AN ANALYSIS OF CERTAIN TAX AVOIDANCE TECHNIQUES AVAILABLE UNDER VIRGINIA LAW TO MULTISTATE CORPORATE BUSINESSES

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CHAPTER I

INTRODUCTION

In the winter of 1981 the Virginia General Assembly passed a law which substantially changed the State's method of taxing the income of multistate corporations.[1] While the primary impetus for passage of the legislation (Senate Bill No. 641) was the necessity to replace revenues lost as a result of three unfavorable court decisions,[2] a secondary objective of the law was to bring "equity to the way Virginia taxes multistate corporations with headquarters within Virginia and those without Virginia."[3] Although the State's method of taxation may have been made more equitable by passage of the new legislation, there still may be substantial inequity between the taxation of single state and multistate corporate businesses which operate within the state. Because of the way Virginia taxes multistate businesses, it is possible that many such

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[1]Chapter 402 1981 Acts of the Assembly (March 21, 1981). The act amends, deletes and adds various sections of Va Code Sec's 58-151.03-011.

[2]Three companion cases, Commonwealth of Virginia, Department of Taxation v. Champion International Corporation; Commonwealth of Virginia v. Weaver Bros., Inc.; Commonwealth of Virginia, Department of Taxation v. Merrill, Lynch, Pierce, Fenner and Smith, Inc. 265 S.E. 2d 720 (1980).

[3]Introduction to Senate Bill No. 641," an unpublished memorandum accompanying the bill as submitted to the Senate Finance Committee.

businesses may be able to reduce their total state tax liability below that of a similar business which operates completely within the borders of a single state. Multistate businesses may be able to take advantage of certain options available under Virginia law to avoid paying an equitable amount of state income tax. This study examines the extent to which multistate businesses operating exclusively in the United States can avoid income tax in Virginia and other states by (1) utilizing those options available under Virginia law, and by (2) deliberately structuring transactions to avoid state tax. Based on the research results recommendations are made concerning methods to correct the problem.

Background

A multistate corporation is one that operates in more than one state. When a business operates as a multistate corporation there is always the problem of determining the share of the corporation's income attributable to each state for income tax purposes. To solve this problem most states determine their share of the business's income on the basis of the proportion of the corporation's business activity which is conducted within the state. For this purpose the most widely used measure of business activity is the combination property, payroll, and sales.[4]

A multistate multi-corporate business is an affiliated group of corporations which operate as a single business in more than

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[4]44 states and the District of Columbia provide for some use of a three factor formula.

one state. States generally apply one of two methods of taxing the income of a multistate multi-corporate business. One of those methods is separate accounting. Under separate accounting each corporation in the group is taxed as a separate and independent entity. A state will tax its share of the income of each corporation which operates within its borders without considering the income of the business as a whole.[5]

The other method of taxing a multistate multi-corporate business is the unitary method. Under the unitary method the state disregards the individual corporations and focuses on taxing its share of the income of the entire business. When the unitary method is utilized, income is attributed to each state on the basis of the business's activity within the state.[6] That activity is measured by the proportion of the business's total property, payroll, and sales which are located within the state: the same factors used to attribute income of a single corporate business to a particular state.

Because of the computational differences between separate accounting and the unitary method, the amounts of income attributed to individual states will differ between the two methods. As discussed in Chapter II, both methods of taxation have their respective benefits and problems, but the unitary method is generally considered

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[5]Geoffrey John Harley, International Division of the Income Tax Base of Multinational Enterprise (Boulder, 1981), p. 4.

[6]Lloyd S. Hale and Ruth Kramer, State Tax Liability and Compliance Manual (New York, 1982), p. 80.

to be superior. The most important advantage of the unitary method is that the income it attributes to a particular state is the same regardless of the legal organization of the business or how it structures its transactions.[7]

Virginia generally utilizes separate accounting in the taxation of multistate multi-corporate businesses. In addition, however, the state allows members of multi-corporate groups to file consolidated returns with affiliates which also have operations within the State.[8] For a group of corporations which operate as a single business, a single consolidated return will attribute the same income to a particular state as would be attributed under the unitary method. Therefore, multistate multi-corporate businesses which operate within Virginia have a choice of how to be taxed in the state; they may file either separate returns, a fully consolidated return (which will usually produce a Virginia taxable income equivalent to that of the unitary method), or a partially consolidated return (a consolidated return including only some of the corporations in the group).[9]

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[7]See discussion, in Chapter II, concerning the taxation of multiple corporations, pp. 21-33.

[8]Va. Code Sec. 58-151.079A.

[9]In Virginia, a consolidated return is one filed for a group of affiliated corporations (Va. Code Sec. 58-151.079B1). An affiliated group of corporations, however, includes only those subject to Virginia income tax (Va. Code Sec. 58-151.081). While the Department of Taxation does have the authority to tax corporations not actually doing business in Virginia, such action is only taken when it appears to the Department that an arrangement exist which improperly reflects the taxable income actually earned in the State (Va. Code Sec.

Because of the filing options available in Virginia and some other states, multistate multi-corporate businesses should frequently be able to pay less tax than would be required if they operated as single corporations. In other words many multistate businesses should be able to avoid state income tax by merely making a careful choice of the legal form of corporate organization and filing methods they utilize.

There is evidence that businesses use such elections to take advantage of the relationships between the laws of Virginia and other states. The tax manager of one major Virginia business confirms that state tax laws play a "substantial" roll in decisions regarding the legal organization of subunits.[10] Additionally, accounting firms and other financial consultants have developed software designed specifically for the purpose of state tax planning.[11]

In addition to the tax avoidable as a result of prudent corporate organization and filing method selection, businesses filing returns which are less than fully consolidated also have the opportunity to avoid tax through manipulation of intercompany transfer prices. While businesses which operate as single corporations are unable to

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58-151.083). Therefore, a business utilizing several corporations should generally be able to consolidate those which operate in Virginia and exclude those which do not operate within the State.

[10]Telephone interview with Ray McGraph, Director of Taxes and Benefits, Newport News Shipbuilding, July 8, 1983.

[11]Two of the more prominent such software packages are SMITES III by Peat, Marwick, Mitchell and Company, and CORPTAX by Financial Decision Systems, Inc.

influence their taxable incomes with transfer price manipulations, multi-corporate businesses should be able to use such manipulations to shift income between states so as to have it taxed at lower rates or have it not taxed at all.

Such transfer price manipulations have long been considered a problem by the states.[12] Most states have laws which provide for arms-length adjustments.[13] Such provisions are ineffective, however, when price manipulations are made within an acceptable arms-length range.

Virginia's utilization of separate accounting with the election to file a consolidated return appears to provide multistate businesses with a substantial opportunity to avoid Virginia income tax. Furthermore, price manipulations within an arms-length range appear to provide such businesses with an additional opportunity to avoid tax. Although tax avoidance is not illegal, a policy which arbitrarily allows one class of taxpayer to avoid income tax results in an unintended benefit to that class. Thus, those taxpayers who cannot avail themselves of such tax avoidance techniques must bear a greater tax burden. Such a result may be said to lack fairness.

The concept of fairness in taxation is embodied in equity, which is an important criterion for judging the efficiency of a tax.

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[12]Frank M. Keesling, "A Current Look at the Combined Report and Uniformity in Allocating Practices," The Journal of Taxation (February, 1975), p. 108.

[13]Prentice Hall, State Income Taxes (Englewood Cliffs: Prentice Hall, 1982).

Horizontal equity is basically defined as the requirement that equals be treated equally.[14] A rather rigid interpretation of this concept would require that total state income tax be the same for all corporate businesses which earn the same income. Because of differences in state tax rates, definitions of income, and deductions, such a standard is generally understood to be impossible to apply. In the current context, a more appropriate standard would consist of the requirement that total state income tax should not differ between businesses solely as a result of intercompany transactions, the legal forms of corporate organizations, or filing methods. Based on this standard, it may be argued that Virginia's method of taxing multistate businesses is inequitable.

Another consideration, which may be of greater concern to the Commonwealth of Virginia, is tax revenues. In recent years most levels of government have experienced substantial revenue shortfalls and budget cuts;[15] and Virginia has not been immune to these problems.[16] The State Budget has no room for arbitrary tax subsidies. Therefore, if some businesses are able to avoid material amounts of state income tax, a reason should exist. If no reason exists, then it would be in the best interest of the State to pass

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[14]Charles M. Allan, The Theory of Taxation (Middlesex, England: Penquin Books, 1971), p. 36.

[15]At least eight of the fourteen Southern states have had budget recisions in 1982-83.

[16]Thad Madden, Jr. and Ernest C. Gates, "Legislators Hope Cuts Won't Last." Daily Press (of Newport News, VA), 2 January 1983, p. B1, Cols. 7-8.

legislation that would eliminate the opportunity for such unintended tax subsidies.

Because of the apparent equity and revenue problems which exist under Virginia's current method of corporate income tax assessment, it is important that the magnitude of the tax avoidance problem be determined. This research addresses the issue with an analysis to determine the amount of tax potentially avoidable under current Virginia law.

Purpose and Objective of the Research

The purpose of this study is to gather evidence so as to better define the potential for tax avoidance by multistate businesses under current Virginia law. Its overall objective is to determine the extent to which multistate businesses can avoid Virginia income taxes by (1) utilizing corporate organization and filing method planning and by (2) deliberately manipulating transfer prices between members of affiliated groups. Evidence generated by this study is used in developing recommendations concerning possible changes in Virginia law.

The research has two specific objectives. The first is to measure the incentive provided multistate businesses to utilize their subunit organization and filing methods as a tax planning tool.[17] The objective is accomplished by an examination of the additional

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[17]The legal form of a business's organization (whether it organizes as branches, affiliates, or utilizes both) will subsequently be referred to, in this study, as its subunit organization, corporate organization, or simply organization.

tax that could potentially be incurred by multistate businesses that do not utilize corporate organization and filing methods as a tax planning tool.

The second specific objective of the research is to measure the extent to which Virginia's corporate income tax laws contribute to the ability of multistate businesses to avoid state income tax in Virginia and other states. Based on the premise that the unitary method provides the better assessment of the amount of multistate business income attributable to a particular state, the objective is accomplished by an analysis of how a multistate business, with prudent tax planning, might use the interrelationships between the laws of Virginia and other states to reduce its total state corporate income tax and its Virginia corporate income tax to levels below those which would be incurred if Virginia required the unitary method of reporting.

Methodology

To accomplish the objectives of this study five research questions are developed for investigation. The proposed research questions are addressed with analyses utilizing three deterministic computer models. Each of the models is designed to compute the Virginia and total state income tax of a representative multistate business operating in Virginia and two other states. In addition to computing the tax, the models are designed to determine the combination of corporate organization (branches or subsidiaries) and filing methods (separate or consolidated returns) necessary to

minimize or maximize the business's total state income tax liability.

The computations in each analysis utilize data from a hypothetical representative business. That business is defined on the basis of characteristics important to the determination of state income tax under potential state income tax laws. In each of the three analyses the total state and Virginia income tax liabilities of the representative business are computed for 1,053 separate situations. Each situation consists of a different set of assumptions regarding the relevant characteristics of the business and the laws of the states in which it operates.

The first analysis is designed to measure the incentive provided multistate businesses to use their corporate organization and filing methods as a tax planning tool. Consequently, a comparison is made of the total state income tax liability of a business which elects the combination of corporate organization and filing methods that minimizes its tax, with the tax liability of a similar business which elects the combination of corporate organization and filing methods that maximizes its tax. Such a comparison is made for each of the 1,053 situations examined, and those results are averaged to obtain an overall measure of the incentive.

The second analysis is designed to determine the additional Virginia and total state income tax the representative business would pay if the State adopted the unitary method. It compares the business's minimized tax liabilities as computed under current Virginia

law, with its minimized tax liabilities under the assumption that Virginia utilizes the unitary method. Again, a comparison is made for each situation, and the results are averaged to obtain an overall measure. The additional tax paid under the unitary method provides a measure of the tax avoidable under current law and an indication of the inequity in the Virginia tax system.

The third analysis is designed to compare the effectiveness of current Virginia law with that of the unitary method in limiting the ability of businesses to use transfer price manipulations to reduce their Virginia and total state income tax liabilities. In that analysis the reduction in income tax achievable with a given transfer price manipulation under current Virginia law is compared to the reduction in income tax achievable with a similar transfer price manipulation under the unitary method. The focus of the analysis is on a comparison of the average tax reduction achievable under the two systems of state taxation.

Limitations

The results of the study must be evaluated in light of the simplifying assumptions incorporated into the analyses. One of the most important of these assumptions is that the multistate business always makes the optimal decisions regarding the organization of its subunits and the filing methods used. In reality, such decisions are often not optimal because they are made relatively infrequently. Although changes in the status of a subunit sometimes occur, many times a subunit organized as either a branch or a subsidiary will

remain in that status indefinitely. Similarly, states are often reluctant to allow a change in the methods a business uses to file its income tax returns. For example, in Virginia it is very difficult for a group of corporations filing a consolidated return to receive permission to file separately.[18] Since decisions regarding the organization of the business's subunits and income tax filing methods are made relatively infrequently, it is likely that, over time, either the characteristics of the business or the laws of the states in which it operates will change enough so that the decisions are no longer optimal. Nonetheless, the assumptions should be valid for the new businesses, businesses operating in Virginia for the first time, and businesses with the opportunity and the inclination to change their subunit organization or filing methods. Additionally. opportunities to shift income by manipulating intercompany transactions should be available to businesses regardless of the validity of the optimal organization and filing method assumption.

A related assumption concerns the basis on which the subunit organization and filing method decisions are made. Since those decisions are made relatively infrequently, businesses will make such decisions with the expectation that they will not be changed in the near future. Additionally, those decisions will be made on the basis of the long term general income tax provisions affecting the business in the particular jurisdictions. Likewise, the models are

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[18]Personal interview with William Warren, legislative analyst, Virginia Department of Taxation, May 20, 1982.

designed to determine the optimal decision based on the general taxability of the business in the jurisdictions in which it operates. Details, such as the deductibility of other states' income taxes or tax credits on solar equipment, are not included in the tax computations.

Another factor excluded from the study is differences between the states in the taxation of nonbusiness income. Nonbusiness income is generally considered to be that income earned outside the regular course of a taxpayer's trade or business.[19] Due to the restrictive definition of nonbusiness income utilized by most states,[20] such differences are not likely to be perceived as material by most businesses.

The research deals with businesses which select corporate organizational structures on the basis of minimizing state income tax. In reality, such decisions frequently affect other costs such as legal fees and state capital taxes. While these costs should be considered in selecting a corporate organization, they are not considered here. Such costs are not uniform. They vary substantially from one state to the next and from one situation to the next. Therefore, the inclusion of those costs was not considered useful.

The logical extension of the unitary method is to apply it on an international scale. Some states have done this with the

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[19]UDITPA Sec. 1(a) and (e).

[20]The regulations of the Multistate Tax Commission tend to "severely restrict classifications of nonbusiness income." Hale and Kramer, p. 35.

worldwide combined return. There are, however, some very great economic, legal and political problems associated with the worldwide unitary method.[21] The arguments for applying the method on a worldwide basis are not nearly as strong as those for its domestic use. Therefore, this research considers only the application of the unitary method to businesses operating within the United States.

This study was designed to investigate the potential for tax avoidance by multistate businesses operating in Virginia. The research was conducted by examining the tax avoidable by a single hypothetical business. Although the representative business was examined in a wide variety of situations, the results of the study are not intended to provide a measure of the tax avoidable by the average multistate business operating in Virginia. Instead, the research provides an indication of whether the identified tax avoidance techniques present a potential problem for the State.

Chapter Organization and Content

Chapter II provides a general description of the methods states utilize to tax multistate businesses. In addition, the chapter also discusses the advantages and problems associated with the different methods states can use to tax multistate multi-corporate businesses. Finally, Chapter II describes Virginia law and explains how that law can contribute to tax avoidance.

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[21] See Hearing on S.983 Before the Subcommittee on Taxation and Debt Management of the Committee on Finance. United States Senate, 96th Cong., 2nd Sess. (1980), Vols. 1 and 2.

Chapter III presents the research questions to be investigated, and explains the research methodology utilized in the study. That explanation includes a detailed description of the hypothetical representative business used in the research. Additionally, each analysis is described, and the model validation procedures are explained.

Chapter IV presents the results of the analyses. The results of the investigations of the research questions are discussed in relation to the objectives of the study. Additional model analyses, such as sensitivity analysis, are also described.

Chapter V briefly summarizes the findings of the study and points out their significance and implications. Based on these findings, recommendations are made concerning possible changes to Virginia law, and directions for future research are indicated.

CHAPTER II

REVIEW OF THE TAXATION OF MULTISTATE, MULTICORPORATE BUSINESS IN VIRGINIA AND OTHER STATES

Although laws concerning the taxation of multistate corporate income vary from state to state, many of the differences between those laws are relatively inconsequential. For the most part, important common principles link the laws of many states. Chapter II reviews those common principles, and in addition, examines the two primary theories utilized in taxing the income of multistate, multi-corporate businesses. Finally, the chapter reviews Virginia's approach to taxing such businesses and explains how that approach might provide those businesses with the opportunity for tax avoidance.

State Taxation of Multistate Corporate Income

Constitutional Restrictions on State Taxation

Any analysis of state taxation multistate business must be made within the context of the Constitutional limitations on such taxation.[1] Two clauses in the Constitution place restrictions on the ability of states to tax the income of a multistate business. The Commerce Clause generally protects businesses against multiple taxation. It requires that the tax (1) be applied to an activity

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[1]U.S. Const., art. I, Sec. 8, cl. 3.

with a "substantial nexus" with the taxing state, (2) be fairly apportioned, (3) not discriminate against interstate commerce, and (4) be fairly related to the services provided by the state.[2] The Due Process clause prevents states from taxing income from sources outside their borders.[3] It requires that (1) there be a minimum connection or "nexus" between the income and the taxing state and (2) the income attributable to the state must be rationally related to value connected with the state.[4] Generally, however, in order for a corporate business to successfully challenge a state income tax law on constitutional grounds, it must prove that, in the particular case, the tax either (1) produced results that were arbitrary and grossly distorted,[5] or (2) reached extraterritorial values wholly unrelated to the business's activities within the state.[6]

Methods Used to Compute State Taxable Income

The rules that each state uses to determine its share of a multistate corporation's income are referred to as its rules of

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[2]Mobil Oil Corp. v. Commissioner of Taxes of Vermont, 445 U.S. 425, (1980).

[3]U.S. Const. Amend. XIV.

[4]Moorman Mfg. Co. v. Blair, 435 U.S. 267 (1980).

[5]Ibid.

[6]ASARCO Inc. v. Idaho State Tax Commission, 50 U.S. Law Week 4962 (June 29, 1982).

allocation and apportionment. The terms "allocation" and "apportionment" have similar meanings in general use, but in the field of state taxation there is an important difference in their meanings. Beaman defines them this way:

> Allocation is the process of determining that a particular receipt, or expenditure or intangible value is assignable to a particular geographic area. For example, the rent derived from real property is usually allocated to the place where the realty is situated, and the capital gain or loss on the sale of that realty may similarly be assigned to that place. Apportionment, on the other hand, is the process of determining that a certain fraction or percentage of a whole tax base (net income, net worth, gross receipts, etc.) is attributable to a particular jurisdiction.[7]

Rules of allocation and apportionment are incorporated into the Uniform Division of Income for Tax Purposes Act (UDITPA).[8] The Uniform Act has been at least partially adopted by most states.[9] It calls for the apportionment of business income to the states on the basis of a three factor formula:[10]

$$\text{Apportionable Income} \times \frac{\frac{\text{State Property}}{\text{Total Property}} + \frac{\text{State Payroll}}{\text{Total Payroll}} + \frac{\text{State Sales}}{\text{Total Sales}}}{3}$$

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[7]Walter H. Beaman, Paying Taxes to Other States (New York: 1966), p. 3.1.

[8]UDITPA was submitted by the National Conference of Commissioners on Uniform State Laws to the American Bar Association and approved by that body in 1957. UDITPA is embodied in the Multistate Tax Compact and is therefore applicable to the MTC members.

[9]State of Indiana, "Survey on the Uniformity of State Tax Laws." February 1977.

[10]UDITPA Sec. 9, 10, 13, and 15.

The act defines business income as "income arising from transactions and activity in the regular course of a taxpayer's trade or business and includes income from tangible and intangible property if the acquisition, management, and disposition of the property constitute integral parts of the taxpayer's regular trade or business operations."[11] All other income, which is referred to as nonbusiness income, is allocated to specific jurisdictions based on the classification of each income item. For example, nonbusiness capital gains, and rent and royalty income from real or tangible personal property are generally allocated to the state in which the property is located. Nonbusiness interest and dividends are usually allocated to the corporation's commercial domicile.[12]

The reason for the business-nonbusiness distinction was "that these items of income (nonbusiness) can appropriately be attributed to a specific state."[13] Nonetheless, the Multistate Tax Commission (MTC), which administers UDITPA, has attempted to broaden the definition of business income to the point where all income of the corporation is considered business income and is subject to apportionment.[14] Recent decisions of the Supreme Court, however,

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[11]UDITPA Sec. 1(a).

[12]UDITPA Sec. 5-7.

[13]William J. Pierce, "The Uniform Division of Income for State Tax Purposes," Taxes, CCH, October 1957, Vol. 35, no. 10, p. 747.

[14]W. D. Dexter, "The Business v. Nonbusiness Distinction under EDITPA," 10 Urban Lawyer 2 (Spring 1978).

have not supported the MTC's position. The Court has ruled that the apportionment of some types of nonbusiness income constitutes a violation of the Due Process Clause of the Constitution.[15]

Theoretically, the apportionment formula attempts to attribute income to the states on the basis of the contribution made to the corporation's profit in each jurisdiction. To earn a profit, the business must supply or produce goods or services for which there is a demand. In the formula the supply is represented by the productive factors, property and payroll. The demand is represented by sales.[16] Most, but not all, states use some variation of the three factor formula.[17]

The rules of allocation and apportionment generally relieve corporations of the, sometimes impossible, task of separate accounting for each jurisdiction in which they do business. In addition, they are easier to administer than separate accounting. More importantly, however, the apportionment rules help assure that a state will be able to tax its fair share of a corporation's income. When formula apportionments are applied, the income attributable to each jurisdiction is determined independently of

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[15]ASARCO Inc. v. Idaho State Tax Commission, 50 U.S. Law Week 4962 (June 29, 1982); F. W. Woolworth Co. v. Taxation and Revenue Department of New Mexico, 50 U.S. Law Week 4957 (June 29, 1982).

[16]Peggy B. Musgrave, "International Tax Base Division and the Multinational Corporation," 27 Public Finance (1972), pp. 398-399.

[17]General Accounting Office, Key Issues Affecting State Taxation of Multijurisdictional Corporate Income Need Resolving (GGD-82-38, July 1, 1982), p. 61.

intercompany transactions (which must be eliminated). Therefore, corporations cannot manipulate their state taxable incomes by altering intercompany transfer prices and expense allocations.

Most states have adopted portions of UDITPA. Nonetheless, since many of those states have made at least some modifications to UDITPA's allocation and apportionment rules, the laws are still not consistent from state to state.[18]

Taxation of Multiple Corporations

Separate Accounting and the Arms-Length Standard

Traditionally, governments have respected the corporate form in the taxation of groups of corporations with common ownership. Legally, each corporation is a separate entity. Therefore, each corporation is treated as a business separate and distinct from the other corporations in the group and from its owners. Regardless of the degree of integration and interdependence of production, sales, financing or management, the tax laws of each jurisdiction require each corporation to maintain a separate accounting record of its activities. Moreover, each corporation is required to record transactions with affiliated corporations at the same price and on the same terms as they would record those dealings with third parties. This requirement is referred to as the arms-length standard.[19]

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[18]Ibid, p. 11.

[19]Geoffrey John Harley, International Division of the Income Tax Base of Multinational Enterprise (Boulder, 1981), p. 4.

The arms-length standard is a method of evaluating transactions between related corporations to insure that the business cannot accomplish through multiple corporations the tax avoidance which was not allowed by a single corporation. The systems involves the auditing of transactions between related corporations to insure that the transfer prices used accurately reflect the value that would have been used in an "arms length" transaction between two unrelated parties.[20]

Separate accounting and the arms-length standard are currently utilized by many states as well as by the Internal Revenue Service which has promulgated detailed regulations governing intercorporate transactions. In addition, other countries have developed or are in the process of developing their own such rules. In fact, in all cases where international agreement exists concerning intercorporate transactions, the guiding principle is the arms-length standard.[21]

Separate accounting and the arms-length standard are not without difficulties, however. Part of the problem is theoretical. Separate accounting attempts to treat a single business as a group of separate businesses, which it is not.[22] The method allows the separate parts to recognize income or loss on intercorporate

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[20]James C. Redmond, "Identification of the Source of Income." International Bureau of Fiscal Documentation - Bulletin (1981), p. 102.

[21]The Potentially Dangerous Effect Upon International Commerce of the "Global" or "Unitary" Basis of Assessment. International Chamber of Commerce, Document 180/195 Dr. Rev. (Paris, 1981), p. 1.

[22]Harley, p. 4.

transactions when the economic position of the business is in fact unchanged. Separate accounting ignores the concept that the combination of the parts working together provide a synergistic effect on the profits of the business which the parts could not attain separately. Because of such synergistic benefits provided by an integrated and interdependent buisness, the arms-length standard would appear to be inappropriate. An arms-length price does not and cannot consider the cost savings provided by centralized accounting, advertising, purchasing, management or other functions. The income should, more appropriately, be treated as though generated by the entire business and not by its individual parts.[23]

There are also practical problems associated with separate accounting and the arms-length standard. Most of those problems are best summarized by a recent General Assounting Office report on the administration of Sec. 482:

> Whether or not an arms length price is obtainable, administering the regulation is a complex process. An examiner must identify questionable transactions, perform a functional analysis, and search for a comparable uncontrolled price. If such a price is not identifiable, the examiner must construct one using alternative techniques. The process as a whole thus creates administrative burden and a degree of uncertainty that is unacceptable for both examiner and taxpayer.[24]

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[23]"Multinational Corporations and Income Allocation Under Section 482 of the International Revenue Code," 89 Harvard Law Review, p. 1205, 1215 (1976).

[24]General Accounting Office, IRS Could Better Protect U.S. Tax Interest in Determining the Income of Multinational Corporations (GGD-81-81, Sept. 30, 1981), p. v.

While the regulations promulgated under Sec. 482 of the Internal Revenue Code are very complex,[25] states using the arms-length standard probably have few if any rules governing such transactions. Therefore, it is likely that the result of any arms-length adjustment required by a state will be somewhat arbitrary. In some situations the determination of an arms-length price will be an impossible task. The value of intangible assets such as patents or copyrights are especially difficult to measure. Even the value of some tangible assets are next to impossible to determine: consider the market value of a movie. Additionally, there are always problems in the allocation of overhead and administrative costs as well as in such expenses as advertising, and research and development.[26]

Even with its complex regulations the Internal Revenue Service has found the arms-length standard very difficult to apply. The Treasury Department has reported that the arms-length standard did not work satisfactorily in 40% of the cases it studied.[27] The GAO reported that in its sample of Sec. 482 adjustments only 3% were based on arms length prices. The vast majority of adjustments examined in the GAO study were made on the basis of safe haven rules

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[25]Harley, p. 12.

[26]Church and Pomp, "The Unitary Method: Thirteen Questions and Answers," Tax Notes (June 16, 1980), p. 893.

[27]U.S. Department of Treasury, Summary Study of International Cases Involving Section 482 of the Internal Revenue Code (1973).

and various alternative techniques permitted by the regulations.[28] In fact, in some situations the IRS abandons the arms-length standard in favor of an apportionment method.[29]

Another practical problem associated with separate accounting and the arms-length standard is cost. For many states the cost of administering the arms-length standard has become prohibitive. For a jurisdiction to adequately assure the application of market based transfer prices it must incur the cost of extensive audits requiring the review of thousands or transactions. For many states, therefore, the arms-length standard is just not practical.[30]

Primarily as a result of difficulties in administration, the arms-length standard has failed to do its job effectively. Therefore, an increasing number of states are turning to the unitary method.[31]

The Unitary Method

The unitary method was developed in California as a response to the same conditions that made arms-length adjustments necessary.

