This figure was then divided by the actual number of individual returns filed by audit class in each district, as reported in the Service's Research Division Report 1040-2 for taxyear 1979. We could not use earlier AIMS Table 20.0 data because operational audits audit classes were not defined in a manner consistent with the 1979 TCMP until 1981.

Socio-economic data was obtained from Statistical Abstracts of the United States. These data, aggregated to the state level include the percentage of the state with high school diplomas; the percentage of the adult population between the ages of 45 and 65; the percentage of the adult population over 65 years of age; the percentage employed in manufacturing; the percentage employed in services; the unemployment rate; and the average state tax rate on income.

Our model for the use of paid return preparers uses the fraction of all returns in an audit class and IRS district that are prepared by a professional preparer. Suppose we have n_i observations in audit class district i of which m_i use a paid preparer. Let $\hat{p}_i = m_i/n_i$ denote the fraction of returns

using a paid preparer. Since this variable is bounded between 0 and 1 it is inappropriate to use standard multivariate regression with $\hat{p}_i$ as the dependent variable. Instead we employ a logistic transformation of $\hat{p}_i$ to form a continuous dependent variable, $\log(\hat{p}_i/(1-\hat{p}_i))$. The model to be estimated is assumed to be:

$$\log(p_i/(1-p_i)) = \beta' x_i \tag{1}$$

Using the log-odds of the actual frequency of paid preparers in use as a measure of the true probability in (1), we write:

$$\log\left(\frac{\hat{p}_i}{(1-\hat{p}_i)}\right) = \beta' x_i + u_i \tag{2}$$

where u_i represents a random disturbance. Since $u_i = \log\left(\frac{\hat{p}_i}{1-\hat{p}_i}\right) - \log\left(\frac{p_i}{1-p_i}\right)$, the sampling properties of $\hat{p}_i$ determine the distribution of u_i. Using a Taylor's expansion (to first order) of the difference between actual and observed log-odds we have

$$u_i \simeq \frac{1}{p_i(1-p_i)}(\hat{p}_i - p_i).$$

Hence in large samples

$$E[u_i] \simeq 0$$

and

$$Var[u_i] \simeq \frac{1}{n_i p_i (1-p_i)}.$$

The distribution of u_i in equation (2) therefore presents a classic case of heteroscedasticity for which simple corrections are available. If we estimate $Var[u_i]$ by $[n_i\hat{p}_i(1-\hat{p}_i)]^{-1}$ then we can employ weighted least squares to estimate equation (2).

An alternative procedure which is robust to specification of the form of heteroscedasticity is due to White (1980). Table (20) presents both sets of estimates.

Specifically, we specify the log-odds for the probability of return preparation as:

$$\begin{aligned}\log\left(\frac{p_i}{1-p_i}\right) = {} & \alpha_0 + \alpha_1 UI + \alpha_2 STAXR + \alpha_3 PERED \\ & + \alpha_4 PER45 + \alpha_5 PER65 + \alpha_6 PMAN \\ & + \alpha_7 PSERV + \alpha_8 AUDRTCL + \alpha_9 FDIVID \\ & + \alpha_{10} FKEOUGH + \alpha_{11} FBUSN + \alpha_{12} FPART \\ & + \alpha_{13} FSMALC + \alpha_{14} FSCHC + \alpha_{15} FPENS\end{aligned}$$

$$+ \alpha_{16} FRENT + \alpha_{17} FSCHF + \alpha_{18} FSELF$$
$$+ \alpha_{19} FINVEST + \alpha_{20} C2 + \alpha_{21} C3$$
$$+ \alpha_{22} C4 + \alpha_{23} C5 + \alpha_{24} C6 + \alpha_{25} C7$$
$$+ \alpha_{26} C8 + \alpha_{27} C9 + \alpha_{28} C10 + \alpha_{29} C11$$
$$+ \alpha_{30} C12$$

where

UI	=	State unemployment rate
STAXR	=	Average state income tax
PERED	=	Percentage of population with high school diploma
PER45	=	Percentage of state population between ages of 45 and 65 years
PER65	=	Percentage of state population over 65 years of age
PMAN	=	Percentage of state labor employed in manufacturing
PSERV	=	Percentage of state labor employed in services
AUDRTCL	=	Audit rate by audit class by IRS district
FDIVID	=	Fraction of returns with taxable dividends
FKEOGH	=	Fraction of returns with payments to Keogh account adjustment
FBUSN	=	Fraction of returns with employee business expense adjustment
FPART	=	Fraction of returns with partnership income on Schedule E
FSMALC	=	Fraction of returns with small corporation (form 1120s) income on Schedule E
FSCHC	=	Fraction of returns with schedule C income
FPENS	=	Fraction of returns with taxable pensions and annuities on Schedule E
FRENT	=	Fraction of returns with net rent and royalty income
FSCHF	=	Fraction of returns with schedule F income
FSELF	=	Fraction of returns with self employment tax
FINVEST	=	Fraction of returns with investment tax credits
C_2 thru C_{12}	=	Audit class dummy variables

We estimated this model using two corrections for heteroscedasticity. The first correction uses White's (1980) procedure. To interpret this equation, note that an increase in the returns with individuals over 65, or an increase in the federal audit rate, *ceteris poribus*, increase the probability that a paid preparer will be used. Additionally, an increase in returns with state unemployment income, high school education, or proportion between the ages of 45 and 65 years decreases the probability of using a paid preparer. Turning to return complexity, observe that an increase in the percentage of returns reporting dividend, pension and annuity, or Keogh income increases the probability of using a paid preparer.[35] Of the three income items reported on Schedule E,

35. As does an increase in the frequency of returns claiming employee business expenses.

partnership, small corporation, and pension and annuity income only the latter yields a significant positive effect. The audit class dummy variable, C_2 through C_{12} reflect the increase in the probability of using a paid preparer compared with the excluded audit class (simple returns with total positive income (TPI) less than $10,000, principally from non-farm, non-sole-proprietor activities). Audit classes two through six consist of non-farm, non-sole-proprietor returns for increasing income levels, with audit class six comprising returns with TPI greater than $50,000. Classes seven through nine are for returns with the principal source of income derived from sole-proprietorships while classes ten through twelve are for returns with the principal source of income derived from farm activities.

The second correction for heteroscedasticity weight the data in proportion to the square root of the number of returns in the audit class. In this case, the audit rate effect is still positive and significant but the proportion of the population over 65 years of age is no longer significant. Moreover, the state tax rate is positive and significant as are both the percent of labor force employed in manufacturing and the percent of labor force employed in services. Unemployment, education, and the proportion of the population between the ages of 45 and 65 years are negative and significant as in the robust estimation.

The tax return items fare less well than under robust estimation. Here, only partnership, and rent and royalty income yield positive significant coeffients. At the same time, observe that all of the audit class dummy variables are significant, unlike with robust estimation in which farm classes ten and eleven are not.