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[28]General Accounting Office, IRS Could Better Protect U.S. Tax Interest in Determining the Income of Multinational Corporations, p. 29.

[29]"Multinational Corporation and Income Allocation Under Section 482 of the Internal Revenue Code," p. 1205.

[30]Redmond, p. 105.

[31]In 1964, a congressional study concluded that at that time only five states appeared to have tax provisions broad enough to require or permit a combined report. See U.S. Congress. House. Special Subcommittee of the Committee on the Judiciary. State Taxation of Interstate Commerce, House Report 1480, 88th Congress,

Affiliated groups of corporations were manipulating their transactions in such a way as to avoid paying California income (franchise) tax. In addition, state tax officials felt that the income of a multi-corporate business should be allocated and apportioned in the same way as a single corporate business.[32]

An important argument for apportioning the income of a business operating as a single corporation is the impossibility of accurately allocating the profits of the corporation to the individual states in which it does business.[33] The logical extension of that argument is its application to the business which operates as multiple corporations. Regardless of its legal organization, the income of such a business should be no less difficult to allocate than that of the single corporation business. Therefore, the unitary method provides an avenue for the application of apportionment to multi-corporate businesses.

A unitary business has been defined as one in which there is a relationship of "dependency and contribution between the portions

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Second Session, Vol. 1, 1964, pp. 244-246. As of 1982, at least twenty three states use or allow combined reporting. Recent adoptions include New York and New Hampshire which joined the list of states utilizing the unitary method in 1981, and Florida which adopted the unitary method in the summer of 1983.

[32]Frank M. Keesling, "A Current Look at the Combined Report and Uniformity in Allocation Practices," The Journal of Taxation (February, 1975), p. 109.

[33]See discussion, above, concerning advantages of apportionment, p. 20.

of the business within and without the taxing state.[34] An important element, however, is that in a unitary business corporate lines are ignored. Therefore, a unitary business could extend over several corporations, or a single corporation could be involved in several unitary businesses.[35]

In California, the unitary method is applied through the combined report. The California combined report involves several steps. The first is to compute the income of the entire unitary business. Second, an apportionment fraction is computed for each member of the group based on the state's share of the total property, payroll, and sales of the unitary business.[36] Finally, the taxable income of each group member is found by multiplying its apportionment fraction by the total income of the unitary business. For example, consider Table 2.1 which provides the data of a unitary business consisting of three corporations.

Under the unitary business method, if 55% of the business's effort is expended in California, then 55% of the unitary business income is taxable in California, regardless of where the business recognizes the income.

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[34]Edison California Stores, Inc. v. McColgan, 30 Cal. 2d 472, 183 p. 2d 16 (1947).

[35]Peter Miller, "State Income Taxation of Multiple Corporations and Multiple Businesses," 49 Taxes 2 (February, 1971), p. 105.

[36]Lloyd S. Hale and Ruth Kramer, State Tax Liability and Compliance Manual (New York, 1982), pp. 279-296.

TABLE 2.1

OPERATING RESULTS OF EXAMPLE
UNITARY BUSINESS

Corporation	A	B	C	Total
Federal Taxable Income	$ 10	$ 20	$ 70	$100
Property:				
California Property	80	20	0	
Total Property	80	40	80	200
Property Factor	.50	.10	.00	
Payroll:				
California Payroll	75	30	0	
Total Payroll	75	40	35	150
Payroll Factor	.50	.20	.00	
Sales:				
California Sales	90	45	0	
Sales Factor	.30	.15	.00	
Total Factors	1.20	.45	.00	
Average (÷ 3)	.40	.15	.00	
California Taxable Income	$ 40	$ 15	$ 0	$ 55

Advocates of the unitary method contend that it is theoretically superior to separate accounting, because states that use the unitary method look beyond corporate lines and take into account the income of the entire business in order to determine the income attributable to the corporation's business activities within the state.[37]

The unitary method is also much more objective than the arms-length standard which relies on subjectively determined transfer prices and intercompany allocations. States also encounter much less cost in administering a tax system based on the unitary method.[38] Perhaps the biggest advantage, however, is that a business will incur the same income tax liability regardless of whether it is operated as a single corporation or as multiple corporations.[39]

Primarily as a result of the difficulties associated with separate accounting and the arms-length standard, at least one commentator has indicated that the unitary method "may be a virtual necessity in the domestic context."[40] Nonetheless, the unitary method is not without its own problems.

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[37]Keesling, p. 108.

[38]"Multinational Corporation and Income Allocations Under Section 482 of the Internal Revenue Code," p. 1220.

[39]Redmond, p. 102.

[40]Charles E. McLure, Jr., "Toward Uniformity in Interstate Taxation: A Further Analysis," Tax Notes (July 13, 1981), p. 53.

The biggest problem associated with the unitary method is that of identifying a unitary business. Keesling and Warren provide these often quoted examples:

> Is the growing of oranges a different kind of business than the growing of grapefruit, or are they one business inasmuch as both oranges and grapefruits are citrus fruits? Is a company which manufactures insecticides in California, fertilizers in West Virginia and chemicals for use in textile manufacturing in Georgia engaged in three separate businesses, or is it engaged in the single business of manufacturing chemicals? Again, is a company which operates oil wells in California and mines in a number of other states engaged in the single business of extracting mineral substances from the earth?[41]

Although the authors penned those words over 15 years ago, the issue is still unresolved, and a cloud of uncertainty hangs over a multitude of borderline situations. It is likely, however, that as more cases are litigated, a clearer picture of the unitary business will evolve. If not, a case by case determination of the boundaries of a unitary business could be a continuing problem for the taxpayers and the states.[42]

Another criticism of the unitary method is that it allows states to tax income earned outside their borders. The courts, however, have generally disagreed with this position. States that apply the unitary method are subject to the same constitutional

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[41]Keesling and Warren, "California's Uniform Division of Income for Tax Purposes Act," 15 UCLA Law Review (1967), p. 172.

[42]"Multinational Corporations and Income Allocation Under Section 482 of the Internal Revenue Code," p. 1230.

restrictions as other states,[43] and the courts have consistently held that application of the unitary method does not result in extraterritorial taxation.[44] The method just defines the taxable entity as the business rather than the individual corporation.[45]

An issue related to extraterritorial taxation is the problem of double taxation which occurs when two or more jurisdictions tax the same income. This could happen when a business operates in both unitary method and non-unitary method states or when it operates in two unitary method states which either define the unitary business differently or use a different combination of factors in their apportionment formulas. Although there is a potential for double taxation, it occurs infrequently, and proponents of the unitary method claim that there has never been a litigated case where double taxation has actually occurred.[46] Most states use apportionment formulas that are very similar,[47] and there has been reasonable consistency in the application of the unitary business principle.[48] Where the potential exists for the double taxation of

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[43]Church and Pomp, p. 893.

[44]See Mobil Oil Corp. v. Commissioner of Taxes of Vermont, 445 U.S. 425, 1980.

[45]Harley, p. 8.

[46]Church and Pomp, p. 893.

[47]Thirty-five states currently use an equally weighted three factor formula.

[48]Redmond, p. 104.

businesses that operate in both unitary and non-unitary method states, there is no basis for the conclusion that such potential is the result of the policies of the unitary method state.[49]

The most common criticism of the unitary method is that it is arbitrary and ignores economic facts. The method ignores the possibility that some of a business's operations can be more profitable than others. It does not consider differences in risk. It does not consider geographic differences in the cost or production. If the business's unionized employees in New England receive 20% more pay than their nonunion counterparts in the South, it should not automatically follow that the New England subsidiary be apportioned more of the income. The unitary method does not consider actual losses that occur during the start-up period of a new enterprise. Instead, since the most recent acquisitions have the highest cost, the new operations are burdened with a disproportionately high property factor.[50]

While these criticisms have some validity, they are not serious problems. Within the United States the differences in risk, labor cost, and property cost are not substantial enough from state to state to pose the difficulties that might exist on an international scale.[51] Additionally, such differences in risk and cost are no

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[49]Church and Pomp, p. 893.

[50]Redmond, p. 103.

[51]General Accounting Office, Key Issues Affecting State Taxation of Multijurisdictional Corporation Income Need Resolving, p. 36.

more than those encountered by businesses which operate as a single corporation. If apportionment is acceptable for the single corporate business, it should, likewise, be acceptable for the multi-corporate business. Furthermore, if all states adopted a standard unitary business apportionment formula, such issues would, for the most part, disappear.

Based on the preceding analysis, it can be concluded that the advantages of the unitary method outweigh its problems. In addition to having a theoretical superiority over separate accounting, corporate taxpayers have generally accepted the application of the unitary method to businesses operating within the United States,[52] and the cost and difficulties associated with administration are considerably less than with the arms-length standard.[53] More important, however, is that the method provides state tax officials with the tools to require full accountability from all its corporate businesses and not just from those which operate as a single corporation.[54]

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[52]Ibid., p. 50.

[53]See Redmond, p. 105, Church and Pomp, pp. 493-495, Harley, pp. 13-15, and "Multinational Corporations and Income Allocations Under Section 482 of the Internal Revenue Code," p. 1220.

[54]See Keesling, p. 108, and Hearing on S.983 Before the Subcommittee on Taxation and Debt Management of the Committee on Finance. United States Senate, 96th Cong., 2nd Sess. (1980), Vol. 1, pp. 570-571.

Virginia Taxation of Multistate Business

Virginia Law

Virginia currently requires multistate corporations to apportion all income except dividends.[55] Dividends received from less than 50% owned corporations are allocated to the taxpayers commercial domicile.[56] All other dividends are excluded from Virginia tax.[57]

Virginia does not make a distinction between business and nonbusiness income. Although there are clearly some constitutional problems with this policy,[58] it is very similar to the current view of the Multistate Tax Commission.[59]

Like most states, Virginia utilizes a version of the three factor apportionment formula.[60] The 1981 legislation made an important change to the formula's sales factor. Prior to that time the Virginia sales consisted of those sales shipped or delivered to purchasers in Virginia plus those sales shipped from Virginia to purchasers in states where the corporation was not taxable (a

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[55]Va. Code Sec. 58-151.041.

[56]Va. Code Sec. 58-151.037.

[57]Va. Code Sec. 58-151.032 (g).

[58]See discussion, above, concerning Constitutional restrictions on state taxation, pp. 16-17.

[59]Dexter, p. 420.

[60]Va. Code Sec. 58-151.041.

provision known as the recapture or throwback rule). The new law repealed the throwback rule; now, if the corporation is taxable in at least one other state, the Virginia sales will consist only of Virginia deliveries.[61]

Virginia does not utilize the unitary method for affiliated groups of corporations. Such businesses may elect to file separate returns, a consolidated return or what the Virginia law refers to as a combined return. The Virginia combined return differs substantially from the California return.[62] It provides that each member of an affiliated group compute its separate taxable income. Those amounts are then combined to determine the total taxable income of the group. Other than the use of a single return, the only difference between separate returns and the Virginia combined return is that with the combined return losses of some group members can be offset against the income of other members of the group.[63] In order to avoid confusion with the California combined return, the Virginia combined return will be considered an extension of the separate return and will only be specifically addressed when there are differences.

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[61]Va. Code Sec. 58-151.048.

[62]Va. Code Sec. 59-151.079A.

[63]Va. Code Sec. 58.151.079B2.

[64]Va. Code Sec. 58-151.0779A.

Once the Virginia filing method election has been made, it is binding on future years unless permission to change is granted by the Department of Taxation.[64] Generally, permission to change filing methods is difficult to obtain.[65]

The Problem

Several features of Virginia law appear to provide corporate tax planners with the ability to avoid or reduce their state tax liability. Since multistate businesses can organize their subunits as either branches or as subsidiaries, those that operate in separate accounting states, such as Virginia, have the ability to influence their state income tax liability with the careful selection of their subunit organizations. In addition to providing for separate accounting, however, Virginia allows affiliated groups the election of filing a consolidated return.[66] The addition of this tool gives multistate businesses a whole range of tax planning options. For example, consider a business operating in Virginia and two other states (State 1 and State 2), each of which requires members of affiliated groups to utilize separate accounting with no election to file consolidated returns. Assume (1) each state has a tax rate of 6%, (2) the business has one third of its property, payroll and sales in each of the three states, and (3) the separate

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[64]Va. Code Sec. 58-151.0779A.

[65]Personal Interview with William Warren, Legislative Analysts, Virginia Department of Taxation, May 20, 1982.

[66]Va. Code Sec. 58-151.079A.

accounting income in Virginia is $35,000, in State 1 is $15,000, and in State 2 is $40,000. The state income taxes incurred by the business under its available alternative subunit organizations and filing methods are summarized in Table 2.2.

In the first four situations the business incorporates separately in each state. The Virginia corporation can then file a separate return, or it can file a consolidated return with either or both of the other two corporations. In the next four situations (five through eight) the business in Virginia operates in a branch organization with the business operations in one of the other states. That corporation can then either file a separate return or it can file a consolidated return with the corporation in the third state. In situations nine and ten the business operates one corporation with branches in states one and two, and it operates a separate corporation in Virginia. The Virginia corporation has the election of either filing a separate return or consolidating with the corporation operating in the other two states. In the last situation, the business operates as a single corporation and files its Virginia return that way.

Using the eleven different combinations of subunit organization and filing methods, the example business produces five different levels of total state income tax. The tax under the most expensive combination ($5,700) is nearly 19% higher than that under the combination that produces the minimum state tax (of $4,800). Additionally, the minimum total state tax that the business would incur if

TABLE 2.2

ALTERNATIVE TAX COMPUTATIONS FOR
EXAMPLE UNITARY BUSINESS

Organization of Subunits/ Filing Methods in Virginia	Tax			
	Virginia	State 1	State 2	Total
(1) Three affiliated corporations/ separate return	2100	900	2400	5400
(2) Three affiliated corporations/ consolidate with affiliate in State 1	1500	900	2400	4800
(3) Three affiliated corporations/ consolidate with affiliate in State 2	1800	900	2400	5100
(4) Three affiliated corporations/consolidate with affiliate in State 1 and State 2	1800	900	2400	5100
(5) One corporation with branches in VA and State 1, and an affiliated corporation in State 2/separate return	1500	1500	2400	5400
(6) One corporation with branches in VA and State 2, and an affiliate corporation in State 2/consolidate with affiliate in State 2	1800	1500	2400	5700
(7) One corporation with branches in VA and State 2, and an affiliate corporation in State 1/separate return	2250	900	2250	5400
(8) One corporation with branches in VA and State 2, and an affiliated corporation in State 1/consolidate with affiliate in State 1	1800	900	2250	4950
(9) One corporation with branches in State 2, and an affiliated corporation in VA/separate return	2100	1650	1650	5400
(10) One corporation with branches in State 1 and State 2, and an affiliated corporation in VA/consolidate with affiliate in State 1 and State 2	1800	1650	1650	5100
(11) Single corporation with branches in each state/single return	1800	1800	1800	5400

Virginia required the unitary method ($4950) is 3% higher than the minimum tax produced under current law. These results were obtained without the additional complicating factors of differing state tax rates, or filing method elections in the other states.

The more methods a business can use to file its returns, the greater the likelihood that it will find a filing method that will allow it to reduce its taxes. A multistate business always has the option of operating as a single corporation. Therefore, if it organizes its subunits and chooses its filing methods in a way that will minimize its total state income tax, it should not have to pay any more tax than what would be paid if the business were operated as a single corporation. However, there should be many situations where the business could employ a subunit organization (combination of branches and subsidiaries) and filing method that would reduce its total state income tax liability below that which would be paid if Virginia taxed the business as a single corporation.

Single multistate corporations have little ability to influence the location where most of their income will be recognized. Most of their income is apportioned. Likewise, affiliated groups of corporations being taxed under the unitary method generally cannot structure intercorporate transactions in a way that will shift income from one state to another. Income attributable to a particular jurisdiction is unaffected by such transactions because income is assigned on the basis of the business's property, payroll and sales. Multistate multi-corporate businesses that operate in

separate accounting states, however, should have a much greater ability to influence the location where their income will be recognized. Since income and losses from intercorporate transactions are recognized under separate accounting, manipulation of such transfer prices should be an easy way to shift income and avoid state income tax.

The repeal of the sales throwback rule[67] benefits many corporations that ship from Virginia to other states. However, multistate businesses which operate through multiple corporations should have their tax planning opportunities substantially enhanced by the new legislation. It seems likely that corporations with affiliates in other states will be able to structure their transactions to get more benefit from the new law than was intended. By selling and shipping from Virginia to affiliates in states where the Virginia corporation has not established a "nexus," a multistate business should be able to reduce its Virginia and total state income tax. For example, consider a business with a factory in Virginia and the majority of its sales in Virginia and North Carolina. The business could organize its operations in the two states as separate corporations. If the Virginia corporation does not have a "nexus" with North Carolina, that corporation will not be taxable in North Carolina; however, the corporation's sales to North Carolina will be included in the denominator of the Virginia sales factor and will, therefore, also reduce the income apportioned to Virginia.

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[67]Va. Code Sec. 58-151.048.

Consequently, neither state will tax income apportionable to North Carolina as a result of sales from Virginia to that state.

Both separate accounting and the unitary method are designed to accomplish the same objective: to determine a particular state's share of the income of a multistate multi-corporate business. A pure form of separate accounting would require a business to separately account for its operations in each state, regardless of how it is organized. In any particular situation one would not expect pure separate accounting and the unitary method to produce identical results. Nonetheless, if the apportionment factors are consistently applied, and if they are representative of the profits generated within the state, then on the average the income recognized under the two methods should be approximately the same. Therefore, if the average results under current Virginia law are not approximately the same as under the unitary method; if current Virginia law consistently allows businesses to report income which is less than that recognized under the unitary method, then there is evidence that businesses can successfully shift income to avoid state tax.

In Chapter I it was established that equity required that total state income tax should not differ between businesses solely as a result of intercompany transactions, or different corporate organization and filing methods. Based on this criteria, it is concluded that the tax generated under the unitary method is equitable. Neither corporate organization, filing methods, nor transfer

pricing policy have an effect on the tax liability generated under the unitary method.

Multistate businesses operating as single corporations are currently taxed in Virginia in the same way as would be required under the unitary method. To the extent that multistate businesses can use other organization and filing method combinations to generate other tax liabilities, however, Virginia's current method of taxation is inequitable. A measure of that inequity is the extent to which such businesses can use organization and filing method planning to reduce their tax liability below that incurred under the unitary method.

The Issues

The most difficult problem associated with the unitary method of taxation is that of identifying unitary businesses. Virginia's method of taxing multistate businesses relieves the State of making such hard decisions regarding the definition of the taxable entity. Such decisions are effectively left in the hands of business. By avoiding the issue, however, the State has incurred some other potential problems. Each problem is a direct result of the flexibility businesses currently have in arranging their taxable operations. That flexibility apparently allows them to avoid state income tax by utilizing corporate organization and filing method planning, intercompany transfer price manipulations, or both.

One problem with the current situation is that it is inequitable to allow one class of taxpayer to avoid tax while others cannot.

Another problem is that such tax avoidance costs the state money which it cannot afford. Because of these problems, it is important that the potential magnitude of the tax avoidance be measured, so that decisions can be made with respect to how to correct the situation.

CHAPTER III

METHODOLOGY AND RESEARCH DESIGN

This research has two specific objectives. The first is to measure the incentive provided multistate businesses to utilize subunit organization and filing methods as a tax planning tool. The second is to measure the extent to which Virginia corporate income tax laws contribute to the ability of multistate businesses to avoid income tax in Virginia and other states. This chapter has two purposes: first, to present research questions which are consistent with the objectives of the study; and second, to provide a complete description of the methodology utilized in their investigation.

Research Questions

To accomplish the overall objectives of the study the following research questions are addressed:

Research Question 1:

> What is the cost of not utilizing corporate organization and filing methods as a tax planning tool to multistate corporate businesses operating in Virginia?

In this study the cost of not planning is operationally defined as the extent to which the total state income tax liability of a representative business using the combination of corporate organization and filing methods which maximizes its tax exceeds the total

state tax of an identical business which uses the combination of corporate organization and filing methods which minimizes its tax.

Businesses cannot be expected to actively utilize their corporate organization and filing methods as a tax planning tool unless they have an incentive to do so. By comparing the minimum possible tax of a business which utilizes those planning tools with the maximum potential tax of a business which does not, an investigation of research question one discloses the extent to which an incentive exist.

Research Question 2:

What is the total state income tax cost to multistate corporate businesses operating within Virginia of Virginia adopting the unitary method?

Research Question 3:

What is the Virginia income tax cost to multistate corporate businesses operating within the State of Virginia adopting the unitary method?

In this research, the total state tax cost of adoption is operationally defined as the extent to which the total state income tax of a representative multistate business being taxed in Virginia under the unitary method exceeds the total state income tax of a smiliar business which is taxed in Virginia under current law. The Virginia tax cost of adoption is operationally defined as the extent to which the Virginia income tax of the representative business being taxed in the State under the unitary method exceeds its Virginia tax under current law.

Preliminary analysis indicates that multistate businesses which operate in Virginia and minimize state income tax liabilities will in some situations pay less tax than would have been paid if Virginia required the unitary method of reporting; however, in no situation should such business have to pay any more Virginia or total state income tax than the amount that would have been paid if Virginia taxed the business as a single corporation (or used the unitary method).[1] A business can always operate as one corporation or it can file a consolidated return with its affiliates. An investigation of research questions two and three provides an indication of how much additional tax such businesses would have to pay if Virginia required the unitary method of reporting.

The additional total state and Virginia taxes paid under the unitary method are considered measures of the tax avoidable under current Virginia law. In addition, the total state tax cost of adoption is also considered a measure of the inequity in current Virginia law.

Research Question 4:

> To what extent does the effectiveness of the unitary method exceed the effectiveness of current Virginia law in limiting the ability of multistate corporate businesses to use transfer price manipulations to reduce their total state income tax?

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[1]See discussion, in Chapter II, concerning use of corporate organization and filing methods as a tax planning tool, pp. 36-39.

Research Question 5:

To what extent does the effectiveness of the unitary method exceed the effectiveness of current Virginia law in limiting the ability of multistate corporate businesses to use transfer price manipulations to reduce their Virginia income tax?

The effectiveness of each law in controlling reductions in total state or Virginia income tax is operationally defined as the extent to which the respective tax liability of a representative business is reduced as a result of a given change in intercompany transfer prices.

Research questions four and five are investigated to compare the effectiveness of current Virginia law with that of the unitary method in limiting the ability of multistate businesses to use transfer price manipulations to reduce their Virginia and total state income tax liabilities. Preliminary analysis indicates that a business's income tax liability in states utilizing the unitary method is unaffected by the manipulation of transfer prices.[2] An investigation of research questions four and five discloses the extent to which the effectiveness of the unitary method exceeds that of current Virginia law in limiting the ability of multistate businesses to reduce their state income tax liabilities through deliberate structuring of transfer prices.

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[2]See discussion, in Chapter II, concerning problems with current Virginia law, pp. 39-40.

Methodology

To address the proposed research questions, three analyses are performed. The first analysis is designed to address research question one. The second analysis is used in addressing research questions two and three, and the third analysis is used to investigate research questions four and five.

Each analysis requires the construction and utilization of a deterministic numerical computation computer model. The construction of each model is derived from a mathematical model which describes the relationship between the operating characteristics of a representative business, the tax laws in Virginia and other states, and the state income tax liability incurred by that business.

The questions addressed with these models could also have been addressed with research methodologies. For example, it would have been possible to logically or arithmetically analyze the mathematical relationships. Such analyses, however, are not very efficient in examining the effects of a large number of variables. In this study, it is necessary to review a wide variety of differing tax situations so that reasonable generalizations can be made. Therefore, the numerical computation methodology is considered more appropriate.

Each model is designed to compute the Virginia and total state income tax of a representative multistate business operating in Virginia and two other states. In addition to computing the tax,

the models also determine the combination of corporate organization (branches or subsidiaries) and filing methods (separate or consolidated returns) necessary to minimize or maximize the business's total state income tax.

The Representative Business and State Income Tax Laws

Basic Parameters and Assumptions

The computations in each analysis utilize data from a hypothetical representative business. That business is defined on the basis of characteristics important to the determination of state income tax under potential state income tax laws. In each analysis the total state and Virginia income taxes of the representative business are computed under a variety of assumptions regarding certain operating characteristics of the business and the laws of the states in which the business operates.

The representative business is a high technology manufacturing-sales organization which operates with subunits in Virginia and two other states. It is assumed that the business has the flexibility to either operate as a branch organization or incorporate separately in each state. In those situations where the business elects to operate separate corporations, it has the ability to establish nexus for each corporation in any other state where it might be necessary for filing a consolidated return.

It is assumed that the after tax income of each subunit is remitted to the business's headquarters, and for a subsidiary that

remittance is in the form of a dividend. The assumed federal tax rate is 46%, and the tax rate in the states from which taxable dividends are paid is 6%. Therefore, the dividends received in dividend taxing states are approximately 51% (100%-6%-[94%x46%]) of the earnings of the dividend paying subsidiary.

The specific characteristics of the business utilized in the computations are (1) location of business headquarters, (2) location of factory, (3) location of certain other activities which do not directly generate income, (4) results of operations in each state, amounts of, (5) property, (6) payroll, and (7) internal and external sales in each state.

The specific provisions of the laws in Virginia and other states that are utilized in the computations include each state's (1) tax rates, (2) utilization of the sales throwback rule, (3) treatment of dividends received and, (4) filing methods allowed or required.

The overall operating results of the representative business are provided in Table 3.1. The total external sales of the business are divided equally among the three states in which it operates, or $1,000 in each state. In addition, intercompany sales and expense allocations are made between the subunits operating in the three states.

It is assumed that the property and payroll cost are distributed in equal proportions. Therefore, if 35% of the business's property is located in a particular state, then it is also assumed

TABLE 3.1

OPERATING RESULTS OF
REPRESENTATIVE BUSINESS

Sales	$3,000
Expenses	2,830
Income before tax	$ 170

that 35% of the firm's payroll cost is located in that state. In each analysis it is assumed that 45% of the property and payroll cost support sales activities. Since external sales are the same ($1,000) in each state, the supporting property and payroll cost are also distributed equally -- 15% in each state. Forty percent of the property and payroll cost is located at the factory, and 5% is at the business's headquarters.[3] The remaining 10% of property and payroll cost is associated with other activities of the business which do not directly produce income. An example of such an activity would be a research and development facility, which is the assumed activity in this study.[4] Table 3.2 summarizes the source of the property and payroll factors.

Intercompany transactions include sales of $710 from the factory subunit to each of the nonfactory subunits. Both the cost of operating the business's headquarters ($141.50) and the cost of operating the research and development facility ($283) are shared

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[3]The activities of a business's headquarters consist not only of centralized management but may also include a wide range of activities such as centralized accounting, legal services, promotion, or purchasing. Unfortunately, there are no data available which provide an indication of the amount of resources (property and payroll) businesses devote to the activities of their headquarters. Therefore, some sensitivity analysis was performed on the amount of resources the representative business will devote to its headquarters activities. See discussion, below, concerning sensitivity analysis, pp. 81-82.

[4]Although the "other activities" of the hypothetical business consist of a research and development facility, those activities should be considered as representative of a variety of activities which would be conducted by different businesses. Another example of such an activity is a warehouse facility.

TABLE 3.2

SOURCE OF PROPERTY
AND PAYROLL FACTORS

Activity Utilizing Property and Payroll	Percent of Property and Payroll Utilized
External sales	45%
Factory	40%
Headquarters	5%
Other activities not directly producing income	10%
	100%

equally among the three subunits via intercompany expense allocations.

As a result of the intercompany expense allocations, the cost to each subunit of operating the headquarters and the research facility is unaffected by the location of those activities. Tables 3.3 and 3.4 compute the income for each subunit based on two separate assumptions concerning the locations of factory, headquarters and research facility. Notice that the income of the factory subunit and the incomes in the nonfactory subunits do not change under the different assumptions concerning the location of the headquarters and research facility.

To insure that the model produces unbiased results, the operations of the representative business are arranged so that the separate accounting income recognized in each state is the same as would be apportioned to the state under a unitary method applied solely on the basis of the business's activities which directly produce income. In other words, the amount of income recognized under separate accounting is the same as would be apportioned under the unitary method if property and payroll associated with activities not directly producing income were excluded from the computations. Table 3.5 illustrated those apportionment computations.

Since the representative business's operations are arranged to generate the same taxable income under both separate accounting and the unitary method applied on a basis which excludes property and payroll associated with headquarters and research activities,

TABLE 3.3

EACH SUBUNIT'S OPERATING RESULTS UNDER THE ASSUMPTION THAT THE FACTORY, HEADQUARTERS AND RESEARCH FACILITY ARE ALL LOCATED IN STATE A

Subunit	A	B	C
Sales			
External	$1,000.00	$1,000.00	$1,000.00
Intercompany	1,420.00		
H.G. Cost Alloc.	94.33		
Research Cost Alloc.	188.67		
Total	$2,703.00	$1,000.00	$1,000.00
Expenses			
Intercompany Purchases		$ 710.00	$ 710.00
H.Q. Cost	$ 141.50	47.17	47.16
Research Cost	283.00	94.33	94.33
Other	2,186.28	109.61	109.62
Total	$2,610.78	$ 961.11	$ 961.11
Income before Tax	$ 92.22	$ 38.89	$ 38.89

TABLE 3.4

EACH SUBUNIT'S OPERATING RESULTS UNDER THE ASSUMPTION THAT THE FACTORY IS LOCATED IN STATE A, THE HEADQUARTERS IS LOCATED IN STATE B, AND THE RESEARCH FACILITY IS LOCATED IN STATE C

Subunit	A	B	C
Sales			
External	$1,000.00	$1,000.00	$1,000.00
Intercompany	1,420.00		
H.Q. Cost Alloc.		94.33	
Research Cost Alloc.			188.67
Total	$2,420.00	$1,094.33	$1,188.67
Expenses			
Intercompany purchases		$ 710.00	$ 710.00
H.G. Cost	$ 47.17	141.50	47.16
Research Cost	94.33	94.33	283.00
Other	2,186.28	109.61	109.62
Total	$2,327.78	$1,055.44	$1,149.78
Income Before Tax	$ 92.22	$ 38.89	$ 38.89

TABLE 3.5

APPORTIONMENT COMPUTATION EXCLUDING PROPERTY
AND PAYROLL NOT DIRECTLY PRODUCING INCOME

Income apportioned to factory subunit:

State sales = $1,000
Total sales = $3,000
Sales factor = 1000/3000
State Property and payroll = 15% to support sales plus 40% at the factory = 55% of total property and payroll
Total property and payroll directly producing income = 45% to support sales plus 40% at the factory = 85%
Property and payroll factors = 55/85
Apportionment fraction = (1/3 + 55/85 + 55/85) /3 = .5425
Income apportioned to factory subunit = 170 x .5425 = 92.22

Income apportioned to each non-factory subunit:

Sales factor = 1000/3000
Property and payroll factors = 15/85
Apportionment fraction = (1/3 + 15/85 + 15/85) /3 = .2288
Income apportioned to each non-factory subunit = 170 x .2288 = 38.89

differences in taxable income between the two methods occur as a result of factors other than operations which directly produce income. One difference results because under the unitary method income is apportioned to the location of activities not directly producing income. Income is apportioned to the headquarters and the research facility. Another difference occurs because under separate accounting intercompany sales and expense allocations affect the income that a subunit apportions to itself. A subunit can reduce its sales factor by making sales to out-of-state affiliates. Such sales increase a subunit's total sales without affecting its within state sales. Intercompany expense allocations, however, increase a subunit's sales factor. Since expense allocations do not involve any out-of-state deliveries they are considered within state sales. Therefore, such transactions increase both total and within state sales.

The ability of a multistate business to utilize the available tax planning techniques is likely to be influenced by a variety of factors including some operating characteristics of the business itself and the tax laws of each state in which the business operates. Eacn analysis involves the computation of state income tax for the representative business in a series of situations. Each situation consists of a different combination of assumptions regarding the relevant characteristics of the business and the laws of the states in which it operates. The assumptions utilized include:

A. Three (3) locations of the business's headquarters,

B. Three (3) locations of the factory,

C. Three (3) locations of other property and payroll not directly producing income (e.g., research and development facility),

D. Three (3) tax rates in State 2,

E. Two (2) treatments of the sales throwback rule by State 2,

F. Seven (7) combinations of the other states' tax laws (State 1 / State 2):

1. Combined return / Separate return, dividends not taxed,

2. Combined return / Separate return, dividends apportioned,

3. Combined return / Optional separate or consolidated return, dividends not taxed,

4. Separate return, dividends not taxed / Separate return, dividends not taxed,

5. Optional separate or consolidated return, dividends not taxed / Separate return, dividends not taxed,

6. Optional separate or consolidated return, dividends not taxed / Separate return, dividends apportioned,

7. Combined return / Combined return.

The location of the headquarters, factory, and research facility (variables A, B, and C) are utilized in the analyses so that the representative business can be observed in the widest variety of situations regarding the profitability of the business in the three states relative to the income apportioned to those states under the unitary method. Additionally, however, each of those characteristics is a cause of differences in the tax liabilities generated under the two taxing methods. As a result of

intercompany sales and expense allocations the business's sales factors are influenced by the location of each of those activities under separate accounting, but not under the unitary method. The locations of the business's headquarters and research facility have the effect of influencing its unitary method property and payroll factors without affecting the business's separate accounting incomes.

The corporate tax rates employed by other states are utilized in the analyses because in nonunitary method states like Virginia such rates can influence a business's selection of corporate organization and filing methods and thereby influence the income it recognizes. Currently, for those states which have a corporate income tax the median marginal tax rate is 6% on taxable income of $50,001. Those states with tax rates higher than 6% have a median rate of 8%, and the median rate for those states with rates lower than 6% is 4%.[5] In an effort to limit the number of situations analyzed, it is assumed that State 1 has the same, 6%, tax rate as Virginia. The tax rate utilized by State 2, however, varies from 4% to 6% to 8%.

Approximately half the states utilize a sales throwback rule.[6] The existence of a throwback provision should reduce the

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[5]Prentice Hall, State Income Taxes (Englewood Cliffs: Prentice Hall, 1982).

[6]Richard Krol, "Minimizing State Taxes with 'Receipts Factor' Planning, Investment Subsidiaries." Journal of Taxation (June, 1980), p. 363.

ability of multistate businesses to avoid state income tax by making out of state sales to affiliates in jurisdictions where the corporation is not taxable. States that utilize a throwback rule treat such sales as within state sales, and therefore, insure the taxation of income apportioned on the basis of those sales. In each situation analyzed it is assumed that State 1 does not utilize a throwback rule; however, State 2 employs a sales throwback rule in half of the situations examined, except as discussed below.

Subsidiary dividend taxation and the filing methods required or allowed in the other states in which a business operates should also have some influence on its ability to avoid tax in Virginia. The analyses include seven combinations of other states' potential filing method and subsidiary dividend taxation provisions.

The filing method provisions utilized in the analyses include required combined returns, required separate returns, and optional separate or consolidated returns. Each of those provisions are employed by a substantial number of states. The dividend taxation provisions utilized in the analyses either exclude dividends received from wholly owned subsidiaries or require the apportionment of such dividends. Most states do not tax the dividends of 100% owned subsidiaries, either because they are specifically excluded or because such income is already included as a result of the application of the unitary method. The states that tax such dividends, however, generally require apportionment.[7]

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[7]Prentice Hall, State Income Taxes.

Each analysis examines a total of 1,053 fact situations. Computations are performed for all combinations of business and state tax law characteristics except for those situations where State 2 utilizes both the unitary method and the sales throwback rule. Since all interstate sales are assumed to be made to branches or affiliates, all operations would be combined under the unitary method, and the sales throwback rule would never be applied. Therefore, any situation which includes both provisions would be redundant with other situations examined.

Additional Computational Assumptions

It is assumed that sales made from factories in throwback rule states to out-of-state affiliates are taxed by the factory state if the tax rate in that state is less than the tax rate in the state to which the shipment is made. If the rax rate is not less, then the factory corporation establishes a nexus in the state where shipment is received and the sales are taxed in that state. Because of the relative ease with which nexus can be established,[8] it is assumed that the business would organize in ways to minimize its tax, but where the total state tax liability would be the same under two or more alternatives, it would be easier for the factory

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[8]Nexus is established with as little as the maintenance of a business location within the state, or ownership of real estate or a stock of goods within the state, or miscellaneous activities of employees within the state, such as credit investigations, providing training seminars for customers, or collection of delinquent accounts. See Lloyd S. Hale and Ruth Kramer, State Tax Liability and Compliance Manual (New York, 1982), p. 20.

corporation to establish a nexus in each state in which it does business than to not do so.

In other situations where the business's minimized total state tax liability is the same under two or more alternative organization and filing method elections, it is assumed that the business elects the option which minimizes its Virginia tax liability.

Additional Considerations

The analysis is designed so that the results disclose the difference between current Virginia law and the unitary method in the tax liability computed for a specific representative business. The operations of that business include two non-income producing activities -- a headquarters qnd a research and development facility. Since those activities are non-income producing, they utilize cost based transfer prices. An alternative assumption would be to attribute some income to the headquarters and research facility, since those activities obviously benefit the business's income producing operations.

The unitary method assumes the same rate of profit on all activities of the business. Similarly, it is possible to establish transfer prices that would attribute the same rate of profitability to the non-income producing activities as to those operations of the representative business which directly generate income. If such transfer prices were utilized, then the business's taxable income would be the same under both separate accounting and the unitary

method. Therefore, it appears that much of the problem addressed by this study might be the result of inappropriate transfer prices.

While transfer prices are an important element in this study, they are not the entire issue. The property, payroll, and sales assigned to the research and development facility is also somewhat representative of real world situations where some subunits of a business are just not as profitable as others relative to the apportionment factors. In such situations, the differences between the tax generated under the two laws are not easily corrected by transfer price adjustments. In addition, transfer price adjustments are not likely to be useful in correcting the effects of sales factor throwback rule problems.

Nonetheless, as the reuslts of this study are examined, it is important to keep in mind the assumption of cost based transfer prices for non-income producing activities. This is particularly true with respect to the results relating to the business's headquarters. The most important consequence of that assumption is that since the unitary method assumes a common rate of return for all activities of the business, it should generally assign a greater amount of income to the location of the business's headquarters than would be recognized under separate accounting. Different assumptions concerning the profit included in such transfer prices, however, would produce different results.

Analyses Performed

Analysis for Research Question One

In the first analysis the computation is prepared for a business that employs no other tax management technique than the careful selection of its subunit organization (branches or subsidiaries) and its filing methods. The analysis is designed to determine the utility of using the selection of corporate organization and filing methods as a tax planning tool. Research question one is addressed by comparing the total state income tax of a representative business that makes corporate organization and filing method elections which minimize state taxes with the total state income tax of an identical business that makes elections which maximize its total state income tax liability. The model is utilized to compute the total tax for both businesses under each set of assumptions regarding the operating characteristics of the businesses and the laws of the other states in which they operate. In each situation (set of assumptions) examined the total state income tax of the business that maximizes its tax liability is compared to the tax of the business that makes elections which minimize its tax liability. The difference between the two tax liabilities is defined as the potential cost of not planning, and it is expressed as a percentage of the minimized tax. The percentage cost of not planning is computed by:

100% x([maximized tax-minimized tax]/minimized tax)

In each situation the percentage cost of not planning provides a measure of the amount of additional tax a business could

potentially incur as a result of neglecting the use of subunit organization and filing methods as a tax planning tool. The average percentage cost of not planning computed for all situations examined provides an overall indication of the incentive that multistate businesses have to utilize their corporate organization and filing methods as a tax planning tool.

Computer Model Utilized in Addressing Research Question One

The computer model utilized in the first analysis is a program written in FORTRAN. The name of the program is PLAN1. It consists of a main program and several subroutines. One subroutine, CPT1, is designed to perform all the tax computations. The primary jobs of the main program are to (1) generate situations to be used as input to the computational subroutine (CPT1), and tabulate the results generated by the computational subroutine. The input to CPT1 consists of a description of the situation to be examined. Each description consists of the information provided in Table 3.6.

Once the description of a situation involving the representative business has been input to CPT1, the subroutine computes the total state tax for each available subunit organization and filing method alternative. For example, the computations for one situation are illustrated in Table 3.7. That situation consists of a Virginia headquarters, a State 1 factory, and a State 2 research facility. State 1 requires the unitary method. State 2 requires separate accounting, does not utilize a sales throwback rule, and has a 6% tax rate.

TABLE 3.6

INPUTS TO THE COMPUTATIONAL SUBROUTINE CPTAX

Business Characteristics:

- Location of business's headquarters (Virginia, State 1, State 2)
- Location of business's factory
- Location of business's other non-income producing activity
- Intercompany sales of merchandise
- Intercompany expense allocation of headquarters cost
- Intercompany expense allocation of cost of other non-income producing activity
- Percentage of total property located in each state
- Percentage of total payroll paid in each state
- Separate accounting profit in each state

Laws in Other States in Which Business Operates:

- Tax rates
- Utilization of sales throwback rule by State 2
- Combination of laws regarding filing methods allowed or required, and treatment of dividends

TABLE 3.7

TAX COMPUTATIONS UNDER ALTERNATIVE ORGANIZATION, FILING METHOD ELECTIONS

Option	State	Filing Method	Tax	Total Tax
	VA	Fully Consolidated	2.49	
(1)	S1	Combined Return	4.87	10.20
	S2	Fully Consolidated	2.83	
	VA	Fully Consolidated	2.49	
(2)	S1	Combined Return	4.87	9.70
	S2	Separate Return	2.33	
	VA	Consolidated with S1	2.39	
(3)	S1	Combined Return	4.87	9.60
	S2	Separate Return	2.33	
	VA	Fully Consolidated	2.49	
(4)	S1	Combined Return	4.87	9.89
	S2	Consolidated with VA	2.52	
	VA	Consolidated with S2	2.14	
(5)	S1	Combined Return	4.87	9.54
	S2	Consolidated with VA	2.52	
	VA	Consolidated with S2	2.14	
(6)	S1	Combined Return	4.87	9.35
	S2	Separate Return	2.33	
	VA	Separate Return	2.33	
(7)	S1	Combined Return	4.87	9.54
	S2	Separate REturn	2.33	
	VA	Fully Consolidated	2.49	
(8)	S1	Combined Return	4.87	10.03
	S2	Consolidated with S1	2.66	
	VA	Separate Return	2.33	
(9)	S1	Combined Return	4.87	9.87
	S2	Consolidated with S1	2.66	

For the situation described, Table 3.7 shows the total state tax liability for each of the nine potential combinations of corporate organization and filing method elections as computed by the model. Of the elections available, combination number five (5) produces the lowest total state income tax liability (the tax with planning), and combination number one (1) generates the highest tax liability (the tax without planning). The percentage cost of not planning is computed by dividing the difference between the maximized tax and the minimized tax by the minimized tax. The percentage cost of not planning is computed by 100x([10.20-9.35]/9.35)= 9.09%.

For each situation examined the output provided by the CPTl subroutine includes:

(1) a code identifying the particular situation addressed,

(2) a code identifying the subunit organization and filing method elections that would minimize the business's total state tax,

(3) the total state income tax assuming the business makes subunit organization and filing method elections which minimize its tax,

(4) a code identifying the subunit organization and filing method elections that would maximize the business's total state tax,

(5) the total state income tax assuming the business makes subunit organization and filing method elections which maximize its tax,

(6) the cost of not planning, or the difference between the maximum potential tax and the minimum possible tax,

(7) the percentage cost of not planning.

CPT1 is designed as a subroutine to be utilized with the main program in accomplishing the objectives of this experiment. Nonetheless, it is also flexible enough to be used independently of the main program to compute a business's maximized tax, minimized tax, and cost of not planning for situations not considered in this study. The stand-above version of the program is named CPTAX1. To utilize CPTAX1 one must simply input the information prescribed in Table 3.6.

Once the percentage cost of not planning is computed for the first situation, that computation is returned to the main program for tabulation. Then a description of a second situation is generated for examination, and similar computations are prepared for it. The process continues until all 1,053 situations have been examined. Another subroutine then computes the average percentage cost of not planning for all situations examined. In addition, the average percentage cost of not planning is computed for businesses with different attributes. Those attributes include various combinations of other states' tax laws, headquarters locations, and factory locations. The additional averages provide information useful in analyzing and interpreting the overall average.

Appendix A contains a general flowchart, a program listing, and a sample of the output generated by PLAN1. Appendix B contains a general flowchart, a listing of the program code, and a sample of the inputs and outputs for CPTAX1.

Analysis for Research Questions Two and Three

As in the first analysis, the second analysis is prepared for a business that uses no other tax management technique than the careful selection of its subunit organization and filing methods. The second analysis is designed to determine the potential impact of Virginia's adoption of the unitary method on the tax liability of a representative business which minimizes its total state income tax. The second research question is addressed by comparing the minimized total state income tax computed under current Virginia law with the minimized total state income tax computed under the assumption that Virginia requires the unitary method of reporting. Research question three is addressed by making a similar comparison of the Virginia taxes as computed under the two laws. The model computes the taxes under both Virginia laws (current law and the unitary method) for the representative business under each set of assumptions regarding the operating characteristics of the business and the laws of the other states in which the business operates. In each situation the tax computed under the unitary method and the tax computed under current Virginia law are compared. The difference between the taxes is defined as the potential cost of adopting the unitary method, and that cost is expressed as a percentage of the tax as computed under current Virginia law. The percentage cost of adopting the unitary method is computed by:

$$100x([\text{unitary tax}-\text{current tax}]/\text{current tax})$$

In each situation the percentage cost of adopting the unitary method provides a measure of the amount of additional tax liability that could potentially be incurred by the representative business if Virginia adopted the unitary method of taxing multistate businesses. The average cost of adoption for all situations examined provides an overall indication of the extent to which the representative multistate business may have its income tax increased as a result of Virginia adopting the unitary method.

In addition, the cost of adoption also provides an indication of the amount of state tax avoidable under current Virginia law. Such an inference can be drawn because the individual observations are designed so that the average tax attributable to Virginia under the unitary method is the same as the average tax attributable to the State under the assumption that separate accounting is utilized by the Virginia operations. Therefore, the average difference between the tax computed under the unitary method and the tax computed under current law results because of the ability of the business to avoid tax by utilizing its corporate organization and filing elections, and its sales to affiliates in states where the Virginia operations are not taxable.

Finally, the average cost of adoption in terms of total state income tax is a measure of the inequity in Virginia's current system of taxation. The average cost of adoption is considered a measure of inequity because it measures the degree to which businesses can pay less than an amount of tax considered equitable.

The computer model (program) employed in the second analysis has a computational sequence and output format similar to those of the model utilized in the first analysis. The program is named ADOPT1. Appendix C contains a general flowchart, a listing of the program code, and a sample of the program output for ADOPT1.

Analysis for Research Questions Four and Five

The third analysis is performed for a business that actively attempts to arrange its transactions in ways that minimize its state income tax. The analysis is designed to compare the effectiveness of current Virginia law with that of the unitary method in limiting the ability of the representative multistate business to reduce its state income tax through manipulation of its transfer prices. The manipulations examined are those which do not require a commitment of resources by the business. They are existing transactions which can be restructured in an effort to reduce state income tax. The specific transactions examined consist of manipulations of transfer prices on intercompany sales of merchandise.

In each situation examined the transfer price manipulation consists of a one percent change in the intercompany selling price.[9] The price is either increased or decreased depending on which alternative results in the least total state income tax.

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[9]Since there is no data which delineates the size of the range in which arms-length prices should fall, some sensitivity analysis was performed on the size of the price change. See discussion, below, concerning sensitivity analysis, pp. 81-82.

Again, the model is used to compute the total state and Virginia corporate income tax under the optimal corporate organization and filing method for the representative multistate business. In each situation examined the computations are made for the two Virginia law assumptions (current law and the unitary method) both before and after the effects of a specific price manipulation are considered. Under each law the before and after tax computations are then used to determine the percentage tax reduction provided by the transaction (price manipulation). The percentage tax reduction from a specific transaction under a given law is computed as follows:

100x([tax under given law before transaction-
tax under given law after transaction]/
tax under given law before transaction)

The percentage tax reduction from each transaction is computed in terms of total state income tax and Virginia income tax for both Virginia law assumptions. The relative effectiveness of the two laws in limiting the ability of the representative business to avoid tax through the manipulation of specific transfer prices is evaluated by comparing the average percentage tax reduction obtained by the representative business under current Virginia law with the average percentage tax reduction obtained under the unitary method.

The computer model employed in the third analysis is similar to the programs used in the other two analyses. The analysis differs, however, in that comparisons are not made between individual observations. Instead the average percentage tax reduction

achieved under current Virginia law is compared with the average percentage tax reduction achieved under the unitary method.

The program used in the third analysis is named TRANS1. A general flowchart, a program listing, and a sample of the program outputs are porvided in Appendix D.

Model Validation

To insure that the model produces output which accurately reflects the results of the situations described and to also insure that the research results are sufficiently generalizable, the model must be both externally and internally valid. External validity refers to an accurate representation of the "real world" environment which is being modeled. This does not mean that the model must represent detailed and complex realities to the extent that it becomes burdensome. It does mean that all variables or parameters which would likely have a material impact on the results should be considered by the model.

Internal validity refers to the logical soundness of the relationships expressed in the model. It requires that the mathematical relationships of the model are accurately converted to a programming language, and it also requires that the model and its resulting output are consistent with the objectives of the experiment.

External Validity

In this study, the problem of external validity is focused in two areas. First, the model must accurately reflect the structure of the tax laws in Virginia and other states. Second, the representative business should reasonably reflect the characteristics and operating results of multistate businesses which operate in Virginia.

Insuring that the model accurately represents the laws of Virginia and other states requires identifying and determining the interrelationships among those provisions that have a material impact on either the Virginia or total state income tax of a multistate corporate business. Therefore, a review was made of the laws of the fifty states. That review consisted of an examination of the results of several recent surveys on state tax laws.[10] In addition, an analysis of the utilization of specific provisions was conducted using major state income tax services.[11] Finally, the tax provisions of Virginia and some other states were verified by obtaining and reviewing forms and copies of laws supplied by the respective state departments of taxation or revenue.

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[10]See Multistate Tax Commission, Summary of State Responses to Treasury Department Questionnaire on Use of Unitary Method and Taxation of Dividend Income, and General Accounting Office, Key Issues Affecting State Taxation of Multijurisdictional Corporate Income Need Resolving.

[11]See Prentice Hall, State Income Taxes, and Commerce Clearing House, State Tax Guide (Chicago: CCH, 1982.

Based on the reviews of the laws in Virginia and other states, it is concluded that the model accurately reflects those laws.

The task of insuring the external validity of the representative business is more difficult. Three steps are utilized in that validation. First, the overall operating results of the business are developed on the basis of data provided by various financial ratio publications.[12] Second, the operating results of the business's Virginia activities are compared with the single state operating results of actual multistate businesses. Third, sensitivity analysis is performed on the value of certain parameters important to the results.

Once the operating relationships within the representative business had been determined, it was decided that the emphasis of any validation procedure would be on those characteristics of the business that have an influence on the results of the analyses. In other words, validation procedures are limited to those characteristics that cause the total state or Virginia income tax to differ between separate accounting and apportionment. Since the business's operating results are designed to be substantially neutral between the two taxing methods, income attributable to each jurisdiction would be the same under both methods except for the

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[12]Data reviewed included Dunn and Bradstreet, Cost of Doing Business (New York: Dunn & Bradstreet, 1978), and Robert Morris Associates, Annual Statement Studies (Philadelphia: Robert Morris Associates, 1981), and Internal Revenue Service, Statistics of Income - 1976, Corporate Income Tax Returns (Washington, D.C.: GPO, 1981).

apportionment of three types of income: (1) income apportioned under the unitary method on the basis of property and payroll located at the business's headquarters, (2) income apportioned under the unitary method on the basis of property and payroll located at the business's research and development facility, and (3) income apportioned under separate accounting on the basis of sales to out-of-state affiliates. Of these, the property and payroll apportionments are of most concern, because it is important to insure that a realistic amount of resources are attributed to non-income producing activities. Since there are no data available which indicate the amount of property and payroll generally assigned to such activities, it is necessary for more indirect validation procedures to be applied.

In this study the income recognized in a state differs between separate accounting and apportionment because of property and payroll attributable to the business's headquarters and research facility. That situation, however, may be considered representative of many situations where a state's apportioned income differs from its separate accounting income. While the amount of property and payroll located at a business's headquarters or research facility might cause such differences, so might the resources located at a warehouse facility. Additionally, such differences could be caused by any of a number of other types of factors such as differences among states in labor cost or property cost.

To insure that income apportioned to a state does not differ unrealistically from that recognized under separate accounting, the maximum potential difference between the representative business's separate accounting income and its apportioned income is computed and compared with similar differences between the separate accounting and apportioned income of actual businesses as reported in tax cases.

A review is made of major court cases involving the issue of separate accounting versus apportionment for businesses operating predominately in the United States. Several of those cases include data which can be compared to the income amounts computed for the representative business.

One of the earliest decisions involving separate accounting and apportionment was Underwood.[13] In that case, the Supreme Court allowed Connecticut to utilize a one factor (real and tangible personal property) formula to apportion 47% of Underwood Typewriter Company's income to the State. Utilizing separate accounting, however, Underwood had argued that only a little more than 3% of its income was earned in Connecticut. The income required to be recognized under apportionment was more than 1300% greater than what would have been recognized under separate accounting.

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[13]Underwood Typewriter Company v. Chamberlain 254 U.S. 113 (1920).

A similar case, but where the Supreme Court disallowed apportionment, was Hans Rees' Sons, Incorporated.[14] There, North Carolina attempted to use a one factor (property) formula to apportion 80% of the business's income to the State. Hans Rees' Sons, Inc., however, used separate accounting to show that only 17% of its income was attributable to North Carolina. Apportionment would have attributed 350% more income to the State than was recognized under separate accounting.

In Buttler Brothers v. McColgan[15] the Supreme Court upheld California's three factor formula which attributed $93,500 of income to the State, even though the firm showed a $82,851 California loss under separate accounting. Similarly, the California Supreme Court allowed the application of the three factor formula in Edison California Stores [16] when the income apportioned was more than 200% greater than what would have been recognized under separate accounting.

An analysis of the potential worst case results of this research reveals that the income apportioned on the basis of property and payroll located at the representative business's headquarters or research facility could cause the total income

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[14]Hans Rees' Sons, Incorporated v. North Carolina 283 U.S. 123 (1931).

[15]Buttler Brothers v. McColgan 315 U.S. 501 (1942).

[16]Edison California Stores, Incorporated v. McColgan 183 P. 2d 16 (1947).

apportioned to the state to be a maximum of 36% higher than where apportionment is not utilized. In most situations, however, the potential differences are much less than 36%. Since the potential percentage differences between the separate accounting income and the apportioned income of the representative business are substantially less than the differences found for actual businesses, it is concluded that the overall results generated by the representative business are not unrealistically large and are, therefore, generalizable to the real world.

Based on the preceding analysis it is concluded that the income recognized by the representative business in a state where apportionment is utilized is not unrealistically different from the income recognized in that state when there is no apportionment. Nonetheless, since this research examines the influence of the headquarters location on the results generated, it is important that the weight given to the business's headquarters also reasonably reflects the real world. Since the 5% level of property and payroll cannot be validated with actual data, sensitivity analysis is utilized. That analysis consists of rerunning the models using other, smaller amounts of property and payroll. The results of that analysis indicate that the overall average incentive for planning and the overall average ability to avoid tax is not strongly affected by the level of property and payroll located at the business's headquarters. Nonetheless, the relative incentive for planning and the relative ability to avoid tax between Virginia and

non-Virginia headquartered businesses is strongly influenced by the level of resources located at the headquarters.

Sensitivity analysis is also utilized in validating the effects of transfer price manipulations. Since the primary concern is with the amount of the price adjustment, the validation is accomplished by reperforming the analyses utilizing transfer price changes of amounts other than 1%. The results show that although the size of the transfer price manipulation does affect the absolute size of the tax reduction, it has only a small impact on the relative effectiveness of current Virginia law and the unitary method in limiting the ability of the representative business to reduce its total state tax liability through the manipulation of specific transfer prices.

Internal Validity

In this study the internal validity of the relationships were established through extensive detailed analysis of program printouts. After the program was debuged for syntax and obvious logic errors, a sample of situations were selected for mechanical recomputation. Some observations were selected randomly. Other situations were selected so as to test every class of calculation included in the model. An example of how these recomputations were performed is provided in Appendix E.