TABLE 1: TOTAL GOVERNMENT REVENUE, ALL LEVELS, IN CURRENT DOLLARS AND SPECIFIC TAXES AS A PERCENTAGE OF TOTAL REVENUES, SELECTED YEARS 1960-1985.

	Total Revenue ($ millions)										Percent of Total Revenue		
Year	1960	1965	1970	1975	1980	1981	1982	1983	1984	1985	1975	1980	1985
Total Taxes Revenue[1]	113,120	145,288	232,877	331,650	574,244	650,228	671,424	665,615	735,023	803,830	65.4	61.6	56.7
Income Tax													
Personal	43,178	52,882	101,224	143,840	286,149	311,977	348,896	344,067	360,578	401,015	28.4	30.7	28.3
Corporate	22,674	27,390	36,567	47,263	77,921	75,280	64,240	51,280	73,940	80,489	9.3	8.4	5.7
Property Tax	16,405	22,918	34,045	51,491	68,499	74,969	81,918	89,104	96,457	103,757	10.2	7.3	7.3
General Sales													
& Gross Receipts	5,177	7,981	16,128	29,102	51,328	55,641	60,583	64,890	75,212	84,292	5.7	5.5	5.9
Excise Taxes													
Motor Fuel	5,352	7,123	10,100	12,799	14,709	14,537	15,534	16,726	23,269	25,252	2.5	1.6	1.8
Alcohol													
& Tobacco	6,694	8,144	10,739	13,106	14,647	15,118	15,062	16,913	17,522	17,588	2.6	1.6	1.2
Public Utilities	1,627	2,076	3,268	5,935	8,755	9,038	9,845	11,818	13,950	14,945	1.2	.9	1.1
Other	6,144	8,213	9,222	11,609	23,841	41,075	40,134	36,162	30,310	34,042	2.3	2.6	2.4
Motor Vehicle licenses	1,700	2,145	2,904	4,243	5,713	6,108	6,460	6,732	7,401	8,177	.8	.6	.6
Customs Duties	1,105	1,442	2,430	4,289	7,436	8,161	8,917	8,727	11,463	12,176	.8	.8	.9
Death & Gift Tax	2,026	3,447	4,640	6,029	8,424	9,106	10,341	8,598	8,236	8,750	1.2	.9	.6
Total Other Revenue	40,921	57,638	100,933	175,525	357,955	407,159	473,363	515,656	595,960	614,498	34.6	38.4	43.3
Insurance Trust	14,341	26,539	52,716	100,632	190,010	224,678	245,919	265,294	291,561	323,529	19.8	20.4	22.8
Utility	3,320	4,908	6,608	10,867	22,359	26,617	30,267	34,033	51,075	41,564	2.1	2.4	2.9
Liquor Stores	1,216	1,447	2,006	2,468	3,201	3,278	3,344	3,311	3,240	3,235	.5	.4	.2
Charges & Misc.	22,044	24,745	39,603	61,558	142,385	152,586	193,833	213,068	250,485	246,170	12.1	16.4	17.4

Source: Statistical Abstracts of the United States

1. Includes amounts not shown separately

TABLE 2: IRS COLLECTIONS, COSTS, EMPLOYEES, RETURNS FILED AND U.S. POPULATION: SELECTED YEARS, 1960–87

	Operating Cost ($ Billions)	Gross Collections ($ Billions)	Cost Per $100 Gross Collections	Refunds ($ Billions)	Net Collections ($ Billions)	Cost Per $100 Net Collections	Employees[1]	Real Cost Per Emp ($)	Returns Filed (Millions)	Real Cost[2] Per Return Filed	Pop (Millions)	Real Cost Per Capita ($)	Real Net Collections Per Capita ($)
1960	.364	91.775	.40	n/a	n/a	n/a	n/a				180.67		572.67
1965	.597	114.435	.52	6.069	108.366	.55	60,360	29,262			194.30	9.09	623.23
1970	.886	195.722	.45	16.188	179.534	.49	68,683	30,719	113.08	18.65	204.88	10.29	821.42
1975	1.585	293.823	.54	32.209	261.614	.61	82,339	32,455	125.12	21.35	213.56	12.51	852.90
1980	2.281	519.375	.44	54.009	465.366	.49	87,464	30,428	143.45	18.55	228.23	11.66	922.06
1981	2.465	606.799	.41	63.303	543.496	.45	86,156	30,442	166.52	15.75	230.61	11.37	835.41
1982	2.626	632.341	.42	75.202	557.139	.47	82,857	31,697	170.37	15.39	232.96	11.27	983.74
1983	2.969	627.247	.47	79.761	547.486	.54	83,605	34,173	171.17	16.69	235.23	12.14	893.63
1984	3.279	680.475	.46	85.872	594.603	.55	87,635	34,742	172.51	17.64	237.45	12.82	921.15
1985	3.601	742.872	.48	86.322	656.550	.55	92,254	36,136	178.22	18.17	239.71	13.90	961.82
1986	3.842	782.252	.49	94.425	687.827	.56	95,880	35,118	188.02	17.90	242.00	13.91	984.32
1987	4.366	886.391	.49	96.969	789.422	.55	102,188	36,360	193.16	19.23	244.20	15.21	1067.45

Source: Annual Reports of the Commissioner of Internal Revenue, 1970-1987.

1. Figures after 1982 not strictly comparable with prior years due to change in method of accounting for realized positions per requirement of the Office of Personnel Management.
2. Adjusted by GNP implicit prize deflator, 1982=100.

TABLE 3: IRS COST BY ACTIVITY, 1977–87

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	% Δ 1977-87 Real Dollars	Percent of Total Cost[1] 1977	1987	Δ Percent 1977-1987
(1) Executive Direction, Management Services, Internal Audit & Security	49,365	59,891	65,961	70,156	79,427	78,218	128,080	98,160	104,945	89,475	90,693	5.23	2.75	2.08	-.67
(2) Returns Processing Computer Service	461,317	507,384	535,333	574,179	611,308	650,255	681,802	890,343	1,048,470	1,247,482	1,421,112	76.45	25.57	32.55	6.98
(3) Collection	246,458	258,302	208,613	297,947	349,410	410,177	529,416	604,149	613,527	606,498	660,659	53.54	13.76	15.13	1.37
(4) Taxpayer Service	141,740	161,906	197,612	203,687	218,153	206,584	232,660	148,293	169,874	208,212	249,606	.87	7.92	5.72	-2.20
(5) Examination	632,050	675,253	719,568	779,637	836,416	889,631	958,925	1,025,611	1,114,845	1,139,501	1,304,179	18.19	35.30	29.87	-5.40
(6) Employee Plans & Exempt Organizations	56,249	62,247	64,144	66,963	65,126	71,315	80,039	90,431	94,398	99,031	104,980	6.90	3.14	2.40	-.74
(7) Tax Fraud Investigation	105,332	121,182	130,185	140,631	153,927	172,176	172,619	204,135	219,951	221,304	245,370	33.43	5.88	5.62	-.26
(8) Appeals	38,662	50,939	50,525	59,750	68,935	67,991	121,332	150,391	167,263	162,639	189,694	181.03	2.16	4.34	2.28
(9) Technical Rulings & Enforcement Litigation	59,815	65,025	72,225	77,889	82,866	79,991	63,653	67,554	67,670	67,841	66,388	-36.43	3.34	1.52	-1.82
Total Cost	1,790,589	1,962,129	2,116,166	2,280,839	2,465,469	2,626,338	2,968,526	3,279,067	3,600,953	3,841,983	4,365,816	38.59			

Source: Annual Reports of the Commissioner of Internal Revenue, 1977-1987.