The final validation step was simply to review the end output--the results obtained for individual observations and the averages

of those results -- looking for illogical or questionable results. For example, if the value of only one parameter was changed between two runs, the direction of the change in the output measures was logically predetermined and compared with the actual change.

The results of the internal validation procedures were consistent with expectations. Therefore, it is concluded that the model is internally valid.

CHAPTER IV

PRESENTATION AND DESCRIPTION OF RESEARCH RESULTS

Chapter IV presents a description and discussion of the results of the analyses performed. To facilitate that discussion, the chapter is divided into three major sections: incentive for planning, increased tax liability resulting from a Virginia adoption of the unitary method, and tax avoidable with transfer price manipulations. Each section describes and explains the results of one of the three analyses.

Incentive for Planning

The investigation of research question one is designed to determine what incentive there is for multistate corporate businesses operating in Virginia to utilize their corporate organization and filing methods as a tax planning tool. The statistic utilized in measuring that incentive is the percentage cost of not planning. The percentage cost of not planning is defined as the difference between the total state income tax of a multistate business which uses the combination of organization and filing methods that maximizes its tax and the total state tax of a similar business that minimizes its tax, stated as a percentage of the minimized tax:

100x([maximized tax-minimized tax]/minimized tax)

The computer model provides a computation of the percentage cost of not planning for each situation examined. In addition, the average percentage cost of not planning for all situations and averages for certain attributes potentially important to the determination of state income tax are computed.

Overview of the Cost of Not Planning

A review of the individual observations reveals that in every situation examined there is some cost associated with not utilizing corporate organization and filing method elections as a tax planning tool. The percentage cost of not planning range from a low of 3.05% of the business's minimized total state income tax to a high of 54.85% of the tax. Since the operations of the representative business are arranged so that the income recognized in each state differs between separate accounting and apportionment, it had been anticipated that in every situation examined the business would be subject to at least some cost of not planning. In many situations, however, that cost is found to be substantial. The overall average percentage cost of not planning is computed to be 15.94%, and in 10.0% of the situations examined the cost of not planning exceeds 25% of the minimized tax.

In any particular situation there is an incentive for planning only if the cost of not planning is greater than the cost of planning. If planning cost are defined as those incurred in evaluating organization and filing method alternatives, then for many businesses the cost of planning is likely to be relatively small. Businesses

which operate in only a few states (as many as three or four) should find it a simple matter to hand compute the estimated tax liabilities under alternative organization and filing method decisions. The computations are easy to perform.

In many instances larger businesses should also find such planning to be inexpensive. Frequently, such businesses have to conduct organization and filing method planning on a piecemeal basis. For example, a business may want to determine the least expensive way to add a new subunit to an existing organization. In that type of situation, the computations are still easily performed. Additionally, most larger businesses utilize or have available computerized state tax preparation packages which can be applied to state income tax planning relatively inexpensively. An example of such a software package is Peat, Marwick, Mitchell & Company's SMITES III.[1] Although that system will not automatically determine the corporate organization and filing methods that will minimize total state income tax, it can easily be used to compute the tax in just about any "what if" situation. If a business wished to acquire such a program solely for the purpose of organization and filing method planning, the cost would usually be prohibitive. SMITES III has an initial license fee of $20,000, plus a yearly maintenance charge.[2] Businesses that own the program, however, have

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[1]Telephone interview with George Chiang, Managing Director, SMITES Group, Peat, Marwick, Mitchell & Company, June 22, 1983.

[2]Ibid.

already incurred the cost. Additionally, similar programs, such as CORPTAX, sold by Financial Decision Systems, Inc., are offered on a time sharing basis. That program can be used for planning for as little as $1,000.[3]

The cost of evaluating the tax consequences of alternative organizations and filing methods should be relatively small for most businesses. Such cost should run no more than a few hundred dollars for smaller businesses or a few thousand dollars for the very largest businesses. Due to the inexpensive nature of such planning, it is likely that many businesses will have at least some incentive to utilize corporate organization and filing methods as a tax planning tool.

The dollar cost of not planning, to a great extent, depends on the level of a business's income and its total state income tax liability. The greater a business's tax liability the more not planning will cost. The results indicate that the cost of not planning averages a little under 1% of the representative business's minimized taxable income (found by dividing the average dollar cost of not planning $1.48 by the $170 income of the representative business). A business with income of $50,000 would have an annual cost of not planning of approximately $400 to $500. Such a business is likely to have an incentive to plan since its cost of planning might be recovered in as little as one year.

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[3]Telephone interview with Linda Skopp, Marketing Coordinator, Financial Decision Systems, Inc., June 28, 1983.

The representative business conducts an average of about one third of its business within Virginia and earns one third of its income within the state. Therefore, an assumed overall taxable income of $50,000 would translate into a Virginia taxable income of approximately $17,000. Virginia does not publish statistics of income indicating the number of returns filed with income of $17,000. The 1981 Virginia data does indicate, however, that only 19.8% of the returns filed had taxable income of $25,000 or more. Nonetheless, those taxpayers paid 87.9% of the total Virginia corporate income tax.[4] Therefore, it appears that those businesses which pay the bulk of Virginia corporate income tax currently have adequate incentive to utilize corporate organization and filing method planning. In addition, it also appears that most other businesses which expect to earn even a modest level of income in the future should find such planning useful.

Additional Analysis of the Cost of Not Planning

To insure against the possibility that such amounts might be overstated in the model, sensitivity analysis is conducted on the property and payroll attributed to the business's headquarters. That analysis indicates that the 5% level of resources located at the headquarters does not have a substantial impact on the results. In fact, the average cost of not planning changes only slightly when smaller percentages of property and payroll are attributed to

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[4]Commonwealth of Virginia, Department of Taxation, Annual Report 1980-1981 (Richmond: Department of Taxation, 1982), p. 18.

the business's headquarters. When 2.5% of the business's resources are attributed to its headquarters the average cost of not planning is 16.21%, and when no additional property and payroll are assigned to its headquarters the average cost of not planning is 16.78%.

A closer look at the results provides insight into the effect of some of the variables which influence the cost of not planning. A review of the data in Table 4.1 suggest that for a particular business the cost of not planning is influenced by several important factors. One of those factors is the level of taxation in other states in which the business operates. Another is the number of available alternatives the business has to organize its operations and file its returns. In addition, the interaction of these two factors also influences the cost of not planning.

The influence of the level of taxation in other states on the cost of not planning in illustrated in Table 4.1 by businesses which operate in states that tax dividends. Dividend taxation provisions increase the level of taxation in the states which utilize them, because they substantially increase the tax under some of the business's alternative organizations or filing method elections. As the cost of some alternatives become more expensive, the difference between the maximized tax and the minimized tax frequently increases, and a higher cost of not planning results. Therefore, it is found that the incentive to plan generally increased or decreased along with the level of taxation in states outside Virginia.

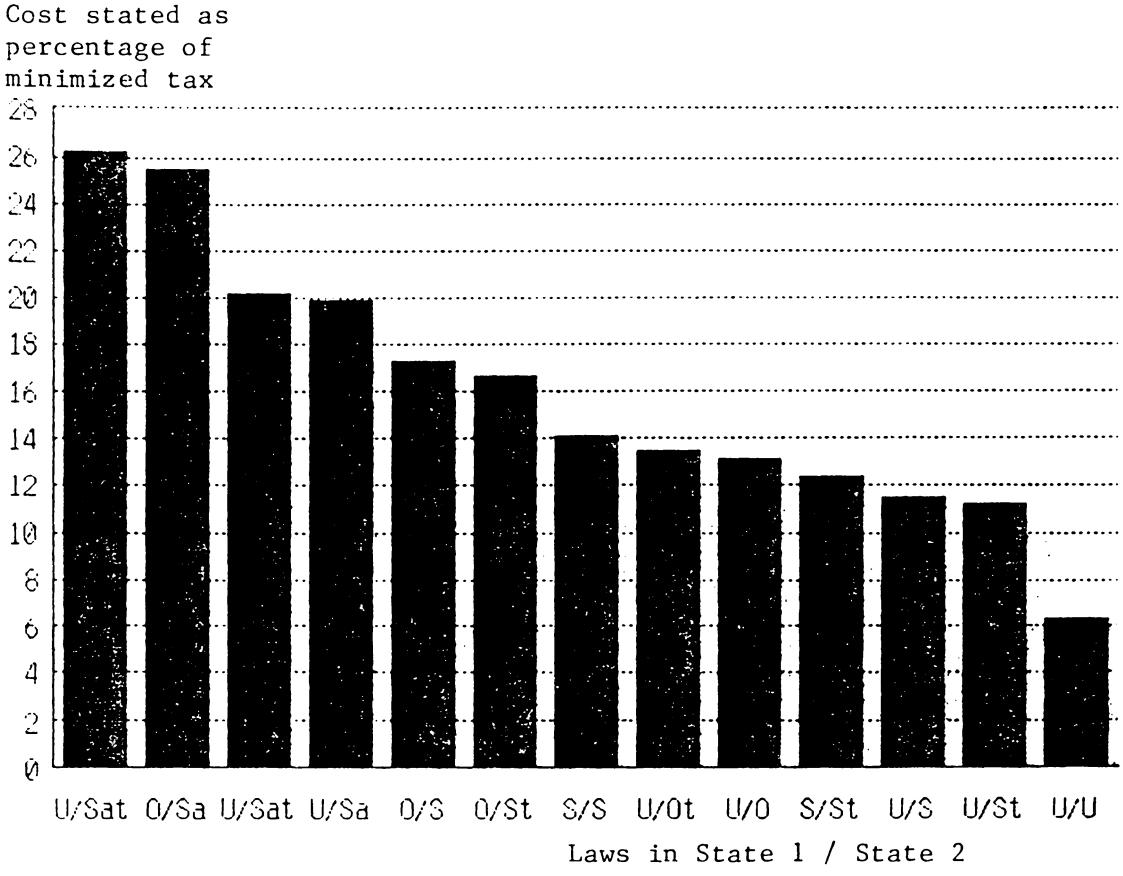
TABLE 4.1

PERCENTAGE COST OF NOT PLANNING

Situations	Tax rate in State 2 4%	6%	8%	All
All situations	15.06	16.02	16.75	15.94
Virginia headquarters	14.39	14.69	14.93	14.67
No Virginia headquarters	15.39	16.69	17.66	16.58
Virginia factory	16.46	17.43	18.49	17.46
No Virginia factory	14.36	15.32	15.88	15.18
No throwback rule in State 2	14.65	15.35	16.08	15.36
Throwback rule in State 2	15.54	16.80	17.53	16.62
Laws in State 1 / State 2				
Unitary / Separate	10.74	11.46	12.07	11.42
Unitary / Separate, throwback	10.46	11.44	11.79	11.23
Unitary / Optional	12.33	13.19	13.83	13.13
Unitary / Optional, throwback	12.50	13.68	14.07	13.41
Optional / Separate	17.61	17.15	17.02	17.26
Optional / Separate, throwback	16.81	16.72	16.12	16.55
Optional / Separate, apportions dividends	23.52	25.55	27.42	25.50
Optional / Separate, apportions dividends, throwback	23.77	26.44	28.16	26.12
Unitary / Separate, apportions, dividends	16.94	19.96	22.50	19.80
Unitary / Separate, apportions dividends, throwback	17.11	20.43	22.90	20.15
Separate / Separate	14.37	13.91	14.01	14.10
Separate / Separate, throwback	12.58	12.11	12.14	12.28
Unitary / Unitary	7.05	6.25	5.64	6.31

Table 4.1 and Figure 4.1 show the relationship between the tax laws of other states and the cost of not planning. It can be seen that as states' filing elections become more restrictive, businesses have less ability to use such elections to influence their tax liability, and their cost of not planning is decreased. For example, notice that businesses which operate in Virginia, a unitary method state, and a separate accounting state have a smaller average cost of not planning than businesses which operate in Virginia, a unitary method state and a state which provides the option of either separate or consolidated returns. The smaller cost of not planning results because a required separate return in State 2 is more restrictive than having an option. Likewise, a business which operates in Virginia and two unitary method states has much less of an opportunity to influence its income taxes than a business operating in states with any of the more liberal filing options. Therefore, it is shown to have a smaller cost of not planning than businesses operating in those other states. Generally, it may be concluded that a business's incentive to plan decreases as its available filing elections become more restrictive.

The number of available alternative filing elections also interacts with the tax level in other states to influence the cost of not planning. Such interaction is illustrated by comparing the cost of not planning for different tax rates and different laws in State 2. Overall, and in most situations the cost of not planning increases as the tax rate in State 2 increases. When the state's



S Separate return required
U Unitary return required
O Optional separate or consolidated return
t Throwback rule
a Apportions dividends received

PERCENTAGE COST OF NOT PLANNING

FIGURE 4.1

filing elections are more restrictive, however, increased tax rates sometimes lead to a lower percentage cost of not planning. For example, when State 2 utilizes the unitary method, a tax rate increase by that state does not affect the business's organization or filing method elections made in other states. Nor does it affect the business's minimized or maximized tax liability in those other states. The only change is an increased tax liability in a unitary method state which produces an increased total state tax liability. Therefore, when there is a tax increase in a unitary method state, an unchanged dollar cost of not planning becomes a smaller percentage of the total tax.

While in most situations the cost of not planning is not heavily influenced by whether the business's factory or headquarters is located in Virginia, the results presented in Table 4.1 indicate that non-Virginia headquartered businesses generally have a slightly greater cost of not planning than Virginia headquartered businesses, and that businesses with Virginia factories have more to lose from not planning than businesses with factories in other states. Those results, however, are not true for all situations, and in any specific situation the cost of not planning may be highly influenced by the laws of the other states in which the business operates.

Both the individual observations and the averages presented in Table 4.1 indicate that the cost of not planning provides an important incentive for businesses to utilize their corporate organization and filing methods as a tax planning tool. That incentive

exist for most multistate businesses that either currently earn or expect to ever earn even modest levels of income. Even where the laws of the other two states in which the business operates are the most restrictive (i.e. where the unitary method is required in both other states), the cost of not planning is still potentially substantial. Therefore, as a result of the potentially high cost of not planning it is possible that a substantial number of businesses utilize their corporate organization and filing methods as a tax planning tool.

Increased Tax Liability Resulting from a Virginia Adoption of the Unitary Method

Investigations of research questions two and three are designed to measure the additional tax that businesses would have to pay if Virginia adopted the unitary method of taxation. The average additional tax paid by the representative business under the unitary method is considered an indication of the tax avoidable under current Virginia law. The increase in total state tax is also considered a measure of the inequity in current law. Research question two addresses the increase in the business's total state income tax that would accompany a Virginia adoption of the unitary method. Research question three examines the increase in Virginia tax attributable to such action.

The statistic utilized in measuring the increase in tax resulting from Virginia's adoption of the unitary method is the percentage cost of adoption. The percentage cost of adoption is

defined as the difference between the business's minimized tax computed under the assumption that Virginia required the unitary method and its minimized tax under the current law, stated as a percentage of the tax under current law:

100x([unitary tax-current tax]/current tax)

The computer model calculates the percentage cost of adoption for the representative business in each situation examined in terms of both Virginia and total state income tax. An overall average percentage cost of adoption, as well as averages for various attributes, is also computed.

Overview of the Total State Tax Cost of Adoption

Table 4.2 presents a summary of the averages computed in terms of total state tax. The results indicate that if Virginia adopted the unitary method, the representative business would have its total state income tax liability increased by an average of 4.41%. The individual observations range from a zero cost of adoption in 7.1% of the situations examined to a high of 16.72% of the total state income tax. In only 6.8% of the situations examined is the total state tax liability increased by as much as 10%. The average increase of 4.41% is only a little more than two tenths of one percent of the business's income -- an amount not likely to be considered material by many businesses. The average business would need an income of more than $200,000 for its tax liability to increase by $500. Therefore, while the cost of adoption may be

TABLE 4.2

TOTAL STATE INCOME TAX PERCENTAGE
COST OF VIRGINIA ADOPTING THE UNITARY METHOD

Situations	Percentage cost
All situations	4.41
Virginia headquarters	5.79
No Virginia headquarters	3.72
Virginia factory	6.90
No Virginia factory	3.17
No throwback rule in State 2	4.76
Throwback rule in State 2	4.00
4% tax rate in State 2	5.13
6% tax rate in State 2	4.31
8% tax rate in State 2	3.80
Laws in State 1 / State 2	
Unitary / Separate	4.80
Unitary / Separate, sales throwback	4.16
Unitary / Optional	5.82
Unitary / Optional, throwback	5.44
Optional / Separate	5.11
Optional / Separate, throwback	4.33
Optional / Separate, apportions dividends	3.38
Optional / Separate, apportions dividends, throwback	3.76
Unitary / Separate, apportions dividends	3.90
Unitary / Separate, apportions dividends, throwback	3.32
Separate / Separate	3.78
Separate / Separate, throwback	3.02
Unitary / Unitary	5.54

substantial in some individual situations, most businesses are not likely to consider the avoided tax to be material.

Since the total state tax average percentage cost of adoption represents the net tax avoidable in all states in which the business operates, the measurement does not provide an indication of the tax avoidable in any individual state. Nonetheless, the measure is important because it provides an overall indication of the total state tax avoidable as a result of the elections under current Virginia law. In addition, the total state tax cost of adoption provides a measure of the inequity in the way Virginia taxes multistate corporate businesses.

From the states' point of view, the amount of state tax avoidable with corporate organization and filing method planning depends, to a large extent, on the number of businesses with the opportunity to utilize such planning. In Virginia approximately 25% of the returns are filed by multistate corporations.[5] In addition, an uncounted number of separate returns are filed by corporations which operate exclusively in Virginia but are members of multistate affiliated groups. Therefore, a 4% cost of adoption indicates that, under current law, a substantial amount of state income taxes are potentially being avoided.

The results also indicate a substantial amount of inequity in the way Virginia taxes multistate corporate businesses. A 4.41%

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[5]Personal interview with William Warren, legislative analysts, Virginia Department of Taxation, May 20, 1982.

average cost of adoption for a business with such modest differences between separate accounting and apportioned income shows an unacceptable level of inequity between the taxation of multistate businesses, which currently have the opportunity to avoid tax, and single state businesses, which do not. In addition, the individual observations show considerable inequity among multistate businesses in the benefits available from organization and filing method planning. Such inequity is illustrated by the zero cost of adoption in some situations, and a cost of adoption of as much as 16.72% of the business's tax liability in other situations.

Additional Analysis of the Total State Tax Cost of Adoption

A review of Table 4.2 reveals several factors which influence the total state tax percentage cost of adopting the unitary method. First, the cost of adopting the unitary method is inversely related to the tax rates in the other states in which the business operates. The higher the tax rates are in states outside Virginia, the lower the percentage cost of adoption is to businesses operating within the State. There are two reasons for this result. First, a business's total state tax liability is higher when tax rates are higher in the other states in which it operates. Therefore, where the tax liability is initially higher, any tax increase attributable to Virginia's adoption of the unitary method will be a smaller percentage of the total tax. The second reason is more important. As tax rates are increased in states outside Virginia, businesses will more often elect corporate organizations and filing methods designed to

minimize tax liabilities in those states rather than in Virginia. Therefore, if the Virginia tax is not being minimized prior to adoption, then the increase in total state tax attributable to adoption will not be as great as if it were.

A second relationship revealed by Table 4.2 is one between the cost of adopting the unitary method and the location of various activities of the representative business. The results indicate that the cost of Virginia adopting the unitary method is substantially higher when businesses locate their headquarters or factory within the State. The additional cost incurred by Virginia headquartered businesses results primarily because the transfer prices utilized by the representative business assign no separate accounting income to the operation of the headquarters, while the unitary method assigns the same rate of profitability to the operation of the business's headquarters as it does to other activities of the business. Utilization of the unitary method would consequently assign more Virginia income to businesses headquartered within the State and less Virginia income to those headquartered in other states than would be assigned under separate accounting. Therefore, under current Virginia law Virginia headquartered businesses have a greater opportunity to avoid tax with organization and filing method planning.

Since the activities of the business's headquarters are ones generally found in cost centers, cost based transfer prices are not considered unreasonable. Nonetheless, the tax avoidance opportunities would not be as available if the business utilized transfer

prices that assigned the same rate of profit (relative to its apportionment factors) to its headquarters operations as is earned by other activities of the business. Current Virginia law, however, leaves transfer price decisions in the hands of business.

Another important reason why the cost of adoption is substantially higher for businesses with Virginia headquarters is the assumed level of resources devoted to the headquarters. The representative business in this study attributes 5% of each of its property and payroll cost to the operation of its headquarters. Sensitivity analysis reveals, however, that the advantage of Virginia headquartered businesses declines as the percentage of resources attributed to the headquarters is reduced. Where the headquarters is assigned 5% of the property and payroll, the average cost of adoption for Virginia headquartered businesses is 56% higher than for non-Virginia headquartered businesses (5.79% vs. 3.72%). Where 2.5% of such cost is assigned to the headquarters, however, that advantage is reduced to 34%.

The additional cost incurred by businesses with Virginia factories results substantially because under the unitary method such businesses can no longer take advantage of Virginia's repeal of its sales throwback rule to avoid tax on income attributable to sales to non-Virginia affiliates. An illustration of how Virginia's repeal of the sales throwback rule increases the cost of adopting the unitary method to businesses with Virginia factories is in the situation where the business operates in Virginia and two separate

accounting states; the business has a Virginia factory; its headquarters and research and development facility are both located in State 1; and, like Virginia, State 2 has a 6% tax rate. The optimal combination of corporate organization and filing methods for that business is to operate as three separate corporations with the Virginia corporation filing a consolidated return with the State 1 corporation in Virginia. The total state income tax under that option is $8.98. If Virginia utilizes a sales throwback rule, however, the tax under that option would increase to $9.63. In that event it would be less expensive for the Virginia corporation to file a consolidated return with the corporations in both other states (resulting in a tax of $9.54). A less expensive alternative, however, would be to operate a branch organization in Virginia and State 2 and a separate corporation in State 1 and then have the Virginia-State 2 corporation file a consolidated return with the State 1 corporation in Virginia (thereby producing a total tax of $9.30). Either way, however, the Virginia operations would be filing a consolidated return with the operations in both of the other two states, resulting in the same Virginia and total state income tax liability as would be incurred if Virginia required the unitary method of reporting. Thus, the effect of the unitary method is to require the inclusion of the income currently excluded as a result of Virginia's repeal of its sales throwback rule.

Although the cost of adoption is greater for businesses with Virginia factories or headquarters than for those with such

activities located outside the State, current law does not seem to privide sufficient incentive to encourage businesses to invest in Virginia. Thus, the total state tax avoidable with corporate organization and filing method planning is not great enough to be considered material by most businesses. The difference between the tax a business could avoid with a Virginia factory or headquarters and what it could avoid with such activities located outside the State is, generally, not enough to influence its investment decision. For the same reason, if the unitary method were adopted, the cost of adoption should not be great enough to discourage investment within the state. This conclusion is supported by other recent studies which indicate that state taxes do not play a substantial role in decisions involving the location of either factory or headquarters.[6]

Table 4.2 and Figure 4.2 show the important effect of other states' tax laws on the cost of Virginia adopting the unitary method. The results indicate that such an adoption is most expensive when the business operates in states with laws that have little or no influence on the elections the business makes in

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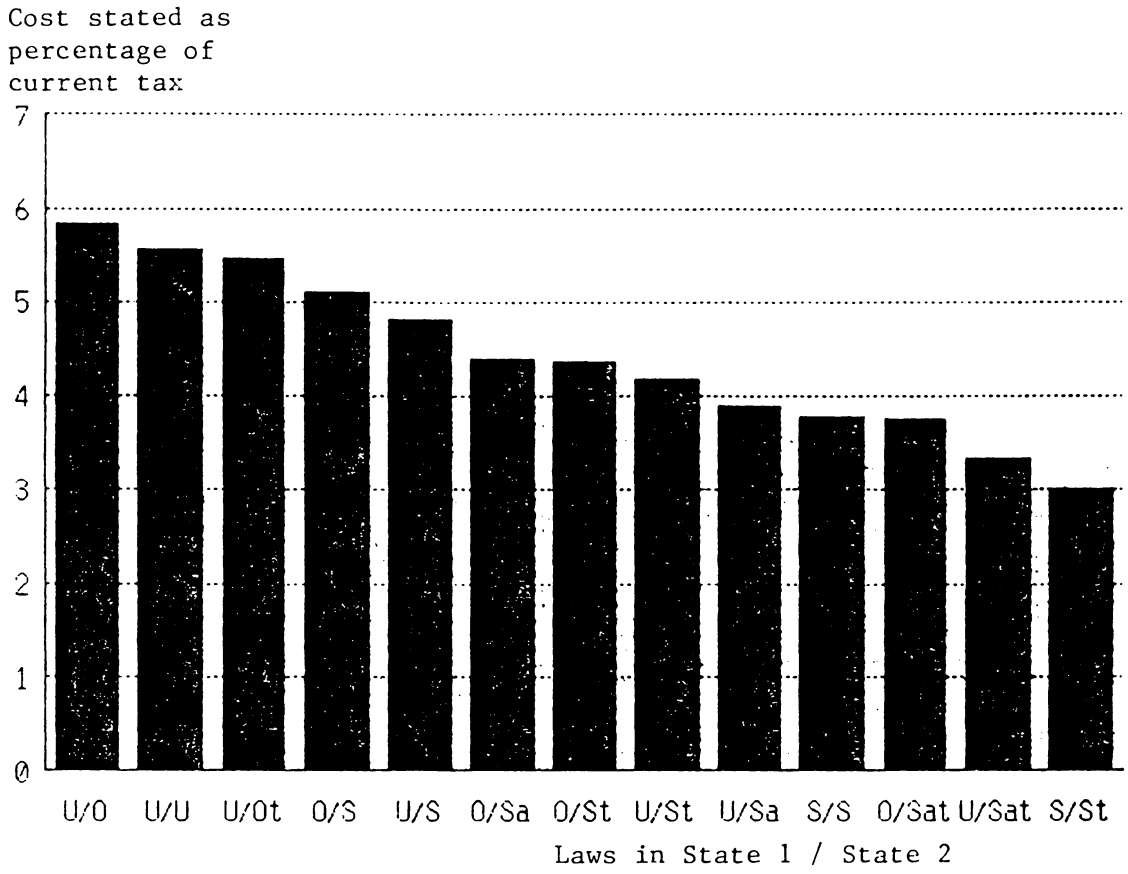
[6]See Roger Schemenner, "Look Beyond the Obvious in Plant Location," Harvard Business Review, v. 57, Jan.-Feb., 1979, p. 128, and Kenneth Small, Geographically Differentiated Taxes and the Location of Firms, Princeton Urban and Regional Research Center, 1982, p. 5, and Roger Vaughn, State Taxation and Economic Development, Washington, D.C., Council of State Planning Agencies, 1979, p. 99, and Coopers & Lybrand, Economic Impacts and Tax Alternatives Associated with Worldwide Combined Reporting for the State of Illinois (Washington, D.C.: Coopers & Lybrand, 1982), pp. 32-34.



S Separate return required
U Unitary return required
O Optional separate or consolidated return
t Throwback rule
a Apportions dividends received

TOTAL STATE INCOME TAX PERCENTAGE COST
OF VIRGINIA ADOPTING THE UNITARY METHOD

FIGURE 4.2

Virginia, and the cost of adoption is least expensive when the business operates in states with laws that have the greatest influence on the elections made in Virginia.

Other states' laws with the least influence on elections made in Virginia include those which require the unitary method and those which provide an election to file either separate or consolidated returns. The laws in unitary method states do not influence the business's elections in Virginia because the unitary method disregards the business's organization as well as the filing methods it uses in other states. State laws allowing the use of either separate or consolidated returns do not influence filing method decisions made in Virginia because such laws do not prevent the business from making elections that will minimize its tax in both states.

Businesses which operate in states with laws that have little influence over decisions made in Virginia have the greatest flexibility to use corporate organization and filing method planning to avoid tax in Virginia. Therefore, such businesses would incur the greatest increase in tax if Virginia adopted the unitary method.

A situation where another state's laws have a relatively strong influence on decisions made in Virginia is where a business operates in Virginia and at least one separate accounting state. While Virginia allows each separate corporation the election of either filing separately or consolidating with its affiliates, a separate accounting state requires a separate return from each corporation.