1. Does not total 100% due to miscellaneous costs.

TABLE 4: AUDIT RATES, YIELDS, PERCENT COMPLIANCE AND PERCENT NO CHANGE FOR INDIVIDUALS AND CORPORATIONS, 1985

Class of Taxpayer	# Returns (thousands)	# Examiners	Percent with Exam Coverage	Average Yield Per Exam (dollars)	Marginal Yield Per Exam (dollars)	Average Cost (dollars)	Marginal Yield/ Cost	Additional Tax, Penalties, and Interest ($ millions)	Estimated Percent Compliance	Estimated Percent No Change
Individual Nonbusiness										
Less than $10,000										
1040A	20,806	257	.35	1,579	780	148	5.3	132	84.3	22.0
Non 1040A	9,980	221	.44	1,322	1,087	225	4.8	68	72.1	31.0
$10,000-$25,000										
Simple	20,622	489	.64	842	615	155	4.0	133	95.1	25.0
Complex	10,025	874	1.67	824	633	226	3.0	165	88.5	19.0
$25,000-$50,000	22,410	2,448	2.02	1,069	678	235	2.9	582	94.7	21.0
$50,000 and over	6,874	2,506	3.53	6,727	3,624	501	7.2	2048	92.8	20.0
Individual Business										
Non-Farm										
Under $25,000	1,873	346	1.45	1,881	1,818	575	3.2	62	66.3	20.0
$25,000-$100,000	1,909	780	2.55	3,620	2,274	723	3.2	217	76.0	17.0
$100,000 and over	1,004	1,381	5.40	10,334	5,187	1,224	4.2	691	74.8	14.0
Farm										
Under $25,000	286	60	1.53	2,371	2,044	627	3.3	13	70.4	22.0
$25,000-$100,000	467	133	1.78	1,429	1,226	746	1.6	14	76.4	16.0
$100,000 & over	241	257	4.36	8,828	5,598	1,242	4.5	115	77.8	13.0
Corporation										
No Balance Sheet	181	92	1.56	20,259	8,430	1,708	4.9	79	63.0	22.6
Under $50,000	813	176	.69	3,871	2,578	1,443	1.8	30	46.2	33.1
$50,000-$100,000	343	162	1.49	4,540	3,549	1,448	2.5	30	62.4	27.7
$100,000-$250,000	444	212	1.42	6,904	5,425	1,573	3.5	55	67.3	24.0
$250,000-$500,000	261	150	1.73	6,472	4,550	1,622	3.4	37	78.6	22.9
$500,000-$1,000,000	177	164	2.55	9,041	7,345	1,903	3.9	52	81.5	21.1
$1 Million - $5 Million	169	433	5.76	14,487	12,383	2,534	4.9	179	88.0	17.9
$5 Million - $10 Million	24	193	15.04	22,190	18,876	3,214	5.9	102	90.7	
$10 Million - $50 Million	28	486	25.19	29,246	7,300	4,459	1.6	274	—	8.8
$50 Million - $100 Million	7	281	48.27	44,160	38,498	5,428	7.1	259	—	7.6
$100 Million and over	8	3,517	86.77	a.	a.	35,083	a.	10,215	—	3.1

Source: Steurle (1987) except for "Estimated Percent No Change" which was obtained directly from the IRS.

a. Coverage rate is too high to make calculation meaningful.

TABLE 5: IRS ENFORCEMENT ACTIVITY FOR INDIVIDUAL AND CORPORATE RETURNS, BY FISCAL YEAR, 1977-1987

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	% Δ 1982–87 real terms
Individual Returns												
# filed (000)	85,611	87,386	90,826	93,143	94,018	95,481	95,284	98,288	99,425	102,393	103,460	
# examined (000)	1,892	1,845	1,844	1,833	1,644	1,455	1,427	1,215	1,265	1,090	1,114	
Audit rate	.0221	.0211	.0203	.0197	.0175	.0152	.0150	.0124	.0127	.0107	.0108	
Audit Results ($000)												
Total additional												
Taxes and penalties	1,638,000	1,785,000	2,040,695	1,976,557	2,571,577	2,974,813	3,887,318	4,384,395	4,918,447	5,676,962	5,941,020	69.6
Gross civil penalty[1]	n/a	n/a	39,053	52,019	61,262	84,638	161,130	216,370	274,290	575,400	1,061,500	965.1
Abatements[1]	n/a	n/a	3,668	3,066	8,866	6,958	17,435	22,149	39,994	93,262	43,014	425.1
Net civil penalty[1]	n/a	n/a	35,385	48,953	52,396	77,680	143,700	194,220	234,430	482,140	1,018,500	1013.6
Gross per exam[2]	n/a	n/a	21	28	37	58	113	178	217	528	953	1295.5
Net per exam[2]	n/a	n/a	19	26	32	53	100	160	185	442	914	1364.6
Gross penalty rate[3]	n/a	n/a	.019	.027	.024	.029	.043	.052	.059	.112	.218	751.7
Net penalty rate[3]	n/a	n/a	.017	.025	.021	.027	.038	.046	.050	.093	.207	766.7
Expected penalty rate[4]	n/a	n/a	.0003	.0005	.0004	.0004	.0006	.0006	.0006	.0010	.0022	550.0
Corporate Returns												
# filed (000)	2,247	2,349	2,524	2,717	2,806	2,950	3,077	3,129	3,302	3,666	3,873	
# examined (000)	167	147	142	133	107	107	85	65	58	59	44	
Audit rate	.0746	.0627	.0566	.0492	.0383	.0365	.0279	.0210	.0179	.0163	.0116	
Audit Results ($000)												
Total Additional												
Taxes and penalties	2,465,510	n/a	4,137,321	6,007,909	6,338,711	7,220,741	7,600,501	8,369,799	10,560,888	10,857,290	10,595,222	24.6
Gross civil penalty[1]	n/a	n/a	14,494	21,022	12,859	15,673	32,756	44,697	66,398	193,200	344,200	1765.2
Abatements[1]	n/a	n/a	1,152	446	128	6,221	3,054	1,550	6,549	43,899	164,580	2246.9
Net civil penalty[1]	n/a	n/a	13,342	20,576	12,731	9,452	29,702	43,147	59,849	149,300	179,630	1614.0
Gross per exam[2]	n/a	n/a	102	158	120	146	385	688	1,149	3,275	7,823	4550.7
Net per exam[2]	n/a	n/a	94	155	119	88	349	664	1,032	2,531	4,083	3940.5
Gross penalty rate[3]	n/a	n/a	.0035	.0035	.0020	.0022	.0043	.0054	.0063	.01812	.03358	1526.4
Net penalty rate[3]	n/a	n/a	.0032	.0034	.0020	.0013	.0039	.0052	.0057	.01394	.01725	862.5
Expected penalty rate[4]	n/a	n/a	.00018	.00017	.00007	.00005	.00010	.00011	.00010	.00023	.00020	400.0

Source: Annual Reports of the Commissioner of Internal Revenue, 1977-1987.

1. Penalty amounts are those resulting from audits (fraud, negligence, false withholding, other), and do not include delinquency, estimated tax, failure to pay, or bad check penalties.
2. In dollars per return.
3. Gross penalty rate is the ratio of gross civil penalties assessed in exam to total additional tax.
4. Expected penalty rate = audit rate × net penalty rate.

TABLE 6: TOTAL INDIVIDUAL COMPLIANCE COST ESTIMATES

a. Federal and State Income Taxes, 1982 (Slemrod and Sorum, 1984)

Total individual hours	2.13 billion
Total resource cost	$26.7 billion
Cost as % of AGI	1.4%
Cost as % of tax revenue	7%

b. Federal Income Tax, 1983-5 (Arthur D. Little, 1988)

	Burden (Millions of Hours)		
	1983	1984*	1985*
Recordkeeping	714	720	783
Learning	255	276	313
Preparing	478	503	553
Sending	147	151	164
Total	1594	1651	1813

* Projections based on 1983 survey

TABLE 7: INDIVIDUAL COMPLIANCE COST ESTIMATES BY INCOME CLASS

a. Average Cost for Filing 1982 U.S. and State Individual Income Tax Returns (Slemrod and Sorum, 1984)

	Own Time						*Monetary Expenditure*				*Total Costs*		
Income	Total (hrs)	Research (hrs)	Record-Keeping (hrs)	Return Prepa-ration (hrs)	Spent with Advisor (hrs)	Value of Time ($)	% Using Profes-sional Advice	Fees to Advisor ($)	Other Expenses ($)	Total ($)	Total Resource Cost ($)	As a % of Income	As a % of Tax Liability
Less than $5,000	27.7	1.7	21.2	3.3	1.7	285	37.1	39.5	2.7	42.2	327	8.2	381.6
$5,000-$10,000	15.0	0.9	10.9	2.5	0.7	109	33.9	22.7	21.8	44.5	153	2.0	23.1
$10,001-$15,000	9.5	1.1	5.0	3.2	0.9	49	47.4	18.0	2.7	20.7	70	0.6	4.4
$15,001-$20,000	13.2	1.5	7.0	4.0	1.0	80	51.2	24.6	3.1	27.7	108	0.6	4.0
$20,001-$30,000	25.6	4.1	15.3	5.3	1.3	248	52.2	32.6	7.8	40.4	288	1.2	6.6
$30,001-$40,000	26.3	3.5	14.8	6.9	1.2	274	48.7	37.3	13.9	51.2	325	0.9	4.3
$40,001-$50,000	33.5	4.3	19.6	7.6	1.4	325	49.9	42.0	5.7	48.3	373	0.8	3.4
Over - $50,000	45.6	6.3	25.7	9.6	3.9	1263	78.1	145.5	23.8	168.3	1431	1.7	4.7
Overall Average	21.7	2.4	13.8	4.4	1.3	231	45.9	34.9	9.3	44.2	275	1.4	6.6

b. Average Time in Hours Spent Filing 1983 U.S. Individual Income Tax Returns (Paid Preparer Time Imputed to Total) (Arthur D. Little, 1988)

	Record-keeping	Learning	Finding/ using a preparer	Return preparation	Getting the return out	Total
less than $10,000	5.0	2.5	0.9	2.2	1.5	14.6
$10,000-$25,000	10.7	3.4	1.5	5.2	1.7	22.9
$25,000-$50,000	16.8	4.4	2.1	7.7	2.3	35.2
$50,000-$100,000	22.2	5.5	2.7	8.6	1.8	40.2
over $100,000	28.0	8.0	5.9	11.6	2.0	56.5
overall average	11.1	3.5	1.7	5.0	1.8	26.4

TABLE 8: BUSINESS COMPLIANCE COST ESTIMATES

a. Total Business Compliance Costs in Hours, Federal Income Tax, 1983–1985 (Arthur D. Little, 1988)

	Burden (Millions of Hours)		
	1983	1984*	1985*
Recordkeeping	1577	1845	1957
Learning	133	182	196
Obtaining Materials	95	112	133
Finding/Using a Preparer	147	176	207
Preparing	732	936	1034
Sending	63	72	86
Total	2748	3322	3614

* Projections based on 1983 survey

b. Business Compliance Costs by Form[1], Activity and Preparation Status, Federal Income Tax, 1983 (Arthur D. Little, 1988)

	Burden (Millions of Hours)					
	Self Prepared Returns			Paid Preparer Returns		
	Form 1120	Form 1120S	Form 1065	Form 1120	Form 1120S	Form 1065
Recordkeeping	63.05	42.23	15.09	63.12	55.41	38.84
Getting Advice	22.90	27.89	12.81	14.61	11.38	8.52
Obtaining Materials	14.40	7.73	4.32	8.72	6.27	3.73
Finding a Preparer				12.35	13.68	8.59
Preparing the Return	27.04	14.10	9.91	35.60	35.73	23.23
Sending the Return	5.47	6.65	2.26	4.42	3.31	3.92
Total	132.86	98.60	44.39	138.82	125.78	86.83

1. Form 1120: Standard Corporation Return
Form 1120S: Subchapter S (Small Corporation) Return
Form 1065: Partnership Return