If management wishes its operations in the separate accounting state to file a consolidated return with operations in other states, then the business must operate as a single corporation. Such action would prevent the use of any other filing election in other states, however, and would, thus, dictate the filing methods used in other states. In that type of situation the business has less flexibility to use its corporate organization and filing methods to minimize its Virginia tax; it is able to avoid less Virginia tax and, therefore, its cost of adoption is less.

Other state's utilization of a sales throwback rule or a dividend taxation provision also has a relatively strong influence on the subunit organization and filing method elections made in Virginia. Thus, as Figure 4.2 shows, the existence of such provisions reduces the ability of multistate businesses to use their elections to avoid tax.

As just illustrated, the cost of adoption is lower for businesses which operate in states with laws that have the greatest influence on elections made in Virginia because such businesses currently have the least ability to avoid tax in the State. In addition, however, the cost of adoption is lower for such businesses because a Virginia adoption of the unitary method would give them greater flexibility to minimize their tax in other states. The influence of one state's laws on the elections in another state can operate in both directions. Virginia laws can also influence the elections in other states. For example, under current law a

business that operates in Virginia and a separate accounting state is frequently unable to minimize its tax in that state because of elections made in Virginia. A Virginia adoption of the unitary method would free the business to make elections necessary to minimize the tax in that other state. Therefore, businesses which operate in states with laws that have the most influence on elections made in Virginia have the least cost of adoption because (1) under current law the businesses have limited ability to avoid tax in Virginia, and (2) under the unitary method the businesses would have greater opportunity to minimize their tax in other states.

The effect of other states' laws on the cost of Virginia's adoption of the unitary method is important because other states are increasingly adopting the unitary method.[7] When businesses operate in states that utilize the unitary method, their flexibility to use Virginia elections to avoid tax is much greater than where those states require separate accounting. Therefore, as the shift to the unitary method continues, Virginia should expect an increased level of tax avoidance.

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[7]See footnote 31 in Chapter II concerning other states' adoption of the unitary method, pp. 25-26.

Overview of the Virginia Tax Cost of Adoption

The cost of adoption in terms of Virginia tax is likely to be a more important measure than the total state tax cost of adoption. There are two reasons for this. First, although some individual businesses may avoid a substantial amount of tax, the total state tax average percentage cost of adoption indicates that most businesses operating within the State are not likely to consider the total state tax currently avoidable to be material. Second, the total state tax average cost of adoption is an aggregate measure of the total tax avoidable under current law. It nets all the individual increases and decreases in state tax liabilities that would occur as a result of a Virginia adoption of the unitary method. Therefore, it has no meaning for individual states. On the other hand, Virginia tax officials should be concerned with the effect of adoption on the State's tax revenues. In addition, since adoption will cause businesses to make elections that will reduce taxes in other states, Virginia is the only state likely to receive a positive revenue effect. Therefore, the dollar increase in Virginia tax resulting from adoption should be greater than the dollar increase in total tax.

The cost of adoption averages computed in terms of Virginia tax are summarized in Table 4.3. Virginia's adoption of the unitary method causes the representative business to pay an average of 15.61% more in Virginia income tax. While in 6.6% of the situations examined adoption produces no additional Virginia tax, in 30.3% of

TABLE 4.3

VIRGINIA INCOME TAX PERCENTAGE
COST OF VIRGINIA ADOPTING THE UNITARY METHOD

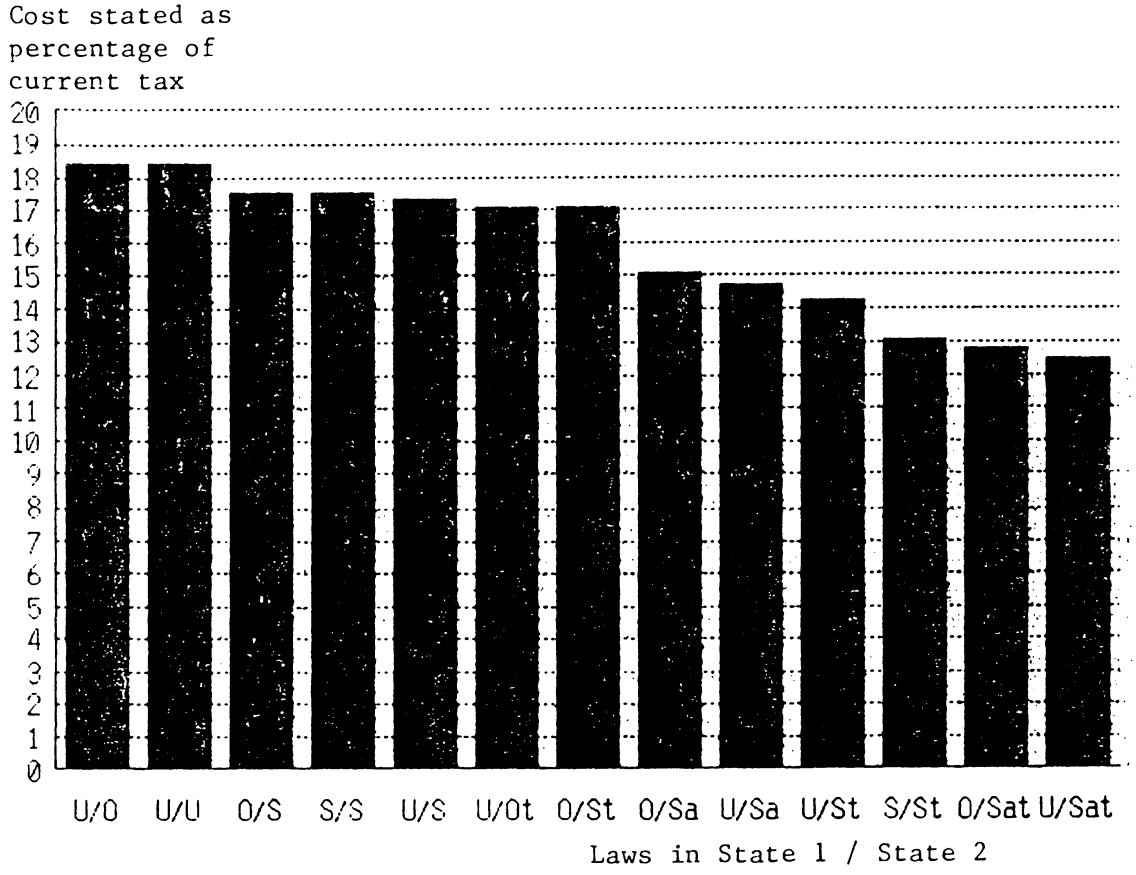
Situations	Percentage cost
All situations	15.61
Virginia headquarters	19.24
No Virginia headquarters	13.79
Virginia factory	16.00
No Virginia factory	15.41
No throwback rule in State 2	16.98
Throwback rule in State 2	14.00
4% tax rate in State 2	16.26
6% tax rate in State 2	15.92
8% tax rate in State 2	14.64
Laws in State 1 / State 2	
Unitary / Separate	17.28
Unitary / Separate, sales throwback	14.23
Unitary / Optional	18.39
Unitary / Optional, throwback	17.06
Optional / Separate	17.50
Optional / Separate, throwback	14.49
Optional / Separate, apportions dividends	15.09
Optional / Separate, apportions dividends, throwback	12.74
Unitary / Separate, apportions dividends	14.79
Unitary / Separate, apportions dividends, throwback	12.44
Separate / Separate	17.46
Separate / Separate, throwback	13.07
Unitary / Unitary	18.39

the situations the business's Virginia tax liability increases by at least 20%. In several situations the increase in Virginia tax totals as much as 36%. If the results obtained are applicable to even a small portion of the multistate businesses operating in Virginia, then it is likely that the State would consider the additional tax to be material.

Additional Analysis of the Virginia Tax Cost of Adoption

Since the total state tax cost of Virginia adopting the unitary method is substantially made up of increased Virginia tax, it was expected that those attributes having an affect on the total state tax cost of adoption would have a similar affect on the Virginia tax cost of adoption. The results, for the most part, are consistent with that expectation. For example, like the total state tax cost of adoption, Table 4.3 shows that the Virginia tax cost of adoption declines as the level of taxation increases in states outside Virginia. Also similar to the results for total state tax, the Virginia tax cost of adoption is substantially greater for businesses with Virginia headquarters than for businesses with headquarters located outside the state.

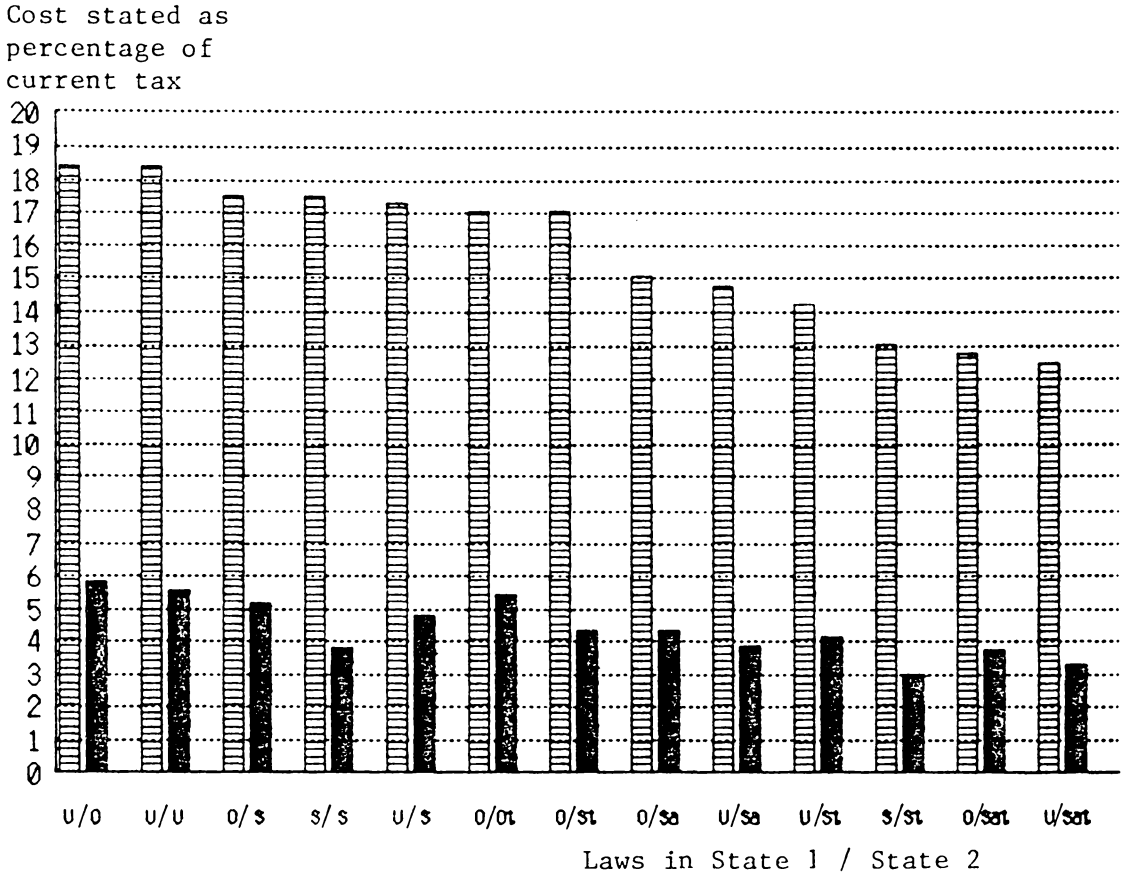
Additionally, the Virginia tax cost of adoption is affected by the degree to which other state's tax laws influence organization and filing method decisions made in Virginia. Figure 4.3 shows the relationship of other states' laws to the Virginia tax cost of adoption, and Figure 4.4 shows the relationship of other states' laws to both the total state tax cost of adoption and the Virginia



S Separate return required
U Unitary return required
O Optional separate or consolidated return
t Throwback rule
a Apportions dividends received

VIRGINIA INCOME TAX PERCENTAGE COST
OF VIRGINIA ADOPTING THE UNITARY METHOD

FIGURE 4.3



S Separate return required
U Unitary return required
O Optional separate or consolidated return
t Throwback rule
a Apportions dividends received

VIRGINIA AND TOTAL PERCENTAGE COST
OF VIRGINIA ADOPTING THE UNITARY METHOD

FIGURE 4.4

cost of adoption. Notice that, for the most part, the effect of those laws on the Virginia cost reflects their effect on the total state tax cost of adoption. While there are some differences in the relative influences of specific provisions between the total state tax avoidable and the Virginia tax avoidable under current law, it can generally be concluded that the smaller the influence of other states' laws on organization and filing method decisions made in Virginia, the greater the cost of adoption in terms of both Virginia and total state tax.

Unlike the results obtained for the total state tax cost of adoption, the location of the business's factory does not have a large effect on the Virginia tax percentage cost of adoption. Those results occur because the percentage of Virginia tax avoidable averages approximately the same whether the business's factory is located within the State or not. Locating the factory in other states, however, does not provide equivalent benefits in those jurisdictions.

Overall, results of the cost of adoption analyses indicate that multistate businesses currently have the ability to utilize corporate organization and filing method planning to avoid a relatively substantial amount of Virginia income tax. Virginia's adoption of the unitary method causes the representative business to pay an average of 4.41% more total state income tax and 15.61% additional Virginia income tax. While some situations provide a greater opportunity to avoid state income tax than others (e.g.,

Virginia headquartered businesses, businesses with Virginia factories, and businesses which operate in other states whose laws do not influence decisions made in Virginia have costs of adoption that are relatively high), there is no general class of situations examined where substantial tax avoidance is not currently available.

Tax Avoidable with Transfer Price Manipulations

Research questions four and five are investigated in order to compare the effectiveness of current Virginia law with that of the unitary method in limiting the ability of multistate businesses to reduce their total state and Virginia income tax liabilities by utilizing transfer price manipulations. The research questions are addressed by comparing the reduction in tax achievable by the representative business utilizing a one percent change in transfer price under current Virginia law with the reduction in tax achievable with a similar change in the transfer price under the assumption that Virginia adopted the unitary method.

In each situation examined the reduction in tax is defined as the difference between the business's minimized tax before the transfer price manipulation and the business's minimized tax after the price manipulation, stated as a percentage of the tax before the manipulation:

```
100x([tax under given law before transaction-
   tax under given law after transaction]/
   tax under given law before transaction)
```

In each situation examined the model computes the percentage reduction in tax achievable with the transaction manipulation under

both current Virginia law and the unitary method. Under each law an overall average percentage reduction is computed in terms of both total state tax and Virginia tax. The research questions are addressed by comparing the averages between the two laws. Additional analyses are then performed by examining averages for certain attributes potentially important to the reduction in tax.

Overview of the Reduction in Total State Tax Possible Under Current Law

Analysis of the tax reduction achievable under current law reveals that with a one percent change in intercompany transfer price, the representative business is able to reduce its total state income tax liability by an average of 5.30%. While some tax reduction is achieved in 99.2% of the situations examined, the reduction is as much as 10% only 4.2% of the time. The highest reduction achieved in any situation is 11.53%.

In most situations, a one percent change in transfer price allows the representative business to reduce its tax by only a small fraction of its income. Nonetheless, since there is virtually no cost associated with such price adjustments, a substantial number of businesses are likely to take advantage of whatever opportunity exist to reduce income taxes. In addition, if transfer price manipulations of greater amounts are utilized, the tax reductions become material. A two percent price manipulation reduces the business's total state tax liability by an average of 11.90%.

In addition, the reduction in tax collections resulting from such transfer price manipulations are likely to be considered material by the states losing tax revenues. In fact, the problem should be much greater than the tax avoidable with corporate organization and filing method planning, since any multi-corporate multistate business can elect to use transfer price manipulation at any time. The technique is not limited to just those businesses that plan ahead.

The average percentage tax reductions computed in terms of total state tax are summarized in Table 4.4. That table shows that, under current Virginia law, factors such as the location of the business's headquarters, location of the factory, and the tax rates in states outside Virginia do not have a large effect on tax reductions achievable with transfer price manipulation. Of these, however, the location of the business's factory has some importance; a non-Virginia factory location provides slightly more ability to reduce taxes than does a Virginia factory.

Table 4.4 also shows that the tax laws in other states in which the business operates do have some impact on the tax reductions currently available. Generally, transfer price manipulations are most successful where the business has the greatest flexibility in arranging its transactions to shift income to states where the business's tax liability will be least affected. For example, notice that businesses with considerable ability to shift income are those operating in Virginia, a unitary method state, and a state

TABLE 4.4

PERCENTAGE REDUCTION IN TOTAL STATE TAX
RESULTING FROM TRANSFER PRICE MANIPULATION OF 1%

Situations	Current law	Unitary method
All situations	5.30	4.07
Virginia headquarters	5.61	4.27
No Virginia headquarters	5.15	3.98
Virginia factory	4.64	4.06
No Virginia factory	5.63	4.08
No throwback rule in State 2	5.00	3.68
Throwback rule in State 2	5.65	4.53
4% tax rate in State 2	5.21	3.62
6% tax rate in State 2	5.23	4.07
8% tax rate in State 2	5.47	4.53
Laws in State 1 / State 2		
Unitary / Separate	5.54	4.48
Unitary / Separate, sales throwback	6.12	4.48
Unitary / Optional	6.69	4.48
Unitary / Optional, throwback	7.03	4.48
Optional / Separate	5.63	5.54
Optional / Separate, throwback	6.67	6.12
Optional / Separate, apportions dividends	4.64	4.23
Optional / Separate, apportions dividends, throwback	5.46	4.74
Unitary / Separate, apportions dividends	4.23	2.84
Unitary / Separate, apportions dividends, throwback	4.74	2.84
Separate / Separate	3.67	4.20
Separate / Separate, throwback	3.90	4.53
Unitary / Unitary	4.59	0.00

where optional separate or consolidated returns are allowed. In those situations transfer price manipulations are used to shift income to the unitary method state where the income tax liability is unaffected. Shifting income to the unitary method state causes the separate accounting income of at least one and often both of the other two states to decline. The business is then free to file in each of those two states using whatever method minimizes its tax.

Notice that businesses with relatively less ability to shift income by utilizing transfer price manipulations include those operating in Virginia and two separate accounting states. Income generally cannot be shifted to a separate accounting state without increasing the tax liability in that state. Apportionment is available in separate accounting states only for operations organized as a single corporation. Therefore, the tax reduction achieved by such businesses averages only 55% of that of the businesses described previously which operate in Virginia, a unitary method state, and a state which provides the option of filing either a separate or consolidated return (3.67% vs. 6.69% from Table 4.4).

Overview of the Reduction in Total State Tax Possible Under the Unitary Method

If Virginia were to adopt the unitary method, businesses would be unable to use transfer price manipulations to avoid Virginia tax; however, it appears that they would still be able to avoid substantial amounts of income tax in other states. Analysis of the tax reduction achievable under the unitary method indicates that the

representative business is still able to utilize the one percent change in transfer price to reduce its total state income tax liability by an average of 4.07%. In only 10.7% of the situations examined does the transfer price manipulation result in no tax reduction, and 72% of those situations are ones where the business operates exclusively in unitary method states. The maximum tax reduction achieved is nearly as high as under current law at 10.41%.

Table 4.4 shows that, similar to the results obtained under current law, the reduction in total state tax achievable under the unitary method is not strongly influenced by the location of a business's headquarters, the location of its factory, or the tax rates in the other states in which it operates.

Just as under current law, when Virginia requires the unitary method of reporting, the available tax reductions are influenced by other states' tax laws. Table 4.4 shows that, similar to the results obtained under current law, the tax reductions achievable with transfer price manipulations by businesses being taxed in Virginia under the unitary method are most successful when the business has the opportunity to shift income to states where its tax liability is least affected. In this instance (where Virginia utilizes the unitary method), such activities are most successful when the business has the greatest opportunity to shift income to Virginia.

Comparison of the Total State Tax Reduction Possible Under Current Law with That Possible Under the Unitary Method

An examination of Table 4.4 reveals that the average tax reduction achievable by the representative business with a one percent change in transfer price is approximately 30% higher under current Virginia law than it would be if Virginia adopted the unitary method (5.30% vs. 4.07%). Similarly, the percentage tax reduction averages substantially greater under current law for most classes of situations examined. Differences between current law and the unitary method are not as great, however, in those situations where under the unitary method the business is still able to maintain its ability to shift income to states where it will not be taxed. For example, notice that where both other states utilize separate accounting (either with or without a sales throwback rule in State 2), the business has greater ability to reduce taxes utilizing transfer price manipulations under the unitary method than it does under current Virginia law. Although Virginia's adoption of the unitary method increases the taxable income and the tax liability of the businesses operating in those states (Virginia and the two separate accounting states), it also provides a location to which income can be shifted without a tax penalty -- businesses can shift income to Virginia without increasing their tax liability in the State.

Overall, however, the representative business is generally found to have substantially greater ability to reduce tax with transfer price manipulations under current law than it does when Virginia utilizes the unitary method. Substantial differences

between current law and the unitary method are also obtained for changes in intercompany transfer prices of amounts other than one percent. Sensitivity analysis discloses that with price adjustments of .5%, the tax reduction obtained under current law averages 26% higher than under the unitary method; and with a transfer price adjustment of 2%, the reduction achievable under current law is found to be 33% higher than under the unitary method.

Overview of the Virginia Tax Reduction Possible Under Current Law

The data in Table 4.5 summarizes the reduction in Virginia tax achievable with a one percent change in intercompany transfer price. As expected, the representative business is not able to reduce its Virginia income tax when the state utilizes the unitary method. Under current law, however, the average Virginia tax reduction achievable with a one percent change in transfer price is 7.42%. Since the transfer price manipulations are designed to minimize the business's total state tax, it is not unexpected to find that in 2.7% of the situations examined there is no change in Virginia tax, and in 22.0% of the situations the business's Virginia tax liability actually increases as a result of the price manipulation. The change in the Virginia tax liability ranges from an increase in Virginia tax of 36.00% to a decrease in the tax liability of 39.89%. Although the transfer price manipulations frequently produce an increase in the business's Virginia tax liability, the average effect is to cause a substantial reduction in Virginia tax. In 40.7% of the

TABLE 4.5

PERCENTAGE REDUCTION IN VIRGINIA TAX
RESULTING FROM TRANSFER PRICE MANIPULATION OF 1%

Situations	Current laws	Unitary method
All situations	7.42	0.00
Virginia headquarters	8.44	0.00
No Virginia headquarters	6.91	0.00
Virginia factory	5.40	0.00
No Virginia factory	8.43	0.00
No throwback rule in State 2	7.61	0.00
Throwback rule in State 2	7.21	0.00
4% tax rate in State 2	8.23	0.00
6% tax rate in State 2	7.57	0.00
8% tax rate in State 2	6.47	0.00
Laws in State 1 / State 2		
Unitary / Separate	7.43	0.00
Unitary / Separate, sales throwback	9.97	0.00
Unitary / Optional	9.74	0.00
Unitary / Optional, throwback	10.56	0.00
Optional / Separate	6.57	0.00
Optional / Separate, throwback	6.99	0.00
Optional / Separate, apportions dividends	6.54	0.00
Optional / Separate, apportions dividends, throwback	5.79	0.00
Unitary / Separate, apportions dividends	6.91	0.00
Unitary / Separate, apportions dividends, throwback	8.87	0.00
Separate / Separate	0.88	0.00
Separate / Separate, throwback	1.07	0.00
Unitary / Unitary	15.19	0.00

situations examined the reduction exceeds 15% of the tax liability before any transfer price manipulation.

Substantial reductions in Virginia tax are also attainable with changes in intercompany transfer prices of amounts other than one percent. The reductions obtained are slightly greater than proportional to the adjustment in price. A .5% adjustment in transfer price results in a 3.30% reduction in Virginia tax; and a 2.0% adjustment reduces Virginia tax by an average of 16.04%.

The results presented in Table 4.5 indicate that several factors have an influence on the reduction in Virginia tax obtained with transfer price manipulations. One important factor is the level of taxation in other states where the business operates. For example, as tax rates in other states increase, there is a decline in the reduction in Virginia income tax attained with transfer price manipulations. Such decline occurs because the business places more emphasis on reducing tax in those states and less emphasis on reducing tax in Virginia.

The tax laws of other states also influence the reductions in Virginia tax resulting from transfer price manipulations. Similar to the reduction obtained in total state tax, the reduction in Virginia tax is directly related to the ability of the business to shift income from Virginia to states where the effect on tax liability is minimal. Table 4.5 shows that ability to be greatest where the business also operates in unitary method states. States allowing separate or consolidated returns provide the second best opportunity for such income

shifting, and transfer price manipulations are least effective in reducing Virginia tax when other states require separate returns.

Table 4.5 shows that the location of the business's factory or headquarters also has an impact on the reduction in Virginia tax. Businesses with Virginia headquarters are able to reduce their Virginia tax by more than those with headquarters outside the state. That results because businesses generally attempt to shift income away from the location of property and payroll utilized in activities not directly producing income. Since cost based transfer pricing has already caused such activities to be under taxed, businesses have the most to gain by utilizing a complementary transfer price policy or merchandise.

Businesses with factories located outside Virginia achieve a greater reduction in Virginia tax than do businesses with Virginia factories. Because of the options available under current Virginia law, businesses with Virginia factories can more often minimize their total tax by shifting income from other states to Virginia. Thus, reductions in Virginia tax are less frequent than when the factory is located outside the state.

Overall, the results indicate that under current Virginia law most businesses have the opportunity to utilize transfer price manipulations to avoid substantial amounts of Virginia income tax. The class of situations where the representative business is least able to consistently reduce Virginia tax is where it operates in Virginia and two separate accounting states, and the class of

situations where the business has the greatest ability to reduce its tax with transfer price manipulations is where it operates in Virginia and two unitary method states. This is important because the trend in state taxation is clearly away from separate accounting and toward the unitary method.[8] Thus, as more states adopt the unitary method the ability of businesses to use transfer price manipulation to avoid tax in Virginia will increase.

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[8] Ibid.

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of this study was to develop evidence concerning the ability of multistate businesses operating within Virginia to avoid state income tax. The primary objective of the study was to determine the extent to which such businesses can avoid state income tax by (1) utilizing corporate organization and filing method planning and by (2) deliberately manipulating transfer prices between members of affiliated groups. Based on the results of the analyses described in the preceding chapter, Chapter V presents a discussion and summary of the conclusions reached in this study. In addition, recommendations are made with regard to correcting the tax avoidance problem.

Incentive for Planning

Research question one was designed to determine what incentive exists for multistate businesses to utilize their corporate organization and filing methods as a tool in state income tax planning. The results of the analysis indicate that most multistate businesses have a clear incentive to conduct such planning. Every general class of situation examined was found to have a substantial incentive to plan. The overall results indicate that without planning the representative business could potentially pay an average of 15.94% in additional state income tax. Therefore, most multistate

businesses which either earn or expect to ever earn even a modest level of income have a clear incentive to plan. Consequently, corporate organization and filing method planning should be utilized by a substantial number of multistate businesses operating in Virginia.

Increased Tax Liability Resulting from a Virginia Adoption of the Unitary Method

In light of the conclusion that businesses are likely to utilize their corporate organization and filing methods as a tax planning tool, research questions two and three investigated the additional tax such businesses would have to pay if Virginia adopted the unitary method. That additional tax, the cost of adoption, was considered a measure of the tax avoidable with corporate organization and filing method planning under current Virginia law. In addition, the cost of adoption in terms of total state income tax provided a measure of the inequity in Virginia's current method of taxation.

The results indicate that if Virginia adopted the unitary method, most multistate businesses would pay an additional tax amounting to substantially less than one percent of their income. The average increase was less than three tenths of 1% of the representative business's income -- an amount not likely to be considered material by many businesses because it is certainly insufficient to cause most businesses to change their operations within the State. Nonetheless, taken together, the total amount of state tax avoided

by all multistate businesses is potentially substantial. The problem is even more pronounced if only Virginia tax is considered. With an average increase in Virginia tax of 15.61%, it can be concluded that even if only a small portion of the multistate businesses operating within the State utilized such planning, adoption of the unitary method would still generate a material increase in Virginia tax revenue.

While the revenue effect is important, it is not the only consideration. Another important issue is equity. Since multistate businesses operating within Virginia can utilize their corporate organization and filing method elections to shift income and avoid tax, they have tax planning options that are not available to businesses that operate within the borders of a single state. This research found that the representative business was able to avoid tax equal to 4.41% of its current total state tax liability. In addition to that basic inequity, however, it was found that even within the realm of multistate businesses considerable inequity exists.