TABLE 9: IRS ESTIMATES OF AVERAGE COMPLIANCE TIME, 1988

Form	Recordkeeping	Learning about the law or the form	Preparing the form	Copying, assembing, and send the form to IRS
1040EZ	7 min.	24 min.	40 min.	20 min.
1040A	1 hr., 20 min.	2 hrs. 11 min.	2 hrs., 52 min.	35 min.
Sch. 1	33 min.	5 min.	20 min.	35 min.
1040	3 hrs., 7 min.	2 hrs., 28 min.	3 hrs., 7 min.	35 min.
Sch. A	2 hrs., 47 min.	26 min.	1 hr., 1 min.	20 min.
Sch. B	33 min.	8 min.	16 min.	20 min.
Sch. C	7 hrs., 4 min.	1 hr., 11 min.	2 hrs., 9 min.	25 min.
Sch. D	1 hr., 2 min.	45 min.	54 min.	35 min.
Sch. E	3 hrs., 12 min.	1 hr., 2 min.	1 hr. 22 min.	35 min.
Sch. F	10 hrs., 53 min.	2 hrs., 2 min.	4 hrs., 10 min.	35 min.
Sch. R	20 min.	16 min.	22 min.	35 min.
Sch. SE				
Short	20 min.	11 min.	13 min.	14 min.
Long	26 min.	22 min.	37 min.	20 min.
1065	65 hrs., 3 min.	30 hrs., 47 min.	55 hrs., 32 min.	6 hrs., 26 min.
Sch. D	5 hrs., 1 min.	2 hrs.	4 hrs., 58 min.	48 min.
Sch. K-1	26 hrs., 47 min.	10 hrs., 41 min.	25 hrs., 33 min.	4 hrs., 1 min.
1120S	59 hrs., 33 min.	21 hrs., 45 min.	36 hrs., 42 min.	3 hrs., 45 min.
Sch. D	8 hrs., 37 min.	4 hrs., 13 min.	9 hrs., 13 min.	1 hr., 20 min.
Sch. K-1	17 hrs., 42 min.	10 hrs., 31 min.	14 hrs., 59 min.	1 hr., 4 min.
1120	68 hrs., 38 min.	39 hrs., 22 min.	69 hrs., 13 min.	7 hrs., 47 min.
1120A	43 hrs., 17 min.	23 hrs., 56 min.	41 hrs., 31 min.	4 hrs., 34 min.
Sch. D	6 hrs., 28 min.	3 hrs., 35 min.	6 hrs., 39 min.	48 min.

Source: 1988 Internal Revenue Service instruction forms.

TABLE 10: STATE GOVERNMENT ADMINISTRATION COSTS AND PROPORTION OF TOTAL REVENUE
($ Millions)

	Total Costs						Cost as % of Revenue						% Δ 1977-1987
	1977	1979	1981	1983	1985	1987	1977	1979	1981	1983	1985	1987	Real Dollars
Alabama	19.8	29.1	37.6	63.9	94.5	108.5	.63	.77	.74	1.22	1.43	1.63	313.9
Alaska	19.7	28.6	35.6	58.3	82.8	92.9	1.41	1.68	.69	1.11	1.40	1.90	270.1
Arizona	30.0	40.2	53.8	50.3	76.7	130.6	1.42	1.43	1.58	1.27	1.44	1.96	249.3
Arkansas	27.0	26.6	34.6	42.1	53.8	61.7	1.72	1.35	1.37	1.54	1.61	1.59	130.9
California	289.3	342.3	455.6	515.8	645.3	1,105.1	1.11	1.10	1.15	1.18	1.11	1.57	218.8
Colorado	33.1	32.8	44.8	60.8	82.9	91.5	1.38	1.08	1.28	1.45	1.56	1.36	158.3
Connecticut	27.2	37.7	43.4	54.6	71.6	111.8	.95	1.19	1.12	1.16	1.14	1.47	235.4
Delaware	10.5	15.5	18.9	23.9	30.4	37.9	1.47	1.78	1.68	1.82	1.81	1.91	206.7
Florida	54.9	78.9	83.2	105.8	112.6	185.7	.96	1.08	.92	1.00	.82	1.07	193.7
Georgia	36.6	40.6	56.7	71.9	96.1	111.9	1.02	.88	.97	1.03	1.10	1.09	125.1
Hawaii	17.1	17.1	21.1	25.2	31.5	35.9	1.17	1.02	1.01	1.09	1.18	1.13	120.2
Idaho	10.3	12.7	15.3	16.6	19.6	20.2	1.31	1.28	1.25	1.23	1.22	1.08	112.3
Illinois	90.2	109.5	151.3	235.2	237.6	281.4	.92	.98	1.05	1.56	1.35	1.36	178.7
Indiana	40.5	46.8	53.2	59.1	72.3	107.9	1.07	1.01	.97	.96	.91	1.19	152.6
Iowa	29.2	37.4	36.7	43.2	46.6	49.6	1.15	1.22	1.00	1.05	.99	.90	97.3
Kansas	26.6	30.7	36.3	49.1	53.4	78.1	1.51	1.41	1.34	1.64	1.44	1.75	168.2
Kentucky	32.5	40.7	37.4	82.5	82.7	115.3	1.09	1.06	.81	1.54	1.34	1.66	203.2
Louisiana	35.2	57.7	62.4	70.3	71.7	58.4	.96	1.26	1.06	1.01	.88	.63	95.0
Maine	10.7	16.3	26.4	37.4	20.7	26.7	1.04	1.32	1.76	2.22	.97	1.01	142.9
Maryland	73.1	89.2	83.4	91.0	103.0	135.5	1.86	1.79	1.42	1.40	1.25	1.40	129.7
Massachusetts	52.0	63.3	77.6	103.5	146.1	201.2	.92	.93	1.01	1.10	1.27	1.44	221.6
Michigan	80.9	104.5	98.3	115.5	112.7	149.7	.83	.91	.65	.72	.65	.70	106.0
Minnesota	38.7	47.3	59.5	69.2	85.1	97.0	.88	.89	.88	.86	.91	.91	143.6
Mississippi	15.2	16.1	20.0	21.7	27.0	27.9	.75	.62	.66	.65	.69	.63	105.1
Missouri	26.4	42.0	60.3	71.6	82.0	107.3	.85	1.10	1.36	1.35	1.23	1.33	232.8
Montana	20.9	25.1	27.1	33.5	40.8	42.1	2.46	2.49	2.14	2.43	2.35	2.32	115.4
Nebraska	13.6	14.1	15.7	17.0	20.3	23.4	1.21	1.06	.99	.90	.95	.95	98.6
Nevada	16.3	21.3	29.8	30.8	36.5	47.6	2.14	2.01	2.25	1.82	1.91	1.92	167.3
New Hampshire	8.1	8.8	10.9	11.4	20.5	22.9	1.27	1.05	1.15	.98	1.51	1.30	161.8
New Jersey	76.7	74.6	92.5	121.1	170.3	216.7	1.09	1.01	.90	.96	1.07	1.11	122.4
New Mexico	22.6	30.7	35.3	34.6	43.9	48.3	1.67	1.66	1.31	1.18	1.23	1.26	122.4
New York	210.0	245.2	329.4	466.8	529.8	682.1	.94	.97	1.10	1.30	1.13	1.23	186.0
North Carolina	47.4	50.5	62.5	54.5	83.0	100.0	1.04	.91	.93	.71	.84	.84	120.8
North Dakota	7.9	8.3	10.4	14.0	16.1	17.0	1.07	1.01	.86	1.05	.98	1.10	123.2
Ohio	110.6	124.7	139.0	196.4	239.2	276.0	1.23	1.09	.98	1.11	1.13	1.10	142.9
Oklahoma	17.4	32.1	44.7	65.4	74.6	93.7	.76	1.09	1.09	1.36	1.32	1.62	308.4
Oregon	60.3	72.1	97.3	108.4	111.9	133.2	2.28	2.06	2.20	2.31	2.10	2.17	126.5
Pennsylvania	127.9	129.8	169.3	211.5	211.9	235.0	1.15	1.02	1.10	1.19	1.04	.99	105.2
Rhode Island	13.8	17.3	21.4	25.3	31.7	57.5	1.33	1.43	1.39	1.38	1.49	2.23	238.7
South Carolina	22.0	31.5	40.2	48.9	58.6	81.6	.91	.99	1.02	1.06	1.01	1.21	212.4
South Dakota	9.7	15.1	18.2	18.6	21.9	14.6	1.78	2.30	2.26	1.93	2.02	1.18	86.2
Tennessee	33.9	34.7	40.3	46.4	53.5	72.0	1.15	.96	.94	.97	.87	.98	121.7
Texas	79.0	107.6	124.3	179.5	222.2	215.3	.89	.97	.81	1.03	1.04	.90	156.1
Utah	16.4	21.0	25.3	28.7	38.1	48.0	1.32	1.31	1.23	1.18	1.22	1.41	167.6
Vermont	9.3	10.8	12.0	15.6	16.7	21.7	1.66	1.69	1.51	1.73	1.51	1.68	132.2
Virginia	57.1	72.5	89.7	107.2	127.3	173.4	1.39	1.41	1.38	1.42	1.41	1.55	303.7
Washington	50.8	58.3	68.9	76.4	112.8	124.9	1.13	1.03	1.00	.91	1.15	1.08	140.8
West Virginia	22.3	28.9	35.3	42.6	63.9	61.4	1.18	1.21	1.20	1.33	1.74	1.55	157.7
Wisconsin	48.2	66.9	72.5	89.3	87.9	101.9	.97	1.07	1.01	1.05	.90	.84	121.1
Wyoming	9.3	12.7	15.4	18.8	24.1	24.9	1.65	1.61	1.33	1.18	1.24	1.38	153.3
AVG							1.24	1.25	1.20	1.27	1.26	1.33	