This study only considered businesses that made optimal decisions. It did not consider businesses whose tax liabilities were not minimized because either their situations had changed or state tax laws had changed. Furthermore, it only considered multistate businesses that were able to utilize their corporate organization and filing methods to minimize their tax. Yet, even among those businesses, there was substantial variation in the level of

benefits available from the Virginia elections. In fact, the rewards of those elections impacted businesses somewhat arbitrarily. The amount of tax avoidable ranged from zero in some situations to as much as 16.72% of total state tax or 36% of Virginia tax in other situations. Thus, substantial inequity exist, not only between single state and multistate businesses, but even among those businesses which can use subunit organization and filing methods to minimize their tax.

One reason for the variation in the tax benefits resulting from Virginia elections is the influence of the tax laws and tax rates of other states in which the business operates. Thus, the benefits available to multistate businesses operating in Virginia are distributed on the basis of factors which are at least partially external to conditions within the State. One such factor should be of particular concern to tax authorities in Virginia: that factor is the use of the unitary method by other states. Since use of the unitary method by some states increases the potential for tax avoidance in nonunitary states, the national trend toward adoption of the unitary method[1] will likely produce increased tax avoidance in Virginia.

The results also showed that for those businesses which are able to fully utilize their planning opportunities, the filing options available under Virginia law generally provide a greater

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[1]See footnote 31 in Chapter II concerning other states' adoption of the unitary method, pp. 25-26.

benefit to businesses with headquarters or factories located in Virginia than businesses with those activities located outside the State. The benefits available to Virginia headquartered businesses resulted substantially because of the assumptions concerning cost based transfer prices on intercompany services and the 5% level of resources attributed to those activities. In such cases, the cost of adopting the unitary method for Virginia headquartered businesses was 56% higher than for businesses with headquarters outside the State. Businesses with Virginia factories had a total state tax cost of adoption that was 118% higher than businesses with non-Virginia factories. Nonetheless, since most businesses should find the total state tax cost of adoption to be immaterial, the differences between the benefits provided to Virginia and non-Virginia located activities are generally insufficient to have an effect on the placement of either the headquarters or the factory. Therefore, only in rare instances should the availability of elections in Virginia have any impact on such decisions.

Although the options provided under Virginia law are unlikely to provide multistate businesses with a material incentive to invest in the State, they may have a substantial adverse effect on state tax revenues. In addition, the benefits derived from such options are assigned to businesses on a basis which is arbitrary and inequitable.

Tax Avoidable with Transfer Price Manipulations

While providing an option to file either separate or consolidated returns might be considered a reasonable inducement for businesses to operate within a particular jurisdiction, it is not likely that any state would willingly allow businesses to avoid tax by utilizing transfer price manipulations. Research questions four and five were investigated to compare the effectiveness of current Virginia law with that of the unitary method in limiting the ability of multistate businesses to reduce their state income tax liabilities by utilizing such transfer price manipulations.

Results of the analysis indicate that businesses can use transfer price manipulations to avoid material amounts of state income tax under either of the two Virginia methods of taxation; however, considerably more tax can be avoided under current Virginia law than under the unitary method. The average tax reductions achieved under current Virginia law were 30% greater than under the unitary method. In addition, it was found that although transfer price manipulations cannot be used to avoid Virginia tax under the unitary method, substantial amounts of Virginia tax may be avoided under current law. In over forty percent of the situations examined, a 1% change in transfer price caused the Virginia tax liability to be reduced by more than 15%.

The results also indicate that the tax laws of other states have an important influence on the amount of Virginia and total state tax avoidable with transfer price manipulations. Under current

Virginia law businesses avoid substantially more Virginia tax when they operate in other states that utilize the unitary method than when they operate in states that use other taxing methods. So while very little Virginia tax could be avoided with transfer price manipulations when most states required separate accounting, as more states adopt the unitary method, businesses are likely to enjoy much greater success in avoiding Virginia tax.

While providing the opportunity for businesses to avoid tax with transfer price manipulations does not seem to be a reasonable course of action, it might somehow be more acceptable if such provisions encouraged a desired activity such as investment in the State. Unfortunately, however, such encouragement is not provided. The results indicate that under current Virginia law, the total state tax avoidable with transfer price manipulations is not generally affected by the location of the business's headquarters. A 1% change in intercompany transfer price generated a tax reduction of 5.61% for Virginia headquartered businesses and 5.15% for non-Virginia headquartered businesses. Businesses with factories located outside the State were found to have slightly more success in reducing tax with transfer price manipulations than businesses with factories located within the State. The tax reductions obtained by businesses with Virginia and non-Virginia factories were 4.64% and 5.63%, respectively. Therefore, Virginia laws which provide businesses with the ability to avoid tax by utilizing such methods do not provide any special incentive for investment in the State.

Factory and headquarters location have only a small effect on the total state tax avoided. Their influence on the Virginia tax avoided is slightly greater. Businesses with Virginia headquarters can generally use transfer price manipulations to avoid more Virginia tax than businesses with headquarters located outside the State (8.44% vs. 6.91% with a 1% price change by the representative business). Businesses with Virginia factories, however, cannot avoid as much Virginia tax as businesses with factories located outside the State (5.40% vs. 8.43%). Therefore, businesses which make their factory investments outside Virginia can cost the State relatively more in tax avoidance thru transfer price manipulations than businesses which locate their factories within Virginia.

Multistate businesses are curretnly able to use transfer price manipulations to avoid substantial amounts of Virginia and total state income tax. In addition, there is no advantage to Virginia in maintaining a tax system which provides for such tax avoidance. Although a Virginia adoption of the unitary method would not eliminate tax avoidance thru transfer price manipulation, it would prevent such tax avoidance in Virginia.

Recommendations for Correcting the Problem of Tax Avoidance

Virginia needs a way to require full accountability from businesses which operate within the state. Separate accounting does not work well. It is expensive, difficult to apply, and too easily distorted with transfer price manipulations. The results obtained

by this research study provide support for the conclusion that Virginia should adopt the unitary method of taxing multistate businesses. The results of the analyses indicate that utilization of the unitary method would probably increase Virginia tax revenue and also provide for greater equity in the taxation of all businesses which operate within the State. Additionally, such results would be accomplished without adversely affecting investment within the State. These findings are based on several important factors.

1. Under current Virginia law multistate businesses have the opportunity to avoid substantial amounts of Virginia income tax. Almost any such business can easily utilize intercompany transfer price manipulations to reduce its Virginia and total state tax liabilities. The representative business was able to utilize a 1% change in an intercompany transfer price to reduce its Virginia tax by an average of 7.42%. Many multistate businesses are also able to arrange their corporate organization and filing methods in ways that allow them to avoid material amounts of Virginia income tax. In this study, the average Virginia tax avoided by the representative business amounted to 15.61% of its tax liability. If the unitary method were adopted, such avoidance of Virginia tax would be

eliminated, and Virginia tax revenue would consequently rise.

2. Most multistate businesses have an incentive to arrange their transactions in ways designed to avoid Virginia and total state income tax. For many such businesses the cost of utilizing corporate organization and filing method planning is less than the potential cost of not utilizing such planning. Additionally, since there is virtually no cost associated with intercompany transfer price manipulations, nearly all multistate businesses have a substantial incentive to utilize transfer prices to avoid state income tax.

3. Virginia's current method of tax assessment is inequitable. The opportunity to avoid state income tax is not equal for all businesses operating within the State. Corporate organization and filing method planning and transfer price manipulations are available as tax planning tools only to multistate businesses. In addition, the tax avoidable by such businesses varies substantially from business to business as a result of factors such as the laws of other states in which the businesses operate. Adoption of the unitary method would eliminate these inequities.

4. Under current Virginia law businesses with Virginia headquarters or factories have the ability to avoid slightly more tax with corporate organization and filing method planning than businesses which locate those activities outside the State; however, the difference is generally not sufficient to have much of an impact on a business's decision concerning where to locate its factory or headquarters. The opportunity to avoid tax with transfer price manipulations neither favors those businesses with factories or headquarters located in the State nor those with such activities located outside Virginia. Therefore, Virginia's current method of taxation does not provide any special incentive for investment in the State.
5. Since most businesses will not consider the additional tax paid under a Virginia unitary method to be material, adoption of the unitary method will not discourage investment within the State.
6. If the national trend toward adoption of the unitary method continues, Virginia should anticipate increased exploitation of its vulnerability to tax avoidance. As more states adopt the unitary method of taxation, businesses may be expected to more often arrange their corporate organization, filing methods, and

transfer prices in ways designed to avoid tax in states where the opportunity is still available -- states like Virginia.

Multistate businesses which operate in Virginia currently have too much control over the location and amount of income they recognize. Adoption of the unitary method would convey much of that power to the State. It is not necessary for Virginia to require that all the operations of affiliated groups be combined for taxation; however, it is important that each separate business be treated as a taxable entity. Although Virginia would then have the problem of defining a unitary business, it is better for the State to define the taxable entity than to have each individual affiliated group make that decision for itself.

Suggestions for Further Research

Additional investigations into the problem of tax avoidance by multistate businesses might take a different approach. A survey of multistate businesses could be used to determine the extent to which such businesses utilize organization and filing method planning and transfer price manipulations. Such a study could provide an indication of how widespread the practices are.

The subject could also be approached by determining the actual tax avoided by a sample of multistate businesses operating in Virginia. Such research might have to be conducted under the authority of the Department of Taxation, since the necessary data is generally not available to the public. Nonetheless, a study of that kind

is likely to provide the best indication of the tax actually avoided with organization and filing method planning.

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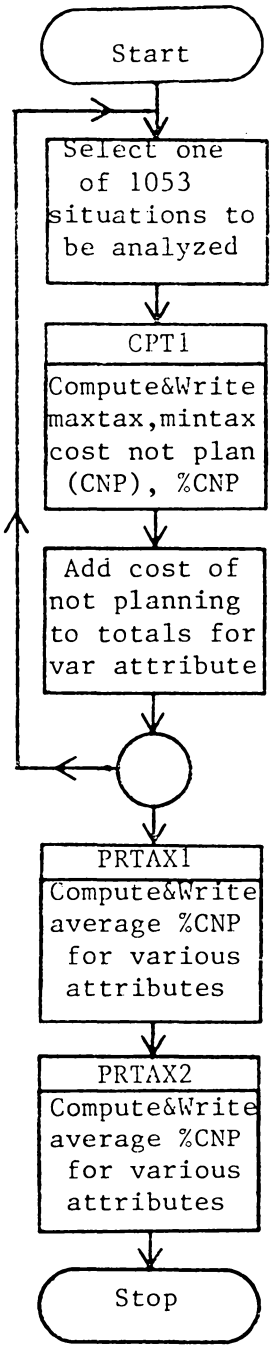
APPENDIX A

COMPUTER MODEL PLAN1

The purpose of this appendix is to provide documentation supporting the computer model PLAN1. PLAN1 is designed to compute the average percentage cost of not planning for 1,053 situations examined. The computer model is made up of a main program and several subroutines. CPT1 is the subroutine which computes the percentage cost of not planning for each individual situation examined. PRTAX1 and PRTAX2 are subroutines which are utilized to compute and print averages of the individual observation results.

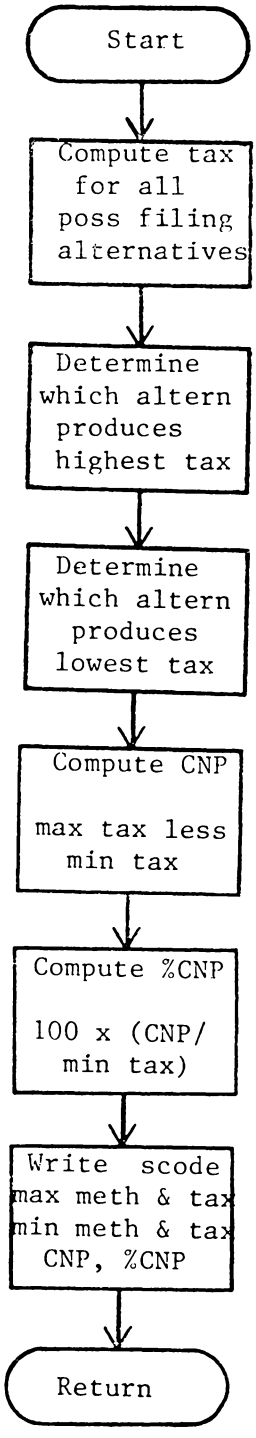
Figure A.1 provides a flowchart overview of the main program. Figure A.2 provides a similar flowchart overview of CPT1. A listing of the program code for the main program is given in Illustration A.1, and Illustration A.2 provides the program code for CPT1. Illustrations A.3 and A.4 contain the program codes for PRTAX1 and PRTAX2, respectively. The output generated by CPT1 consists of a listing of the percentage cost of not planning measurements for each situation examined. A sample of that output is provided in Table A.1. The percentage cost of not planning averages as computed by PRTAX1 and PRTAX2 are given in Table A.2.



maxtax= maximum possible tax
mintax= minimum possible tax
CNP= cost of not planning
%CNP= percentage cost of not planning

FIGURE A.1

FLOWCHART OVERVIEW OF PLAN1



max tax= highest possible tax
min tax= lowest possible tax
CNP= cost of not planning
%CNP= percentage cost of not planning
scode= code identifying
max meth= filing method used to maximize tax
min meth= filing method used to minimize tax

FIGURE A.2

FLOWCHART OVERVIEW OF CPT1

ILLUSTRATION A.1

PROGRAM CODE FOR PLAN1

```
C      ****************        PLAN1        ***************************** PAGE     1


C      ****************        PLAN1        *********************************
C      ******************************************************************************
C      ******************************************************************************
C
C      THE PURPOSE OF THIS PROGRAM IS TO COMPUTE THE AVERAGE
C      COST OF NOT PLANNING FOR 1053 SITUATIONS EXAMINED.
C      THE COST OF NOT PLANNING IS DEFINED AS
C
C      100 X ((THE MAXIMIZED TAX WITHOUT PLANNING LESS THE
C      MINIMIZED TAX WITH PLANNING) / (THE MINIMIZED TAX
C      WITH PLANNING))
C
C      THE PURPOSE OF THIS MAIN PROGRAM IS TO (1) GENERATE
C      SITUATIONS TO BE USED AS INPUT TO THE COMPUTATIONAL
C      SUBROUTINE, AND (2) TABULATE THE RESULTS OF THE
C      COMPUTATIONAL SUBROUTINE.
C
C      ******************************************************
       DIMENSION RATE(3), TAX(100), VAT(100), TX(100), PROP(3)
       DIMENSION S(3), R(2), PAY(3), DIV(2)
       DIMENSION MFIL(100), MOFIL(100), MFL(100), MOFL(100)
       DIMENSION TTST(2,3), TTSPT(2,3), ITK(2,3), TTSL(7,2,3)
       DIMENSION TTSPL(7,2,3), IMK(7,2,3), TTSH(3,3), TTSPH(3,3)
       DIMENSION LHK(3,3), TTSF(3,3), TTSPF(3,3), LFK(3,3)
       DIMENSION ATST(2,3), ATSPT(2,3), ATSL(7,2,3), ATSPL(7,2,3)
       DIMENSION ATSH(2,3), ATSPH(2,3), ATSF(2,3), ATSPF(2,3)
       DIMENSION TVTST(2,3), TVTSPT(2,3), TVTSL(7,2,3)
       DIMENSION TVTSPL(7,2,3), TVTSH(3,3), TVTSPH(3,3), TVTSF(3,3)
       DIMENSION TVTSPF(3,3), AVTST(2,3), AVTSPT(2,3), AVTSL(7,2,3)
       DIMENSION AVTSPL(7,2,3), AVTSH(2,3), AVTSPH(2,3)
       DIMENSION AVTSF(2,3), AVTSPF(2,3)
       DIMENSION ATSR(3), ATSPR(3), AVTSR(3), AVTSPR(3)
       DIMENSION TTSR(3), TTSPR(3), TVTSR(3), TVTSPR(3), IRK(3)
       DIMENSION TTSB(7,2,3,3), TTSPB(7,2,3,3), TVTSB(7,2,3,3)
       DIMENSION TVTSPB(7,2,3,3), IBK(7,2,3,3)
       DIMENSION TTSZ(7,2,3,3), TTSPZ(7,2,3,3), TVTSZ(7,2,3,3)
       DIMENSION TVTSPZ(7,2,3,3), IZK(7,2,3,3)
       DIMENSION ATSB(7,2,3,2), ATSPB(7,2,3,2), AVTSB(7,2,3,2)
       DIMENSION AVTSPB(7,2,3,2)
       DIMENSION ATSZ(7,2,3,2), ATSPZ(7,2,3,2), AVTSZ(7,2,3,2)
       DIMENSION AVTSPZ(7,2,3,2)
       DIMENSION TP(7,2,3), VP(7,2,3), IK(7,2,3)
       DIMENSION TPX(7,2,3,3), VPX(7,2,3,3), IKX(7,2,3,3)
       CHARACTER*20 TB(2), MET(7,2), FAC(2), HQ(2)
       CHARACTER*20 SAVE, SPACE(2), TITLE(7,7), TITLE2(2)
       CHARACTER*60 HEAD(2,2)
       SPACE(1)='                    '
       SAVE='ALL SITUATIONS       '
       TB(1)='STATE 2 - NO T/B     '
       TB(2)='STATE 2 - T/B        '
       MET(1,1)='UNIT/SEP             '
       MET(2,1)='UNIT/OPT             '
       MET(3,1)='OPT/SEP              '
       MET(4,1)='OPT/SEP,APP DIV      '
       MET(5,1)='UNIT/SEP,APP DIV     '
       MET(1,2)='UNIT/SEP,T/B         '
       MET(2,2)='UNIT/OPT,T/B         '
```

ILLUSTRATION A.1 (Continued)

```
C      ****************        PLAN1        ****************************** PAGE     2


      MET(3,2)='OPT/SEP,T/B          '
      MET(4,2)='OPT/SEP,APP DIV,T/B '
      MET(5,2)='UNIT/SEP,APP DIV,T/B'
      MET(6,1)='SEP/SEP              '
      MET(6,2)='SEP/SEP,T/B          '
      MET(7,1)='UNIT/UNIT            '
      MET(7,2)='UNIT/UNIT,T/B        '
      FAC(1)='VA FAC               '
      FAC(2)='NON-VA FAC           '
      HQ(1)='VA HQ                 '
      HQ(2)='NON-VA HQ             '
      HEAD(1,1)='  SITUATION  MIN      MIN      MAX      MAX       CNP
     1%CNP      '
      HEAD(1,2)='             METH     TAX      METH     TAX
     1          '
      HEAD(2,1)='      ATTRIBUTE                  TAX RATE IN STATE 2
     1      '
      HEAD(2,2)='                              4%        6%        8%       ALL
     1      '
      DO 10 JA=1,3
      TTSR(JA)=0.
      TTSPR(JA)=0.
      TVTSR(JA)=0.
      TVTSPR(JA)=0.
      IRK(JA)=0.
      DO 6 JB=1,3
      TTSH(JB,JA)=0.
      TTSPH(JB,JA)=0.
      LHK(JB,JA)=0
      TTSF(JB,JA)=0.
      TTSPF(JB,JA)=0.
      LFK(JB,JA)=0
      TVTSH(JB,JA)=0.
      TVTSPH(JB,JA)=0.
      TVTSF(JB,JA)=0.
      TVTSPF(JB,JA)=0.
    6 CONTINUE
      DO 10 JC=1,2
      DO 9 JD=1,7
      TTSL(JD,JC,JA)=0.
      TTSPL(JD,JC,JA)=0.
      IMK(JD,JC,JA)=0
      TVTSL(JD,JC,JA)=0.
      TVTSPL(JD,JC,JA)=0.
      DO 9 JE=1,3
      TTSB(JD,JC,JA,JE)=0.
      TTSPB(JD,JC,JA,JE)=0.
      TVTSB(JD,JC,JA,JE)=0.
      TVTSPB(JD,JC,JA,JE)=0.
      IBK(JD,JC,JA,JE)=0.
      TTSZ(JD,JC,JA,JE)=0.
      TTSPZ(JD,JC,JA,JE)=0.
      TVTSZ(JD,JC,JA,JE)=0.
      TVTSPZ(JD,JC,JA,JE)=0.
      IZK(JD,JC,JA,JE)=0.
    9 CONTINUE
      TTST(JC,JA)=0.
```

ILLUSTRATION A.1 (Continued)

```
C     ****************        PLAN1        ***************************** PAGE     3


      TTSPT(JC,JA)=0.
      ITK(JC,JA)=0.
      TVTST(JC,JA)=0.
      TVTSPT(JC,JA)=0.
   10 CONTINUE
      RATE(1)=.04
      RATE(2)=.06
      RATE(3)=.08
      TTSP=0.
      TTS=0.
      TVTSP=0.
      TVTS=0.
      K=0
C     ***************** WRITE HEADINGS *********************
      WRITE(7,2148)
      WRITE(7,2147)
      WRITE(7,2150) HEAD(1,1)
      WRITE(7,2150) HEAD(1,2)
      WRITE(7,2147)
C     ********************************************************
C     ******* IDENTIFY SITUATIONS TO BE EXAMINED *********
C     ********************************************************
      DO 20 IS=1,3
      PROP(IS)=(.15/1.0)
   20 CONTINUE
C     ****** TAX METHODS IN STATE 1 & STATE 2 *************
      DO 1000 IT=1,2
      DO 1000 IM=1,7
      IF (IT.EQ.1) GO TO 21
      IF (IM.EQ.7) GO TO 1000
C     ************ LOCATION OF FACTORY ********************
   21 DO 1000 LF=1,3
      PROP(LF)=PROP(LF)+(.4/1.0)
C     ************ LOCATION OF HEADQUARTERS ***************
      DO 1000 LH=1,3
      PROP(LH)=PROP(LH)+.05
C     ************ LOCATION OF OTHER ACTIVITIES ************
      DO 1000 IO=1,3
      PROP(IO)=PROP(IO)+(.1/1.0)
C     ***************** TAX RATE IN STATE 2******************
      DO 1000 IR=1,3
      DO 22 IP=1,3
      PAY(IP)=PROP(IP)
   22 CONTINUE
      R(1)=.06
      R(2)=RATE(IR)
C     *************** PROFIT IN EACH STATE *****************
      AP=38.89
      BP=38.89
      CP=38.89
      IF(LF.EQ.1) AP=92.22
      IF(LF.EQ.2) BP=92.22
      IF(LF.EQ.3) CP=92.22
C     ****************** INTERCOMPANY SALES ****************
      SXY=0.
      SXZ=0.
      HXY=0.
```

ILLUSTRATION A.1 (Continued)

```
C      ****************        PLAN1        ****************************** PAGE     4


       HXZ=0.
       RXY=0.
       RXZ=0.
       SYZ=0.
       SYX=0.
       HYZ=0.
       HYX=0.
       RYZ=0.
       RYX=0.
       SZX=0.
       SZY=0.
       HZX=0.
       HZY=0.
       RZX=0.
       RZY=0.
       IF(LF.EQ.1) SXY=710.
       IF(LF.EQ.1) SXZ=710.
       IF(LF.EQ.2) SYZ=710.
       IF(LF.EQ.2) SYX=710.
       IF(LF.EQ.3) SZX=710.
       IF(LF.EQ.3) SZY=710.
       IF(LH.EQ.1) HXY=141.5/3.
       IF(LH.EQ.1) HXZ=141.5/3.
       IF(LH.EQ.2) HYZ=141.5/3.
       IF(LH.EQ.2) HYX=141.5/3.
       IF(LH.EQ.3) HZX=141.5/3.
       IF(LH.EQ.3) HZY=141.5/3.
       IF(IO.EQ.1) RXY=283./3.
       IF(IO.EQ.1) RXZ=283./3.
       IF(IO.EQ.2) RYZ=233./3.
       IF(IO.EQ.2) RYX=233./3.
       IF(IO.EQ.3) RZX=283./3.
       IF(IO.EQ.3) RZY=283./3.
C      ******** EXTERNAL SALES FROM EACH STATE ************
       S(1)=1000.
       S(2)=1000.
       S(3)=1000.
C      ***********************************************************
C      ************ CALL SUBROUTINE TO COMPUTE **************
C      *************** COST OF NOT PLANNING *****************
C      ***********************************************************
       CALL CPT1 (IT,IM,R,IR,
      1LF,LH,IO,
      2S,PROP,PAY,
      3AP,BP,CP,
      4SXY,SXZ,HXY,HXZ,RXY,RXZ,
      5SYZ,SYX,HYZ,HYX,RYZ,RYX,
      6SZX,SZY,HZX,HZY,RZX,RZY,
      7TS,TSP,VTS,VTSP)
C      ****** TABULATE RESULTS OF SUBROUTINE ***************
       K=K+1
       TTS=TTS+TS
       TTSP=TTSP+TSP
       TVTS=TVTS+VTS
       TVTSP=TVTSP+VTSP
   520 TTST(IT,IR)=TTST(IT,IR)+TS
       TTSPT(IT,IR)=TTSPT(IT,IR)+TSP
```

ILLUSTRATION A.1 (Continued)

```
C      ******************        PLAN1        ****************************** PAGE     5


       TVTST(IT,IR)=TVTST(IT,IR)+VTS
       TVTSPT(IT,IR)=TVTSPT(IT,IR)+VTSP
       ITK(IT,IR)=ITK(IT,IR)+1
       TTSL(IM,IT,IR)=TTSL(IM,IT,IR)+TS
       TTSPL(IM,IT,IR)=TTSPL(IM,IT,IR)+TSP
       TVTSL(IM,IT,IR)=TVTSL(IM,IT,IR)+VTS
       TVTSPL(IM,IT,IR)=TVTSPL(IM,IT,IR)+VTSP
       IMK(IM,IT,IR)=IMK(IM,IT,IR)+1
       TTSH(LH,IR)=TTSH(LH,IR)+TS
       TTSPH(LH,IR)=TTSPH(LH,IR)+TSP
       TVTSH(LH,IR)=TVTSH(LH,IR)+VTS
       TVTSPH(LH,IR)=TVTSPH(LH,IR)+VTSP
       LHK(LH,IR)=LHK(LH,IR)+1
       TTSF(LF,IR)=TTSF(LF,IR)+TS
       TTSPF(LF,IR)=TTSPF(LF,IR)+TSP
       TVTSF(LF,IR)=TVTSF(LF,IR)+VTS
       TVTSPF(LF,IR)=TVTSPF(LF,IR)+VTSP
       LFK(LF,IR)=LFK(LF,IR)+1
       TTSR(IR)=TTSR(IR)+TS
       TTSPR(IR)=TTSPR(IR)+TSP
       TVTSR(IR)=TVTSR(IR)+VTS
       TVTSPR(IR)=TVTSPR(IR)+VTSP
       IRK(IR)=IRK(IR)+1
       TTSB(IM,IT,IR,LH)=TTSB(IM,IT,IR,LH)+TS
       TTSPB(IM,IT,IR,LH)=TTSPB(IM,IT,IR,LH)+TSP
       TVTSB(IM,IT,IR,LH)=TVTSB(IM,IT,IR,LH)+VTS
       TVTSPB(IM,IT,IR,LH)=TVTSPB(IM,IT,IR,LH)+VTSP
       IBK(IM,IT,IR,LH)=IBK(IM,IT,IR,LH)+1
       TTSZ(IM,IT,IR,LF)=TTSZ(IM,IT,IR,LF)+TS
       TTSPZ(IM,IT,IR,LF)=TTSPZ(IM,IT,IR,LF)+TSP
       TVTSZ(IM,IT,IR,LF)=TVTSZ(IM,IT,IR,LF)+VTS
       TVTSPZ(IM,IT,IR,LF)=TVTSPZ(IM,IT,IR,LF)+VTSP
       IZK(IM,IT,IR,LF)=IZK(IM,IT,IR,LF)+1
       GO TO 525
   525 IF(IR.LT.3) GO TO 590
       IF(IO.LT.3) GO TO 528
       IF(LH.LT.3) GO TO 527
   526 PROP(LF)=PROP(LF)-(.4/1.0)
   527 PROP(LH)=PROP(LH)-.05
   528 PROP(IO)=PROP(IO)-(.1/1.0)
   590 CONTINUE
  1000 CONTINUE
  1010 ATSP=TTSP/K
       ATS=TTS/K
       AVTS=TVTS/K
       AVTSP=TVTSP/K
C      ************ WRITE HEADINGS FOR AVERAGES ************
       WRITE(7,2149)
       WRITE(7,2147)
       WRITE(7,2150) HEAD(2,1)
       WRITE(7,2150) HEAD(2,2)
       WRITE(7,2147)
       DO 605 IR=1,3
       TP(1,1,IR)=TTSPR(IR)
       VP(1,1,IR)=TVTSPR(IR)
       IK(1,1,IR)=IRK(IR)
   605 CONTINUE
```

ILLUSTRATION A.1 (Continued)

```
C      *****************        PLAN1        ***************************** PAGE     6


       TITLE(1,1)=SAVE
C      ******************************************************
C      ******** CALL SUBROUTINE TO AVERAGE THE *************
C      ******** RESULTS AND PRINT THE AVERAGES *************
C      ******************************************************
        CALL PRTAX1 (TITLE, SPACE, TP, VP, IK, 1, 1, 3)
   608 CONTINUE
       DO 615 IT=1,2
       DO 610 IR=1,3
       TP(1,IT,IR)=TTSPT(IT,IR)
       VP(1,IT,IR)=TVTSPT(IT,IR)
       IK(1,IT,IR)=ITK(IT,IR)
   610 CONTINUE
       TITLE(1,IT)=TB(IT)
   615 CONTINUE
        CALL PRTAX1 (TITLE, SPACE, TP, VP, IK, 1, 2, 3)
        CALL PRTAX1 (MET, SPACE, TTSPL, TVTSPL, IMK, 7, 2, 3)
       DO 640 L=1,3
       DO 640 IR=1,3
       TPX(1,1,IR,L)=TTSPH(L,IR)
       VPX(1,1,IR,L)=TVTSPH(L,IR)
       IKX(1,1,IR,L)=LHK(L,IR)
   640 CONTINUE
       DO 645 L=1,2
       TITLE(1,L)=HQ(L)
   645 CONTINUE
        CALL PRTAX2 (TITLE, SPACE, TPX, VPX, IKX, 1, 1, 3, 3)
       DO 655 L=1,3
       DO 655 IR=1,3
       TPX(1,1,IR,L)=TTSPF(L,IR)
       VPX(1,1,IR,L)=TVTSPF(L,IR)
       IKX(1,1,IR,L)=LFK(L,IR)
   655 CONTINUE
       DO 660 L=1,2
       TITLE(1,L)=FAC(L)
   660 CONTINUE
        CALL PRTAX2 (TITLE, SPACE, TPX, VPX, IKX, 1, 1, 3, 3)
   680 CONTINUE
  2100 FORMAT(3X,I1,3X,I1,2X,I1,2X,I1,2X,I1,2X,I1,2X,I1,4X,I3,4X,F5.2,4X,I1,
      14X,I3,4X,F5.2,4X,I1,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,
      2F7.2)
  2147 FORMAT (10X)
  2148 FORMAT ('1','                    COST OF NOT PLANNING (CNP)')
  2149 FORMAT ('1','                COST OF NOT PLANNING AVERAGES')
  2150 FORMAT(A60)
  2200 FORMAT('1',10X,F5.2,10X,F5.2,10X,F5.2,10X,F7.2)
  2300 FORMAT('0',A20,3X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,
      14X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F6.2,4X,F6.2,4X,F6.2)
  2301 FORMAT('1',A20,' AND ',A20)
  2400 FORMAT(3X,I1,2X,I1,2X,I1,2X,I1,2X,I1,2X,I1,2X,F5.2,2X,F5.2,
      12X,F5.2,2X,F5.2,2X,F5.2,2X,F5.2,2X,F5.2,2X,F5.2,2X,F6.2)
       STOP
       END
```

ILLUSTRATION A.2

PROGRAM CODE FOR CPT1

```
      SUBROUTINE CPT1                                                PAGE     1


      SUBROUTINE CPT1
     1(IT,IM,R,IR,
     2LF,LH,IO,
     3S,PROP,PAY,
     4AP,BP,CP,
     5SXY,SXZ,HXY,HXZ,RXY,RXZ,
     6SYZ,SYX,HYZ,HYX,RYZ,RYX,
     7SZX,SZY,HZX,HZY,RZX,RZY,
     8TS,TSP,VTS,VTSP)
C     ******************************************************
C
C     THE PURPOSE OF THIS SUBROUTINE IS TO
C
C     (1)  CALCULATE THE TOTAL STATE TAX LIABILITY FOR A BUSINESS UNDER
C     EACH ALTERNATE SUBUNIT ORGANIZATION AND FILING METHOD ELECTION
C     AVAILABLE TO THAT BUSINESS,
C
C     (2)  DETERMINE THE PARTICULAR COMBINATION OF SUBUNIT ORGANIZATION
C     AND FILING METHOD ELECTIONS THAT GENERATE THE LOWEST TOTAL STATE
C     TAX LIABILITY FOR THE BUSINESS,
C
C     (3)  DETERMINE THE PARTICULAR COMBINATION OF SUBUNIT ORGANIZATION
C     AND FILING METHOD EXECTIONS THAT GENERATE THE GREATEST TOTAL STATE
C     TAX LIABILITY FOR THE BUSINESS,
C
C     (4)  COMPUTE THE POTENTIAL COST OF NOT PLANNING, WHICH IS THE
C     DIFFERENCE BETWEEN THE GREATEST POTENTIAL TAX LIABILITY AND THE
C     LOWEST POSSIBLE TAX LIABILITY,
C
C     (5)  COMPUTE THE PERCENTAGE COST OF NOT PLANNING, WHICH IS THE
C     COST OF NOT PLANNING STATED AS A PERCENTAGE OF THE MINIMIZED TAX.
C
C     THE COMPUTATIONS ARE MADE FOR A BUSINESS WHICH OPERATES IN VIRGINIA
C     AND TWO OTHER STATES.
C
C     ******************************************************
      DIMENSION RATE(3), TAX(100), VAT(100), TX(100), PROP(3)
      DIMENSION MFIL(100), MOFIL(100), MFL(100), MOFL(100)
      DIMENSION PAY(3), S(3), R(2), DIV(2)
      APDA=0.
      APDB=0.
      APDAC=0.
      APDBC=0.
      T=.06
      DIV(1)=1.-(T+((1.-T)*.46))
      DIV(2)=1.-(R(1)+((1.-R(1))*.46))
C     ******************************************************
C
C     COMPUTATION OF POTENTIAL SALES FACTORS TO BE UTILIZED
C          UNDER DIFFERENT FILING ELECTIONS.
C
C     ******************************************************
      SFX=(S(1)+HXY+HXZ+RXY+RXZ)/(S(1)+SXY+SXZ+HXY+HXZ+RXY+RXZ)
      SFXY=(S(1)+HXZ+RXZ)/(S(1)+SXZ+HXZ+RXZ+S(2)+SYZ+HYZ+RYZ)
      SFXZ=(S(1)+HXY+RXY)/(S(1)+SXY+HXY+RXY+S(3)+SZY+HZY+RZY)
      SFX3=S(1)/(S(1)+S(2)+S(3))
      SFY=(S(2)+HYZ+HYX+RYZ+RYX)/(S(2)+SYZ+SYX+HYZ+HYX+RYZ+RYX)
```

ILLUSTRATION A.2 (Continued)

```
      SUBROUTINE CPT1                                                    PAGE     2


      SFYZ=(S(2)+HYX+RYX)/(S(2)+SYX+HYX+RYX+S(3)+SZX+HZX+RZX)
      SFYX=(S(2)+HYZ+RYZ)/(S(2)+SYZ+HYZ+RYZ+S(1)+SXZ+HXZ+RXZ)
      SFY3=S(2)/(S(1)+S(2)+S(3))
      SFZ=(S(3)+HZX+HZY+RZX+RZY)/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY)
      SFZX=(S(3)+HZY+RZY)/(S(3)+SZY+HZY+RZY+S(1)+SXY+HXY+RXY)
      SFZY=(S(3)+HZX+RZX)/(S(3)+SZX+HZX+RZX+S(2)+SYX+HYX+RYX)
      SFZ3=S(3)/(S(1)+S(2)+S(3))
      GO TO 68
   68 IF(IM.EQ.4) GO TO 70
   69 IF(IM.NE.5) GO TO 119
   70 GO TO(80,90,100) LH
   80 APDBC=BP*DIV(2)
      GO TO 119
   90 APDAC=AP*DIV(1)
      GO TO 119
  100 APDAC=AP*DIV(1)
      APDBC=BP*DIV(2)
      APDA=AP*DIV(1)
      APDB=BP*DIV(2)
  119 CONTINUE
C     ********************************************************
C
C     COMPUTATION OF VIRGINIA TAX UNDER DIFFERENT FILING ELECTIONS
C
C     ********************************************************
  120 AT1=AP*((2.+SFX)/3.)*T
      ABT=(AP+BP)*(((PROP(1)/(PROP(1)+PROP(2)))+(PAY(1)/(PAY(1)+PAY(2)))
     1+SFXY)/3.)*T
      ACT=(AP+CP)*(((PROP(1)/(PROP(1)+PROP(3)))+(PAY(1)/(PAY(1)+PAY(3)))
     1+SFXZ)/3.)*T
      AT3=(AP+BP+CP)*((PROP(1)+PAY(1)+SFX3)/3.)*T
C     ********************************************************
C
C     COMPUTATION OF STATE 1 TAX UNDER DIFFERENT FILING ELECTIONS
C
C     ********************************************************
      BT1=BP*((2.+SFY)/3.)*R(1)
      BCT=(BP+CP)*(((PROP(2)/(PROP(2)+PROP(3)))+(PAY(2)/(PAY(2)+PAY(3)))
     1+SFYZ)/3.)*R(1)
      BAT=(BP+AP)*(((PROP(2)/(PROP(1)+PROP(2)))+(PAY(2)/(PAY(1)+PAY(2)))
     1+SFYX)/3.)*R(1)
      BT3=(AP+BP+CP)*((PROP(2)+PAY(2)+SFY3)/3.)*R(1)
C     ********************************************************
C
C     COMPUTATION OF STATE 2 TAX UNDER DIFFERENT FILING ELECTIONS
C
C     ********************************************************
      CT1=(APDA+APDB+CP)*((2.+SFZ)/3.)*R(2)
      CAT=(APDBC+CP+AP)*(((PROP(3)/(PROP(1)+PROP(3)))+
     1(PAY(3)/(PAY(1)+PAY(3)))+SFZX)/3.)*R(2)
      CBT=(APDAC+CP+BP)*(((PROP(3)/(PROP(2)+PROP(3)))+
     1(PAY(3)/(PAY(2)+PAY(3)))+SFZY)/3.)*R(2)
      CT3=(AP+BP+CP)*((PROP(3)+PAY(3)+SFZ3)/3.)*R(2)
  200 CONTINUE
C     ********************************************************
C
C     INITIALIZE SALES THROWBACK (OR THROWFORWARD)
```

ILLUSTRATION A.2 (Continued)

```
      SUBROUTINE CPT1                                                PAGE     3


C
C     ****************************************************
  300 TFXC=0.
      TFXS=0.
      TBXC=0.
      TBXS=0.
      TFYC=0.
      TFYS=0.
      TBYC=0.
      TBYS=0.
C     ****************************************************
C
C     WHERE THROWBACK RULE IS UTILIZED, COMPUTATION OF ADDITIONAL
C          TAX RESULTING FROM SALES FACTOR ADJUSTMENT.
C
C     ****************************************************
  301 IF(IT.EQ.1) GO TO 307
      IF(LF.NE.3) GO TO 307
      TFBZX=CP*(SZX/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY))/3.
      TFBZY=CP*(SZY/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY))/3.
      TFBZXC=(CP+BP)*(SZX/(S(3)+SZX+HZX+RZX+S(2)+SYX+HYX+RYX))/3.
      TFBZYC=(CP+AP)*(SZY/(S(3)+SZY+HZY+RZY+S(1)+SXY+HXY+RXY))/3.
      IF(R(2).LT.T) GO TO 302
      TFXC=TFBZXC*T
      TFXS=TFBZX*T
      GO TO 303
  302 TBXC=TFBZXC*R(2)
      TBXS=TFBZX*R(2)
  303 IF(R(2).LT.R(1)) GO TO 304
      TFYC=TFBZYC*R(1)
      TFYS=TFBZY*R(1)
      GO TO 307
  304 TBYC=TFBZYC*R(2)
      TBYS=TFBZY*R(2)
C     ****************************************************
C
C     RECOMPUTATION OF EACH STATE'S TAX WITH THE ADDITIONAL TAX
C          RESULTING FROM SALES FACTOR ADJUSTMENTS INCLUDED.
C
C     ****************************************************
  307 AT1S=AT1+TFXS
      AT1C=AT1+TFXC
      ABTS=ABT+TFXS
      ABTC=ABT+TFXC
      BT1S=BT1+TFYS
      BT1C=BT1+TFYC
      BATS=BAT+TFYS
      BATC=BAT+TFYC
      CT1SX=CT1+TBXS
      CT1SY=CT1+TBYS
      CT1S2=CT1+TBXS+TBYS
      CATC=CAT+TBYC
      CBTC=CBT+TBXC
C     ****************************************************
C
C     TOTAL STATE TAX COMPUTATIONS:
C          TAX=TOTAL STATE TAX LIABILITY
```

ILLUSTRATION A.2 (Continued)

```
      SUBROUTINE CPT1                                                    PAGE    4


C           VAT=VIRGINIA TAX LIABILITY
C           MFIL=CODE INDICATING METHODS USED IN EACH STATE:
C                FIRST DIGIT INDICATES METHOD USED IN VIRGINIA
C                SECOND DIGIT FOR STATE 1
C                THIRD DIGIT FOR STATE 2
C                EACH DIGIT INDICATES THE INCOME FROM WHICH STATES
C                     ARE INCLUDED IN THAT STATE'S RETURN
C                1 - ONLY VIRGINIA INCOME
C                2 - ONLY STATE 1 INCOME
C                3 - ONLY STATE 2 INCOME
C                3 - INCOME OF VIRGINIA AND STATE 1
C                4 - INCOME OF VIRGINIA AND STATE 2
C                5 - INCOME OF STATE 1 AND STATE 2
C                6 - INCOME OF VIRGINIA, STATE 1, AND STATE 2
C
C     ****************************************************
  308 GO TO (311,316,321,321,311,324,327),IM
C     ****************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/SEPARATE
C          OR UNITARY/SEPARATE AND APPORTIONS DIVIDENDS RECEIVED
C
C     ****************************************************
  311 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT3+CT1
      TAX(3)=ABTS+BT3+CT1SX
      TAX(4)=AT3+BT3+CAT
      TAX(5)=ACT+BT3+CAT
      TAX(6)=ACT+BT3+CT1
      TAX(7)=AT1S+BT3+CT1SX
      TAX(8)=AT3+BT3+CBT
      TAX(9)=AT1C+BT3+CBTC
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=ABTS
      VAT(4)=AT3
      VAT(5)=ACT
      VAT(6)=ACT
      VAT(7)=AT1S
      VAT(8)=AT3
      VAT(9)=AT1C
  312 MFIL(1)=666
      MFIL(2)=663
      MFIL(3)=363
      MFIL(4)=664
      MFIL(5)=464
      MFIL(6)=463
      MFIL(7)=163
      MFIL(8)=665
      MFIL(9)=165
      NO=9
      GO TO 358
C     ****************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/
C          OPTIONAL SEPARATE OR CONSOLIDATED
C
```

ILLUSTRATION A.2 (Continued)

```
      SUBROUTINE CPT1                                                    PAGE     5


C     ******************************************************
  316 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT3+CAT
      TAX(3)=AT3+BT3+CBT
      TAX(4)=AT3+BT3+CT1
      TAX(5)=ABT+BT3+CT3
      TAX(6)=ABT+BT3+CAT
      TAX(7)=ABTC+BT3+CBTC
      TAX(8)=ABTS+BT3+CT1SX
      TAX(9)=ACT+BT3+CT3
      TAX(10)=ACT+BT3+CAT
      TAX(11)=ACT+BT3+CBT
      TAX(12)=ACT+BT3+CT1
      TAX(13)=AT1+BT3+CT3
      TAX(14)=AT1+BT3+CAT
      TAX(15)=AT1C+BT3+CBTC
      TAX(16)=AT1S+BT3+CT1SX
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=AT3
      VAT(4)=AT3
      VAT(5)=ABT
      VAT(6)=ABT
      VAT(7)=ABTC
      VAT(8)=ABTS
      VAT(9)=ACT
      VAT(10)=ACT
      VAT(11)=ACT
      VAT(12)=ACT
      VAT(13)=AT1
      VAT(14)=AT1
      VAT(15)=AT1C
      VAT(16)=AT1S
  317 MFIL(1)=666
      MFIL(2)=664
      MFIL(3)=665
      MFIL(4)=663
      MFIL(5)=366
      MFIL(6)=364
      MFIL(7)=365
      MFIL(8)=363
      MFIL(9)=466
      MFIL(10)=464
      MFIL(11)=465
      MFIL(12)=463
      MFIL(13)=166
      MFIL(14)=164
      MFIL(15)=165
      MFIL(16)=163
      NO=16
      GO TO 358
C     ******************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE OPTIONAL/SEPARATE,
C          OR OPTIONAL/SEPARATE AND APPORTIONS DIVIDENDS RECEIVED
C
C     ******************************************************
```

ILLUSTRATION A.2 (Continued)

```
      SUBROUTINE CPT1                                          PAGE    6


  321 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT3+CT1
      TAX(3)=AT3+BATS+CT1SY
      TAX(4)=AT3+BCT+CT1
      TAX(5)=AT3+BT1S+CT1SY
      TAX(6)=AT3+BT3+CAT
      TAX(7)=AT3+BT1C+CATC
      TAX(8)=ABTS+BT3+CT1SX
      TAX(9)=ABTS+BATS+CT1S2
      TAX(10)=ABTS+BCT+CT1SX
      TAX(11)=ABTS+BT1S+CT1S2
      TAX(12)=AT3+BT3+CBT
      TAX(13)=AT3+BCT+CBT
      TAX(14)=ACT+BT3+CT1
      TAX(15)=ACT+BATS+CT1SY
      TAX(16)=ACT+BCT+CT1
      TAX(17)=ACT+BT1S+CT1SY
      TAX(18)=ACT+BT3+CAT
      TAX(19)=ACT+BT1C+CATC
      TAX(20)=AT1S+BT3+CT1SX
      TAX(21)=AT1S+BATS+CT1S2
      TAX(22)=AT1S+BCT+CT1SX
      TAX(23)=AT1S+BT1S+CT1S2
      TAX(24)=AT1C+BT3+CBTC
      TAX(25)=AT1C+BCT+CBTC
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=AT3
      VAT(4)=AT3
      VAT(5)=AT3
      VAT(6)=AT3
      VAT(7)=AT3
      VAT(8)=ABTS
      VAT(9)=ABTS
      VAT(10)=ABTS
      VAT(11)=ABTS
      VAT(12)=AT3
      VAT(13)=AT3
      VAT(14)=ACT
      VAT(15)=ACT
      VAT(16)=ACT
      VAT(17)=ACT
      VAT(18)=ACT
      VAT(19)=ACT
      VAT(20)=AT1S
      VAT(21)=AT1S
      VAT(22)=AT1S
      VAT(23)=AT1S
      VAT(24)=AT1C
      VAT(25)=AT1C
  322 MFIL(1)=666
      MFIL(2)=663
      MFIL(3)=633
      MFIL(4)=653
      MFIL(5)=623
      MFIL(6)=664
      MFIL(7)=624
```

ILLUSTRATION A.2 (Continued)

```
      SUBROUTINE CPT1                                                    PAGE     7


      MFIL(8)=363
      MFIL(9)=333
      MFIL(10)=353
      MFIL(11)=323
      MFIL(12)=665
      MFIL(13)=655
      MFIL(14)=463
      MFIL(15)=433
      MFIL(16)=453
      MFIL(17)=423
      MFIL(18)=464
      MFIL(19)=424
      MFIL(20)=163
      MFIL(21)=133
      MFIL(22)=153
      MFIL(23)=123
      MFIL(24)=165
      MFIL(25)=155
      NO=25
      GO TO 358
C     ****************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE SEPARATE/SEPARATE
C
C     ****************************************************
  324 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT1C+CATC
      TAX(3)=ACT+BT1C+CATC
      TAX(4)=AT3+BCT+CBT
      TAX(5)=AT1C+BCT+CBTC
      TAX(6)=AT3+BATS+CT1SY
      TAX(7)=ABTS+BATS+CT1S2
      TAX(8)=AT3+BT1S+CT1SY
      TAX(9)=ABTS+BT1S+CT1S2
      TAX(10)=ACT+BT1S+CT1SY
      TAX(11)=AT1S+BT1S+CT1S2
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=ACT
      VAT(4)=AT3
      VAT(5)=AT1C
      VAT(6)=AT3
      VAT(7)=ABTS
      VAT(8)=AT3
      VAT(9)=ABTS
      VAT(10)=ACT
      VAT(11)=AT1S
  326 MFIL(1)=666
      MFIL(2)=624
      MFIL(3)=424
      MFIL(4)=655
      MFIL(5)=155
      MFIL(6)=633
      MFIL(7)=333
      MFIL(8)=623
      MFIL(9)=323
      MFIL(10)=423
```

ILLUSTRATION A.2 (Continued)

```
      SUBROUTINE CPT1                                                    PAGE     8


      MFIL(11)=123
      NO=11
      GO TO 358
C     ******************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/UNITARY
C
C     ******************************************************
  327 TAX(1)=AT3+BT3+CT3
      TAX(2)=ABT+BT3+CT3
      TAX(3)=ACT+BT3+CT3
      TAX(4)=AT1+BT3+CT3
  328 VAT(1)=AT3
      VAT(2)=ABT
      VAT(3)=ACT
      VAT(4)=AT1
  329 MFIL(1)=666
      MFIL(2)=366
      MFIL(3)=466
      MFIL(4)=166
      NO=4
      GO TO 358
C     ******************************************************
C
C     DETERMINATION OF THE MINIMUM POSSIBLE TOTAL STATE TAX:  OTAX
C
C     ******************************************************
  358 J=1
      OTAX=TAX(1)
      OVAT=VAT(1)
      MOFIL(1)=MFIL(1)
  360 DO 370 I=2,NO
      IF(OTAX.LT.TAX(I)) GO TO 370
      IF(OTAX.GT.TAX(I)) GO TO 365
      IF(OVAT.GT.VAT(I)) GO TO 365
      J=J+1
      MOFIL(J)=MFIL(I)
      GO TO 370
  365 OTAX=TAX(I)
      OVAT=VAT(I)
      MOFIL(1)=MFIL(I)
      J=1
  370 CONTINUE
C     ******************************************************
C
C     DETERMINATION OF THE MAXIMUM POSSIBLE TOTAL STATE TAX:  GTAX
C
C     ******************************************************
  458 N=1
      GTAX=TAX(1)
      GVAT=VAT(1)
      MOFL(1)=MFIL(1)
  460 DO 470 I=2,NO
      IF(GTAX.GT.TAX(I)) GO TO 470
      IF(GTAX.LT.TAX(I)) GO TO 465
      IF(GVAT.LT.VAT(I)) GO TO 465
      N=N+1
```

ILLUSTRATION A.2 (Continued)

```
      SUBROUTINE CPT1                                                    PAGE     9


      MOFL(N)=MFIL(I)
      GO TO 470
  465 GTAX=TAX(I)
      GVAT=VAT(I)
      MOFL(1)=MFIL(I)
      N=1
  470 CONTINUE
C     ******************************************************
C
C     COMPUTATION OF THE PERCENTAGE COST OF NOT PLANNING:  TSP
C
C     ******************************************************
  510 TS=GTAX-OTAX
      TSP=(TS/OTAX)*100
      VTS=GVAT-OVAT
      VTSP=(VTS/OVAT)*100
C     ******************************************************
C
C     WRITE THE MINIMUM POSSIBLE TAX, THE MAXIMUM POSSIBLE TAX,
C          AND THE COST OF NOT PLANNING
C
C     ******************************************************
  519 WRITE(7,2101) IT,IM,LF,LH,IO,IR,MOFIL(1),OTAX,MOFL(1),
     1GTAX,TS,TSP
 2101 FORMAT (3X,I1,I1,I1,I1,I1,I1,4X,I3,4X,F5.2,
     14X,I3,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,
     24X,F5.2,4X,F7.2)
 2150 FORMAT (13F6.2)
      RETURN
      END
```

ILLUSTRATION A.3

PROGRAM CODE FOR PRTAX1

```
      SUBROUTINE PRTAX1                                                PAGE     1


      SUBROUTINE PRTAX1
     1(TITLE, TITLE2, TP, VP, IK, IX, IY, IZ)
C     ***************************************************
C
C     THE PURPOSE OF THIS SUBROUTINE IS TO (1) AVERAGE THE RESULTS
C     OF THE INDIVIDUAL MEASURMENTS TABULATED BY THE MAIN PROGRAM
C     AND  (2) PRINT THOSE AVERAGES.
C
C     ***************************************************
      DIMENSION TP(7,2,3), VP(7,2,3), TATP(9,9)
      DIMENSION TAVP(9,9), ATTP(9,9), ATVP(9,9)
      DIMENSION ATP(9,9,9), AVP(9,9,9)
      DIMENSION IK(7,2,3)
      CHARACTER*20 TITLE(7,2), TITLE2(2)
      DO 750 JA=1, IX
      DO 750 JB=1, IY
      TATP(JA,JB)=0.
      TAVP(JA,JB)=0.
  750 CONTINUE
      DO 800 IA=1, IX
      DO 800 IB=1, IY
      DO 790 IC=1, IZ
      IF (IK(IA,IB,IC).EQ.0.) GO TO 790
C     ***************************************************
C     ************** COMPUTE AVERAGES *******************
C     ***************************************************
      ATP(IA,IB,IC)=TP(IA,IB,IC)/IK(IA,IB,IC)
      AVP(IA,IB,IC)=VP(IA,IB,IC)/IK(IA,IB,IC)
      TATP(IA,IB)=TATP(IA,IB)+ATP(IA,IB,IC)
      TAVP(IA,IB)=TAVP(IA,IB)+AVP(IA,IB,IC)
  790 CONTINUE
      IF (TATP(IA,IB).EQ.0) GO TO 800
      ATTP(IA,IB)=TATP(IA,IB)/IZ
      ATVP(IA,IB)=TAVP(IA,IB)/IZ
C     ***************************************************
C     ***************** PRINT RESULTS *******************
C     ***************************************************
      WRITE(7,2302) TITLE(IA,IB),
     1ATP(IA,IB,1), ATP(IA,IB,2), ATP(IA,IB,3), ATTP(IA,IB)
C     ***************************************************
C
C     WHEN USED WITH ADOPT1 OR TRANS1, THIS SUBROUTINE ALSO PRINTS
C     AVERAGES FOR VIRGINIA TAX, AND THE WRITE STATEMENT ABOVE IS
C     REPLACED WITH:
C
C     WRITE(7,2304) TITLE(IA,ID),
C    1ATP(IA,IB,1,L), ATP(IA,IB,2,L), ATP(IA,IB,3,L), ATTP(IA,IB,L),
C    2AVP(IA,IB,1,L), AVP(IA,IB,2,L), AVP(IA,IB,3,L), ATVP(IA,IB,L)
C
C     ***************************************************
  800 CONTINUE
 2302 FORMAT ('0',A20,3X,F6.2,3X,F6.2,3X,F6.2,3X,F6.2,
     13X,F6.2,3X,F6.2,3X,F6.2,3X,F6.2)
      RETURN
      END
```