Source: State Government Finances reports of the Bureau of the census for years 1977-1987.

TABLE 11: STATE INCOME TAX: RETURNS FILED, COLLECTIONS, AND ENFORCEMENT ACTIVITIES, 1985[1]

	Returns filed (1,000's)	Collections ($ millions)	Number of State Tax returns per capita	Amount of State collections per capita	State Audit rate	Average Realized State tax rate
Alabama						1.7
Arizona	1045	626	.327	196.49	2.9	1.5
Arkansas		471		199.66		1.9
California	11,976	12,302	.454	466.09	1.3	2.5
Colorado	1,430	890	.442	225.61	.6	
Connecticut[2]	198	292	.062	92.12	.5	.5
Delaware		394		633.44		
Georgia	2,220	1,555	.368	260.21	1.4	2.3
Hawaii	447	450	.424	427.07	.1	2.9
Idaho	381	249	.380	248.55	1.3	2.3
Illinois	4,744	2,862	.411	248.20	.5	1.5
Indiana		1,287		234.04		1.9
Iowa	1,568	822	.543	285.16	1.8	2.3
Kansas	1,095	603	.447	246.20	0	1.8
Kentucky	1,320	751	.354	201.50	.3	1.9
Louisiana	1,460	526	.326	117.58	.1	1.0
Maine	496	307	.427	264.47	1.5	2.2
Maryland	1,984	1,700	.394	338.18	1.5	2.7
Massachusetts	2,810	3,630	.482	623.39	.5	3.3
Michigan	3,379	3,088	.371	339.79	.3	2.5
Minnesota	1,801	2,249	.429	536.64	4.3	3.8
Mississippi	697	244	.267	93.75	6.8	1.0
Missouri	2,157	1,124	.428	223.39	.4	1.6
Montana	404	171	.488	206.85	15.2	2.0
Nebraska	692	343	.431	214.17	.7	1.5
New Hampshire[2]		25		25.05		
New Jersey	3,400	2,052	.449	271.39	.1	1.5
New Mexico[2]	646	85	.445	58.89		.5
New York	7,602	10,341	.427	584.29	4.7	3.6
North Carolina	2,514	2,483	.411	396.86	9.3	2.8
North Dakota	304	76	.443	111.05	.1	.9
Ohio	4,009	2,777	.373	258.54	1.3	1.9
Oklahoma	1,246	687	.377	208.25	.7	1.8
Oregon	1,013	1,026	.377	382.07	2.1	3.9
Pennsylvania	5,255	2,497	.443	210.66	0	1.6
Rhode Island		287		296.49		
South Carolina	1,287	850	.384	254.27	.04	2.4
Tennessee[2]	249	61	.05	12.45	100.0[3]	.1
Utah	631	435	.383	264.43		2.5
Vermont	237	145	.444	271.74	1.2	2.2
Virginia	2,344	2,174	.410	381.11	.5	2.3
West Virginia	637	396	.313	194.93	.2	2.5
Wisconsin	3,226	2,009	.675	420.66	1.5	3.2

Source: Individual State Tax Revenue Agencies

1. South Dakota, Florida, Texas, Wyoming, Nevada, Washington, Alaska have no state income tax.
2. Connecticut taxes only capital gains while Tennessee and New Hampshire tax only interests and dividends. New Mexico's income tax system is used as a conduit for rebates. Thus while the statuatory rates range from 1.8 to 8.5 percent, the average realized tax rate for New Mexico is only 0.5 percent.
3. Tennesse reviews each return.

TABLE 12: NUMBER AND PERCENT OF STATES REQUIRING INFORMATION RETURNS*

Activities		Number	Percentage
1.	Information Returns Required of Income Derived from:		
	a. Dividends	22	57.9**
	b. Interest	23	60.5
	c. Rents and royalties	21	55.3
	d. Capital gains and losses	13	34.2
2.	Information Returns Required Regularly or upon Request from:		
	a. Broker of stocks and commodities	10	26.3
	b. Promoters of tax shelters	7	18.4
	c. Transferers and sellers of real property	12	31.6

Source: Keith Snavely, *Public Administration Review* 48 (1988):903-910.

* Number of States reporting = 38.

TABLE 13: NUMBER AND PERCENT OF STATES PERFORMING TAX RETURN MATCHES*

Matches		Number	Percentage
a.	IRS income tax tapes	35	100.0
b.	1099 forms	22	62.9
c.	IRS business master file	25	71.4
d.	IRS AIMS file	13	37.1
e.	USDA records of PIK payments	2	5.7
f.	Social Security Administration records	3	8.6
g.	Tax tapes from other states	4	11.4
h.	Records of state licensing boards	16	45.7
i.	Records of Blue Cross, Blue Shield, and Medicaid payments	4	11.4
j.	State business master file	13	37.1
k.	Individual taxpayer master file	23	65.7
l.	Partnership returns	19	54.2
m.	Inheritance and estate tax returns	12	34.2
n.	Employer withholding statements	18	51.4
o.	Corporations and sales tax files of out-of-state businesses doing business in state	13	37.1

Source: Keith Snavely, *Public Administration Review* 48 (1988):903-910.

* Number of States reporting = 35.

TABLE 14: NUMBER AND PERCENT OF STATES PERFORMING MISCELLANEOUS AUDIT FUNCTIONS*

Activities		Number	Percentage
1.	States with Automated Date Processing System:	36	94.7**
	Functions performed by system:		
	a. Check for failure to file in past years	24	66.6
	b. Check mathematical accuracy	35	97.2
	c. Computes tax owed and refunds due	35	97.2
	d. Identifies prior year delinquencies	24	66.6
	e. Provides comprehensive information on individual accounts	27	75.0
	f. Matches return data with information returns	16	44.4
	g. Classifies returns for audit purposes	21	55.3
	h. Provides information for management reports and statistics	33	91.7
2.	Other Computer Functions:		
	a. Computer program for tracking whole audit process	15	39.4
	b. Lap top computers supplied for field audits	30	78.9
	c. Computers supplied for conducting office audits	26	68.4
3.	Other Auditing Activities:		
	a. Use of out-of-state audit office	21	55.3**
	b. Monitoring of bankruptcy cases	38	100.0
	c. Use of discriminant function formulas	12	31.6
	d. TCMP studies	10	26.3

Source: Keith Snavely, *Public Administration Review* 48 (1988):903-910.

* Number of States reporting = 38.

TABLE 15: STATE TAX AMNESTY PROGRAMS (REVENUE AND OFFSETS IN MILLIONS OF CURRENT DOLLARS), 1981-87[1]

State	Time Period	Major Taxes Covered	Gross Revenue	Offsets	Net Revenue	Gross Revenue as Percent of Prior Year collections
Alabama	1-20-84 to 4-1-84	All		$ 3.1		3.1
Arizona	11-22-82 to 1-20-83	All	6.0	1.1	4.9	.34
Arkansas	9-01-87 to 11-30-87	All	1.2[2]			.07
California	12-10-84 to 3-15-85	Indiv. Inc. Sales	197.0	1.9	101.1	.46
Colorado	9-16-85 to 11-15-85	All	6.4	1.2	5.2	.24
Idaho	5-20-83 to 8-30-83	Indiv. Inc.	.3	.009	.291	.002
Illinios (first program)	12-28-81 to 1-08-82	All	.089	.038	.051	.01
Illinois (second program)	10-01-84 to 11-30-84	All	158.6	3.2	155.4	2.14
Iowa	9-2-86 to 10-31-86	All	35.1			1.43
Kansas	7-01-84 to 9-30-84	All	.6	.234	.366	.02
Louisiana (first program)	10-1-85 to 12-31-85	All	1.2		1.2	.04
Louisiana (second program)	10-01-87 to 12-15-87	All	.24[2]			1.01
Maryland	9-01-87 to 11-02-87	All	34.6			.8
Massachusetts	10-17-83 to 1-17-84	All	85.2		85.2	1.58
Michigan	5-12-86 to 6-30-86	All	109.8			1.18
Minnesota	8-01-84 to 10-31-84	All	12.1	.904	11.96	.27
Mississippi	9-01-86 to 11-30-86	All	1.0			.05
Missouri	9-01-83 to 10-31-83	All	.845		.854	.03
New Jersey	9-10-87 to 12-08-87	All	182.0[2]			2.36
New Mexico	8-15-85 to 11-13-85	All	13.6	.105	13.495	.71
New York	11-01-85 to 1-31-86	All	401.3	21.6	379.7	
North Dakota	9-01-83 to 11-30-83	All	.15	.019	.131	.01
Oklahoma	7-01-84 to 12-31-84	Income Sales	17.0		17.0	.65
Rhode Island	10-15-86 to 1-12-86	All	1.9			.21
South Carolina	9-1-85 to 11-30-85	All	8.9	1.1	7.9	.37
West Virginia	10-01-86 to 12-31-86	All	10.1[2]			.55
Wisconsin	9-15-85 to 11-22-85	All	27.3		27.3	.34

1. Source: Federation of Tax Administrators
2. Tentative state revenue authority figures

TABLE 16: STATE SALES TAXES: RATES, COLLECTIONS, AND ENFORCEMENT ACTIVITIES

State	Tax Rate[c] (Jan. 1982)	Total Sales Tax Revenue 1981 ($000)	Total Sales Tax Revenue as % of State Tax Revenue 1981	Number of Registrants 1981	Total Number of Auditors 1981	Registrants per Auditor	% of Accounts Audited Annually 1979-1981	Recovery ($ Millions)	State Sales Tax Admin. Costs as % Revenues 1979-1981
Alabama	4	617,575	30.5	59,623	91	655	4.6	7.1	1.00
Arizona	4	721,381	42.5	75,000	41	1,829	2.4	4.0[a]	0.30
Arkansas	3	399,193	33.6	56,561	113	500	7.1	8.5	—
California	4.75	7,262,596	35.4	629,533	838	751	4.1	107.2	0.79
Colorado	3	529,880	37.0	114,830	90	1,276	4.2	12.5	0.60
Connecticut	7.5	916,668	44.5	100,000	80	1,250	0.4	4.76	0.43
Florida	4	2,542,895	47.7	295,254	293	1,008	1.2	15.095	0.59[a]
Georgia	3	1,013,705	33.5	106,000	95	1,116	2.0	14.0	0.59
Hawaii	4	544,714	50.1	69,000	47	1,468	2.0	—	—
Idaho	3	144,993	27.1	31,000	18	1,722	0.7	1.5	1.00[b]
Illinois	4	2,363,793	32.3	172,942	352	491	3.7	17.2	—
Indiana	4	994,962	35.5	135,000	288	469	1.3	10.0	—
Iowa	3	517,273	28.0	99,945	110	909	1.2	10.5	0.90
Kansas	3	449,213	32.2	75,573	13	5,813	1.3	1.9	—
Kentucky	5	721,801	31.7	76,820	110	698	1.4	11.7	0.75[a]
Louisiana	3	869,829	31.1	78,000	108	722	1.3	9.14	0.61
Maine	5	235,678	34.7	39,597	45	880	2.6	2.25	—
Maryland	5	886,724	30.0	91,802	90	1,020	1.5	7.7	0.50
Massachusetts	5	897,637	20.4	129,650	83	1,562	1.1	9.6[b]	—
Michigan	4	1,799,027	29.2	138,005	261	528	2.7	20.1	0.36
Minnesota	4	774,671	22.9	105,000	100	1,050	0.5	14.0	—
Mississippi	5	725,631	51.2	73,554	92	800	8.8	15.0	0.79[a]
Missouri	3.125	787,185	36.7	—	95	—	2.3	3.5	—
Nebraska	3	281,856	35.1	61,049	50	1,220	0.4	—	0.90
Nevada	3	202,863	39.4	20,500	18	1,139	4.6	1.9	1.68
New Jersey	5	1,201,214	24.1	177,235	124	1,429	2.1	11.02	—
New Mexico	3.75	507,487	42.2	85,651	46	1,862	0.9[a]	9.9	—
New York	4	2,960,800	20.6	450,358	1,200	375	1.8	140.0	1.20[a]
North Carolina	3	738,877	21.6	119,249	149	800	3.2	—	—
North Dakota	3	129,509	28.7	26,000	15	1,733	2.3	1.5	0.45
Ohio	5	1,642,439	31.3	229,496	240	956	0.6	27.8	0.50[b]
Oklahoma	2	445,645	19.8	56,000	49	1,143	6.9	4.0	—
Pennsylvania	6	2,086,166	27.5	229,039	142	1,613	1.3	26.0	0.98
Rhode Island	6	178,074	29.3	23,000	50	460	5.5	4.4	0.60[a]
South Carolina	4	616,081	33.8	71,804	52	1,381	1.3	6.6	—
South Dakota	5	169,665	57.2	—	27	—	2.0	1.0	—
Tennessee	4.5	1,044,155	53.4	103,729	79	1,313	4.2	18.5	—
Texas	4	3,426,020	43.4	289,913	429	675	2.4	46.4	—
Utah	4	354,215	41.5	39,233	35	1,121	8.1	5.1	—
Vermont	3	72,755	24.7	18,120	25	725	1.6	1.3	—
Virginia	3	719,945	23.7	80,000	104	769	3.8	4.3	—
Washington	4.5	1,274,112	40.7	157,000	129	1,217	3.3	44.1[c]	0.70
West Virginia	3	206,404	17.6	39,505	40	987	0.4	1.8	—
Wisconsin	4	901,495	24.9	108,000	144	750	1.0	10.2	0.72
Wyoming	3	196,336	41.8	—	14	—	0.8	0.73	—
Total		46,074,143	31.9	—	—	—	2.3	—	—
District of Columbia	6	259,120	24.3	—	54	—	2.1	2.7	0.73

Source: John F. Due and John L. Mikesell, *Sales Taxation*, the Johns Hopkins University Press, 1983.

a. All states taxes
b. Estimates
c. All rates shown are basic rates when states have multiple rates.

TABLE 17: DIRECT COSTS OF SALES TAX COLLECTION AND COMPLIANCE IN OHIO, BY TYPE OF VENDOR, 1960–61

Business	*% of Tax Liability*
Department stores	1.23
Furniture stores	2.55
Men's clothing stores	3.64
Variety stores	4.56
Hardware stores	6.03
Restaurants	6.37
Drug stores	6.80
Grocery stores	10.77

Source: Yokum, 1961.

TABLE 18: VENDOR COMPENSATION SYSTEMS, 1980

Uniform percent	
1	Indiana,[a] Ohio, Pennsylvania, Texas, Wisconsin
1.2	Maryland
1.5	Louisiana
2	Arkansas, Illinois, Missouri, Tennessee
3	Florida, Georgia, Iowa, Nebraska, North Carolina, Oklahoma, Virginia
3.3	Colorado
3.586	Nevada[b]
Diminishing with Amount of Tax	
Missippi:	2 percent $50 maximum discount per month
Alabama:	5 percent on tax to $100, thence 2 percent
Kentucky:	2 percent to $1,000 tax, thence 1.25 percent
South Carolina:	3 percent to $100 tax, 2 percent to $1,000 tax, 1 percent above $1,000

a. Except utilities.
b. 2 percent of the basic 2 percent tax, ½ percent for each of the 1 percent state and ½ percent local taxes.

TABLE 19: PERCENT OF RETURNS SIGNED BY PREPARER, BY TYPE OF RETURN

Form*	1984	1985	1986
1040EZ	4.6	4.4	3.8
1040A	22.8	23.4	22.5
1040	65.4	64.9	65.2
Total	46.9	46.8	47.1

Source: Department of the Treasury, Internal Revenue Service, *SOI Bulletin*, Vol. 7, No. 1, Summer, 1987.

TABLE 20: ESTIMATED PREPARER MODEL

Independent Variable	Weighted Estimation		Robust Estimation	
	Coefficient	t–Statistic	Coefficient	t–Statistic
ONE	0.4849	0.8522	–0.1818	–0.1929
UI	–5.110	–3.0941	–6.490	–2.3063
STAXR	00.6848	4.1660	4.800	1.6977
PERED	–0.5179	–1.8050	–1.3972	–2.8789
PER45	–7.0384	–4.7942	–5.1831	–1.8441
PER65	1.1796	1.6872	3.1445	2.4763
PMAN	0.7399	2.6845	–0.2925	–0.5956
PSERV	0.3150	3.0552	0.2053	1.1827
AUDRTCL	47.4111	5.6905	65.3945	2.4050
FDIVID	0.2874	0.9370	0.9062	2.4480
FKEOGH	1.2370	0.9314	2.0497	2.2376
FBUSN	0.5285	1.1916	1.3353	2.6284
FPART	1.3941	2.2067	0.3336	0.6354
FSMALC	1.8290	1.4643	–0.8154	–0.4986
FSCHC	0.5699	1.2203	–0.3715	–0.5504
FPENS	–0.7001	–0.8297	2.5381	3.1206
FRENT	0.7025	1.99483	–.3240	0.5451
FSCHF	–0.9066	–1.2960	1.3278	1.1948
FSELF	–0.1738	–0.3124	0.1243	0.2068
FINVEST	0.5985	0.9672	0.4100	0.8711
C2	1.4876	12.1884	1.6525	8.3449
C3	0.7570	11.7061	0.9262	6.1686
C4	1.4872	12.1822	1.7260	8.0853
C5	1.1614	8.2047	1.5321	7.2934
C6	1.3032	3.8943	2.4863	5.9855
C7	1.6243	3.0562	2.6575	3.4729
C8	1.8916	3.4038	3.0681	4.2386
C9	2.2822	3.6044	3.8379	5.2497
C10	3.6068	4.9475	1.5848	1.3620
C11	3.3770	4.5652	1.6823	1.3991
C12	3.7478	4.0446	2.3111	1.9333

Number of Observations	648
Corrected R–squared	0.6904
Sum of Squared Residuals	.0035
Standard Error of the Regression	.7548

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