ILLUSTRATION A.4

PROGRAM CODE FOR PRTAX2

```
      SUBROUTINE PRTAX2                                                PAGE     1


      SUBROUTINE PRTAX2
     1(TITLE, TITLE2, TP, VP, IK, IX, IY, IZ, IW)
C     ******************************************************
C
C     THE PURPOSE OF THIS PROGRAM IS TO (1) AVERAGE THE RESULTS OF
C     THE INDIVIDUAL MEASURMENTS TABULATED BY THE MAIN PROGRAM AND
C     (2) PRINT THOSE RESULTS.
C
C     ******************************************************
      DIMENSION TP(7,2,3,3), VP(7,2,3,3), TATP(9,9,9)
      DIMENSION TAVP(9,9,9), ATTP(9,9,9), ATVP(9,9,9)
      DIMENSION ATP(9,9,9,9), AVP(9,9,9,9), IK(7,2,3,3)
      CHARACTER*20 TITLE(7,2), TITLE2(2)
      DO 850 JA=1,IX
      DO 850 JB=1,IY
      DO 850 JC=1,IZ
      TATP(JA,JB,JC)=0.
      TAVP(JA,JB,JC)=0.
  850 CONTINUE
      DO 890 IA=1,IX
      DO 890 IB=1,IY
      DO 880 IC=1,IZ
      IF (IK(IA,IB,IC,1).EQ.0.) GO TO 880
C     ******************************************************
C     ***************** COMPUTE AVERAGES *******************
C     ******************************************************
      ATP(IA,IB,IC,1)=TP(IA,IB,IC,1)/IK(IA,IB,IC,1)
      ATP(IA,IB,IC,2)=(TP(IA,IB,IC,2)+TP(IA,IB,IC,3))/
     1(IK(IA,IB,IC,2)+IK(IA,IB,IC,3))
      AVP(IA,IB,IC,1)=VP(IA,IB,IC,1)/IK(IA,IB,IC,1)
      AVP(IA,IB,IC,2)=(VP(IA,IB,IC,2)+VP(IA,IB,IC,3))/
     1(IK(IA,IB,IC,2)+IK(IA,IB,IC,3))
      TATP(IA,IB,1)=TATP(IA,IB,1)+ATP(IA,IB,IC,1)
      TATP(IA,IB,2)=TATP(IA,IB,2)+ATP(IA,IB,IC,2)
      TAVP(IA,IB,1)=TAVP(IA,IB,1)+AVP(IA,IB,IC,1)
      TAVP(IA,IB,2)=TAVP(IA,IB,2)+AVP(IA,IB,IC,2)
  880 CONTINUE
      DO 890 L=1,2
      IF (TATP(IA,IB,L).EQ.0.) GO TO 890
      ATTP(IA,IB,L)=TATP(IA,IB,L)/IZ
      ATVP(IA,IB,L)=TAVP(IA,IB,L)/IZ
      ID=IB
      IF (IY.EQ.1) ID=L
C     ******************************************************
C     ***************** PRINT RESULTS **********************
C     ******************************************************
      WRITE(7,2304) TITLE(IA,ID),
     1ATP(IA,IB,1,L), ATP(IA,IB,2,L), ATP(IA,IB,3,L), ATTP(IA,IB,L)
C     ******************************************************
C
C     WHEN THIS SUBROUTINE IS USED WITH ADOPT1 OR TRANS1,
C     IT ALSO COMPUTES AND PRINTS THE AVERAGES FOR VIRGINIA
C     TAX.  THE WRITE STATEMENT ABOVE IS REPLACED WITH:
C
C     WRITE(7,2304) TITLE(IA,ID),
C    1ATP(IA,IB,1,L), ATP(IA,IB,2,L), ATP(IA,IB,3,L), ATTP(IA,IB,L),
C    2AVP(IA,IB,1,L), AVP(IA,IB,2,L), AVP(IA,IB,3,L), ATTP(IA,IB,L)
```

ILLUSTRATION A.4 (Continued)

```
      SUBROUTINE PRTAX2                                              PAGE     2


C
C     ***************************************************
  890 CONTINUE
 2304 FORMAT('0',A20,3X,F6.2,3X,F6.2,3X,F6.2,
     1 3X,F6.2,3X,F6.2,3X,F6.2,3X,F6.2,3X,F6.2)
      RETURN
      END
```

TABLE A.1

SAMPLE OUTPUT FROM COMPUTER MODEL PLAN1

COST OF NOT PLANNING (CNP)

SITUATION	MIN METH	MIN TAX	MAX METH	MAX TAX	CNP	%CNP
111111	163	8.27	663	9.60	1.33	16.06
111112	163	9.05	663	10.38	1.33	14.68
111113	163	9.83	663	11.16	1.33	13.52
111121	165	8.60	663	9.60	1.00	11.68
111122	165	9.23	663	10.38	1.15	12.41
111123	165	9.87	663	11.16	1.29	13.04
111131	163	8.20	666	9.26	1.06	12.87
111132	163	8.98	666	10.20	1.22	13.61
111133	163	9.76	666	11.14	1.39	14.23
111211	165	8.42	663	9.60	1.18	14.07
111212	165	9.12	663	10.38	1.26	13.87
111213	165	9.81	663	11.16	1.34	13.70
111221	165	8.80	463	9.82	1.02	11.56
111222	165	9.39	463	10.59	1.21	12.86
111223	165	9.98	463	11.37	1.40	14.01
111231	163	8.50	666	9.26	0.76	8.89
111232	163	9.28	666	10.20	0.92	9.94
111233	163	10.06	666	11.14	1.09	10.83
111311	163	8.24	665	9.42	1.18	14.37
111312	163	9.02	665	10.28	1.26	14.02
111313	163	9.79	665	11.14	1.34	13.73
111321	165	8.71	666	9.37	0.66	7.52
111322	165	9.43	666	10.20	0.77	8.19
111323	165	10.14	666	11.03	0.89	8.76
111331	463	8.02	666	9.14	1.12	13.96
111332	463	8.80	666	10.20	1.40	15.91
111333	463	9.58	666	11.26	1.68	17.54
112111	165	8.60	663	9.60	1.00	11.64
112112	165	9.30	663	10.38	1.08	11.64
112113	165	10.00	663	11.16	1.16	11.63
112121	165	9.17	463	9.68	0.52	5.64
112122	165	9.81	463	10.46	0.66	6.68
112123	165	10.44	463	11.24	0.79	7.60
112131	463	8.57	666	9.26	0.68	7.97
112132	463	9.35	666	10.20	0.85	9.09
112133	463	10.13	666	11.14	1.02	10.04
112211	165	8.88	663	9.60	0.72	8.13
112212	165	9.55	663	10.38	0.83	8.73
112213	165	10.21	663	11.16	0.94	9.25
112221	665	9.28	163	9.78	0.51	5.45

TABLE A.2

SAMPLE OUTPUT FROM COMPUTER MODEL PLAN1

COST OF NOT PLANNING AVERAGES

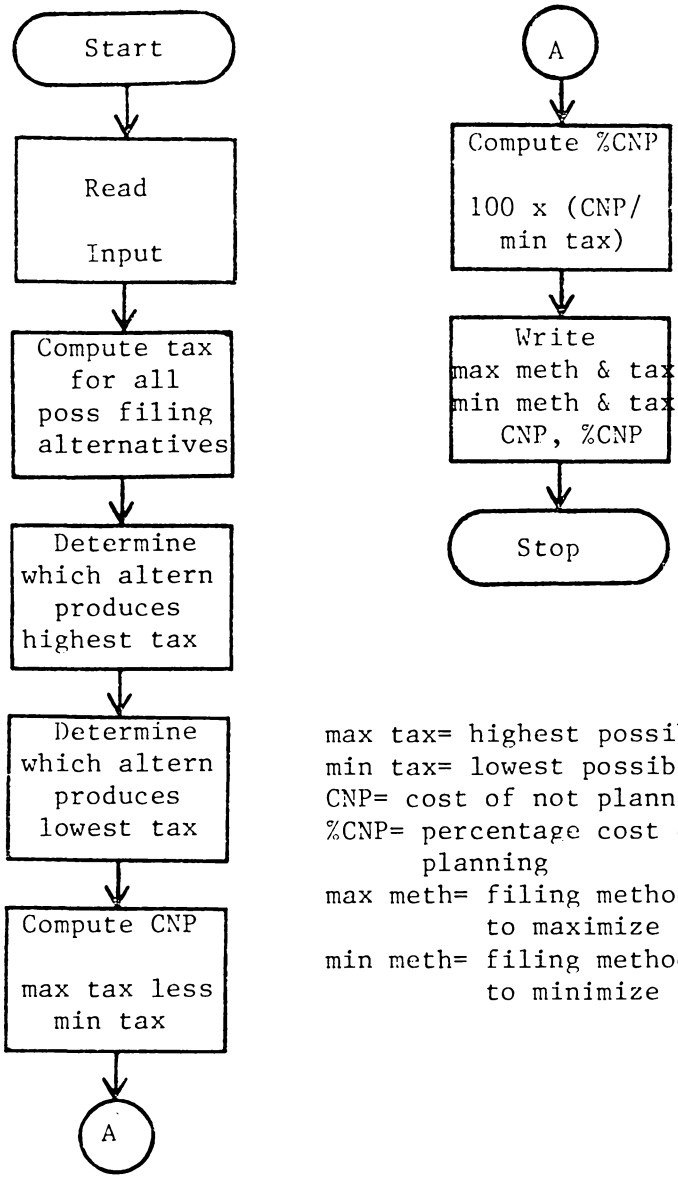
ATTRIBUTE	TAX RATE IN STATE 2 4%	6%	8%	ALL
ALL SITUATIONS	15.06	16.02	16.75	15.94
STATE 2 - NO T/B	14.65	15.35	16.08	15.36
STATE 2 - T/B	15.54	16.80	17.53	16.62
UNIT/SEP	10.74	11.46	12.07	11.42
UNIT/SEP,T/B	10.46	11.44	11.79	11.23
UNIT/OPT	12.33	13.19	13.88	13.13
UNIT/OPT,T/B	12.50	13.68	14.07	13.41
OPT/SEP	17.61	17.15	17.02	17.26
OPT/SEP,T/B	16.81	16.72	16.12	16.55
OPT/SEP,APP DIV	23.52	25.55	27.42	25.50
OPT/SEP,APP DIV,T/B	23.77	26.44	28.16	26.12
UNIT/SEP,APP DIV	16.94	19.96	22.50	19.80
UNIT/SEP,APP DIV,T/B	17.11	20.43	22.90	20.15
SEP/SEP	14.37	13.91	14.01	14.10
SEP/SEP,T/B	12.58	12.11	12.14	12.28
UNIT/UNIT	7.05	6.25	5.64	6.31
VA HQ	14.39	14.69	14.93	14.67
NON-VA HQ	15.39	16.69	17.66	16.58
VA FAC	16.46	17.43	18.49	17.46
NON-VA FAC	14.36	15.32	15.88	15.18

APPENDIX B

COMPUTER MODEL CPTAX1

This appendix provides documentation supporting CPTAX1. CPTAX1 performs computations similar to those made by CPT1; however, CPTAX1 is an independent main program and not a subroutine. Based on the facts of an individual situation, CPTAX1 is designed to compute a business's cost of not planning.

A flowchart overview of CPTAX1 is provided in Figure B.1. A listing of the program code is given in Illustration B.1, and Tables B.1 and B.2 provide samples of the program's input and output.



max tax= highest possible tax
min tax= lowest possible tax
CNP= cost of not planning
%CNP= percentage cost of not planning
max meth= filing method used to maximize tax
min meth= filing method used to minimize tax

FIGURE B.1

FLOWCHART OVERVIEW OF CPTAX1

ILLUSTRATION B.1

PROGRAM CODE FOR CPTAX1

```
C     ********** CPTAX1 ************************************ PAGE     1


C     ********** CPTAX1 ******************************************
C     ***************************************************************
C     ***************************************************************
C
C     THE PURPOSE OF THIS PROGRAM IS TO
C
C     (1)  CALCULATE TO TOTAL STATE TAX LIABILITY FOR A BUSINESS UNDER
C     EACH ALTERNATE SUBUNIT ORGANIZATION AND FILING METHOD ELECTION
C     AVAILABLE TO THAT BUSINESS,
C
C     (2)  DETERMINE THE PARTICULAR COMBINATION OF SUBUNIT ORGANIZATION
C     AND FILING METHOD ELECTIONS THAT GENERATE THE LOWEST TOTAL STATE
C     TAX LIABILITY FOR THE BUSINESS,
C
C     (3)  DETERMINE THE PARTICULAR COMBINATION OF SUBUNIT ORGANIZATION
C     AND FILING METHOD EXECTIONS THAT GENERATE THE GREATEST TOTAL STATE
C     TAX LIABILITY FOR THE BUSINESS,
C
C     (4)  COMPUTE THE POTENTIAL COST OF NOT PLANNING, WHICH IS THE
C     DIFFERENCE BETWEEN THE GREATEST POTENTIAL TAX LIABILITY AND THE
C     LOWEST POSSIBLE TAX LIABILITY,
C
C     (5)  COMPUTE THE PERCENTAGE COST OF NOT PLANNING, WHICH IS THE
C     COST OF NOT PLANNING STATED AS A PERCENTAGE OF THE MINIMIZED TAX.
C
C     THE COMPUTATIONS ARE MADE FOR A BUSINESS WHICH OPERATES IN VIRGINIA
C     AND TWO OTHER STATES.
C
C
C     INPUTS TO THE PROGRAM CONSIST OF THE FOLLOWING:
C
C     CODE INDICATING THE TAX LAWS AND RATES IN THE OTHER TWO STATES:
C          IT,IM,R(1),R(2)
C
C          IT - THROWBACK RULE UTILIZATION BY STATE 2:
C               1 - YES
C               2 - NO
C          IM - TAXING METHODS USED IN STATES 1 & 2
C               1 - UNITARY / SEPARATE
C               2 - UNITARY / OPTIONAL
C               3 - OPTIONAL / SEPARATE
C               4 - OPTIONAL / SEPARATE, APPORTIONS DIVIDENDS
C               5 - UNITARY / SEPARATE, APPORTIONS DIVIDENDS
C               6 - SEPARATE / SEPARATE
C               7 - UNITARY / UNITARY
C           R(1), R(2) - TAX RATES IN STATES 1 & 2
C
C     LOCATION OF BUSINESS'S FACTORY, HEADQUARTERS, AND OTHER IMPORTANT
C          ACTIVITIES:  LF,LH,IO
C
C          LF - FACTORY LOCATION          ,
C          LH - HEADQUARTERS LOCATION
C          IO - LOCATION OF OTHER ACTIVITIES
C               WHERE
C               1 - VIRGINIA
C               2 - STATE 1
C               3 - STATE 2
```

ILLUSTRATION B.1 (Continued)

```
C     ********** CPTAX1 ********** PAGE     2


C
C     EXTERNAL SALES AND PERCENT OF PROPERTY AND PAYROLL IN EACH STATE:
C          S, PROP, PAY
C
C          S(N) - EXTERNAL SALES WITHIN STATE
C          PROP(N) - PERCENT OF TOTAL PROPERTY WITHIN STATE (10%=.10)
C          PAY(N) - PERCENT OF TOTAL PAYROLL WITHIN STATE
C               WHERE N=
C               1 - VIRGINIA
C               2 - STATE 1
C               3 - STATE 2
C
C     SEPARATE ACCOUNTING PROFIT FOR THE BUSINESS'S ACTIVITIES IN EACH
C          STATE:  AP, BP, CP
C
C          AP - VIRGINIA PROFIT
C          BP - STATE 1 PROFIT
C          CP - STATE 2 PROFIT
C
C     INTERNAL SALES AND EXPENSE ALLOCATIONS BETWEEN SUBUNITS IN
C          DIFFERENT STATES:
C          SXY,SYZ,SYZ,SYX,SZX,SZY  --INTERCOMPANY SALES OF GOODS
C          HXY,HXZ,HYZ,HYX,HZX,HXY  --HEADQUARTERS EXPENSE ALLOCATION
C          RXY,RXZ,HYZ,HYX,HZX,HZY  --OTHER ACTIVITY EXPANSE ALLOCATION
C
C               WHERE
C               XY - INTERCOMPANY SALES BETWEEN VIRGINIA AND STATE 1
C               XZ - INTERCOMPANY SALES BETWEEN VIRGINIA AND STATE 2
C               YZ - INTERCOMPANY SALES BETWEEN STATE 1 AND STATE 2
C               YX - INTERCOMPANY SALES BETWEEN STATE 1 AND VIRGINIA
C               ZX - INTERCOMPANY SALES BETWEEN STATE 2 AND VIRGINIA
C               ZY - INTERCOMPANY SALES BETWEEN STATE 2 AND STATE 1
C
C     ************************************************************************
      DIMENSION RATE(3), TAX(100), VAT(100), TX(100), PROP(3)
      DIMENSION MFIL(100), MCFIL(100), MFL(100), MOFL(100)
      DIMENSION PAY(3), S(3), R(2), DIV(2)
      READ(8,*) IT,IM
      READ(8,*) R(1),R(2)
      READ(8,*) LF,LH,IO
      READ(8,*) S(1),S(2),S(3)
      READ(8,*) PROP(1),PROP(2),PROP(3)
      READ(8,*) PAY(1),PAY(2),PAY(3)
      READ(8,*) AP,BP,CP
      READ(8,*) SXY,SXZ,HXY,HXZ,RXY,RXZ
      READ(8,*) SYZ,SYX,HYZ,HYX,RYZ,RYX
      READ(8,*) SZX,SZY,HZX,HZY,RZX,RZY
      APDA=0.
      APDB=0.
      APDAC=0.
      APDBC=0.
      T=.06
      DIV(1)=1.-(T+((1.-T)*.46))
      DIV(2)=1.-(R(1)+((1.-R(1))*.46))
C     ************************************************************
C
C     COMPUTATION OF POTENTIAL SALES FACTORS TO BE UTILIZED
```

ILLUSTRATION B.1 (Continued)

```
C      ********** CPTAX1 ********** PAGE     3


C      UNDER DIFFERENT FILING ELECTIONS.
C
C      ****************************************************************
       SFX=(S(1)+HXY+HXZ+RXY+RXZ)/(S(1)+SXY+SXZ+HXY+HXZ+RXY+RXZ)
       SFXY=(S(1)+HXZ+RXZ)/(S(1)+SXZ+HXZ+RXZ+S(2)+SYZ+HYZ+RYZ)
       SFXZ=(S(1)+HXY+RXY)/(S(1)+SXY+HXY+RXY+S(3)+SZY+HZY+RZY)
       SFX3=S(1)/(S(1)+S(2)+S(3))
       SFY=(S(2)+HYZ+HYX+RYZ+RYX)/(S(2)+SYZ+SYX+HYZ+HYX+RYZ+RYX)
       SFYZ=(S(2)+HYX+RYX)/(S(2)+SYX+HYX+RYX+S(3)+SZX+HZX+RZX)
       SFYX=(S(2)+HYZ+RYZ)/(S(2)+SYZ+HYZ+RYZ+S(1)+SXZ+HXZ+RXZ)
       SFY3=S(2)/(S(1)+S(2)+S(3))
       SFZ=(S(3)+HZX+HZY+RZX+RZY)/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY)
       SFZX=(S(3)+HZY+RZY)/(S(3)+SZY+HZY+RZY+S(1)+SXY+HXY+RXY)
       SFZY=(S(3)+HZX+RZX)/(S(3)+SZX+HZX+RZX+S(2)+SYX+HYX+RYX)
       SFZ3=S(3)/(S(1)+S(2)+S(3))
       GO TO 68
    68 IF(IM.EQ.4) GO TO 70
    69 IF(IM.NE.5) GO TO 119
    70 GO TO(80,90,100) LH
    80 APDBC=BP*DIV(2)
       GO TO 119
    90 APDAC=AP*DIV(1)
       GO TO 119
   100 APDAC=AP*DIV(1)
       APDBC=BP*DIV(2)
       APDA=AP*DIV(1)
       APDB=BP*DIV(2)
   119 CONTINUE
C      ****************************************************************
C
C      COMPUTATION OF VIRGINIA TAX UNDER DIFFERENT FILING ELECTIONS
C
C      ****************************************************************
   120 AT1=AP*((2.+SFX)/3.)*T
       ABT=(AP+BP)*(((PROP(1)/(PROP(1)+PROP(2)))+(PAY(1)/(PAY(1)+PAY(2)))
      1+SFXY)/3.)*T
       ACT=(AP+CP)*(((PROP(1)/(PROP(1)+PROP(3)))+(PAY(1)/(PAY(1)+PAY(3)))
      1+SFXZ)/3.)*T
       AT3=(AP+BP+CP)*((PROP(1)+PAY(1)+SFX3)/3.)*T
C      ****************************************************************
C
C      COMPUTATION OF STATE 1 TAX UNDER DIFFERENT FILING ELECTIONS
C
C      ****************************************************************
       BT1=BP*((2.+SFY)/3.)*R(1)
       BCT=(BP+CP)*(((PROP(2)/(PROP(2)+PROP(3)))+(PAY(2)/(PAY(2)+PAY(3)))
      1+SFYZ)/3.)*R(1)
       BAT=(BP+AP)*(((PROP(2)/(PROP(1)+PROP(2)))+(PAY(2)/(PAY(1)+PAY(2)))
      1+SFYX)/3.)*R(1)
       BT3=(AP+BP+CP)*((PROP(2)+PAY(2)+SFY3)/3.)*R(1)
C      ****************************************************************
C
C      COMPUTATION OF STATE 2 TAX UNDER DIFFERENT FILING ELECTIONS
C
C      ****************************************************************
       CT1=(APDA+APDB+CP)*((2.+SFZ)/3.)*R(2)
       CAT=(APDBC+CP+AP)*(((PROP(3)/(PROP(1)+PROP(3)))+
```

ILLUSTRATION B.1 (Continued)

```
C      ********** CPTAX1 ********** PAGE     4


     1(PAY(3)/(PAY(1)+PAY(3)))+SFZX)/3.)*R(2)
      CBT=(APDAC+CP+BP)*(((PROP(3)/(PROP(2)+PROP(3)))+
     1(PAY(3)/(PAY(2)+PAY(3)))+SFZY)/3.)*R(2)
      CT3=(AP+BP+CP)*((PROP(3)+PAY(3)+SFZ3)/3.)*R(2)
  200 CONTINUE
C     ****************************************************************
C
C     INITIALIZE SALES THROWBACK (OR THROWFORWARD)
C
C     ****************************************************************
  300 TFXC=0.
      TFXS=0.
      TBXC=0.
      TBXS=0.
      TFYC=0.
      TFYS=0.
      TBYC=0.
      TBYS=0.
C     ****************************************************************
C
C     WHERE THROWBACK RULE IS UTILIZED, COMPUTATION OF ADDITIONAL
C     TAX RESULTING FROM SALES FACTOR ADJUSTMENT.
C
C     ****************************************************************
  301 IF(IT.EQ.1) GO TO 307
      IF(LF.NE.3) GO TO 307
      TFBZX=CP*(SZX/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY))/3.
      TFBZY=CP*(SZY/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY))/3.
      TFBZXC=(CP+BP)*(SZX/(S(3)+SZX+HZX+RZX+S(2)+SYX+HYX+RYX))/3.
      TFBZYC=(CP+AP)*(SZY/(S(3)+SZY+HZY+RZY+S(1)+SXY+HXY+RXY))/3.
      IF(R(2).LT.T) GO TO 302
      TFXC=TFBZXC*T
      TFXS=TFBZX*T
      GO TO 303
  302 TBXC=TFBZXC*R(2)
      TBXS=TFBZX*R(2)
  303 IF(R(2).LT.R(1)) GO TO 304
      TFYC=TFBZYC*R(1)
      TFYS=TFBZY*R(1)
      GO TO 307
  304 TBYC=TFBZYC*R(2)
      TBYS=TFBZY*R(2)
C     ****************************************************************
C
C     RECOMPUTATION OF EACH STATE'S TAX WITH THE ADDITIONAL TAX
C     RESULTING FROM SALES FACTOR ADJUSTMENTS INCLUDED.
C
C     ****************************************************************
  307 AT1S=AT1+TFXS
      AT1C=AT1+TFXC
      ABTS=ABT+TFXS
      ABTC=ABT+TFXC
      BT1S=BT1+TFYS
      BT1C=BT1+TFYC
      BATS=BAT+TFYS
      BATC=BAT+TFYC
      CT1SX=CT1+TBXS
```

ILLUSTRATION B.1 (Continued)

```
C     ********** CPTAX1 ********************************** PAGE    5


      CT1SY=CT1+TBYS
      CT1S2=CT1+TBXS+TBYS
      CATC=CAT+TBYC
      CBTC=CBT+TBXC
C     ************************************************************
C
C     TOTAL STATE TAX COMPUTATIONS:
C          TAX=TOTAL STATE TAX LIABILITY
C          VAT=VIRGINIA TAX LIABILITY
C          MFIL=CODE INDICATING METHODS USED IN EACH STATE:
C               FIRST DIGIT INDICATES METHOD USED IN VIRGINIA
C               SECOND DIGIT FOR STATE 1
C               THIRD DIGIT FOR STATE 2
C               EACH DIGIT INDICATES THE INCOME FROM WHICH STATES
C                    ARE INCLUDED IN THAT STATE'S RETURN
C               1 - ONLY VIRGINIA INCOME
C               2 - ONLY STATE 1 INCOME
C               3 - ONLY STATE 2 INCOME
C               3 - INCOME OF VIRGINIA AND STATE 1
C               4 - INCOME OF VIRGINIA AND STATE 2
C               5 - INCOME OF STATE 1 AND STATE 2
C               6 - INCOME OF VIRGINIA, STATE 1, AND STATE 2
C
C     ********************************************************************
  308 GO TO (311,316,321,321,311,324,327),IM
C     ********************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/SEPARATE
C          OR UNITARY/SEPARATE AND APPORTIONS DIVIDENDS RECEIVED
C
C     ********************************************************************
  311 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT3+CT1
      TAX(3)=ABTS+BT3+CT1SX
      TAX(4)=AT3+BT3+CAT
      TAX(5)=ACT+BT3+CAT
      TAX(6)=ACT+BT3+CT1
      TAX(7)=AT1S+BT3+CT1SX
      TAX(8)=AT3+BT3+CBT
      TAX(9)=AT1C+BT3+CBTC
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=ABTS
      VAT(4)=AT3
      VAT(5)=ACT
      VAT(6)=ACT
      VAT(7)=AT1S
      VAT(8)=AT3
      VAT(9)=AT1C
  312 MFIL(1)=666
      MFIL(2)=663
      MFIL(3)=363
      MFIL(4)=664
      MFIL(5)=464
      MFIL(6)=463
      MFIL(7)=163
      MFIL(8)=665
```

ILLUSTRATION B.1 (Continued)

```
C      ********************* CPTAX1 ************************************ PAGE     6


       MFIL(9)=165
       NO=9
       GO TO 358
C      ****************************************************************
C
C      TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/
C           OPTIONAL SEPARATE OR CONSOLIDATED
C
C      ****************************************************************
  316  TAX(1)=AT3+BT3+CT3
       TAX(2)=AT3+BT3+CAT
       TAX(3)=AT3+BT3+CBT
       TAX(4)=AT3+BT3+CT1
       TAX(5)=ABT+BT3+CT3
       TAX(6)=ABT+BT3+CAT
       TAX(7)=ABTC+BT3+CBTC
       TAX(8)=ABTS+BT3+CT1SX
       TAX(9)=ACT+BT3+CT3
       TAX(10)=ACT+BT3+CAT
       TAX(11)=ACT+BT3+CBT
       TAX(12)=ACT+BT3+CT1
       TAX(13)=AT1+BT3+CT3
       TAX(14)=AT1+BT3+CAT
       TAX(15)=AT1C+BT3+CBTC
       TAX(16)=AT1S+BT3+CT1SX
       VAT(1)=AT3
       VAT(2)=AT3
       VAT(3)=AT3
       VAT(4)=AT3
       VAT(5)=ABT
       VAT(6)=ABT
       VAT(7)=ABTC
       VAT(8)=ABTS
       VAT(9)=ACT
       VAT(10)=ACT
       VAT(11)=ACT
       VAT(12)=ACT
       VAT(13)=AT1
       VAT(14)=AT1
       VAT(15)=AT1C
       VAT(16)=AT1S
  317  MFIL(1)=666
       MFIL(2)=664
       MFIL(3)=665
       MFIL(4)=663
       MFIL(5)=366
       MFIL(6)=364
       MFIL(7)=365
       MFIL(8)=363
       MFIL(9)=466
       MFIL(10)=464
       MFIL(11)=465
       MFIL(12)=463
       MFIL(13)=166
       MFIL(14)=164
       MFIL(15)=165
       MFIL(16)=163
```

ILLUSTRATION B.1 (Continued)

```
C      ********** CPTAX1 ********** PAGE     7


       NO=16
       GO TO 358
C      ******************************************************************
C
C      TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE OPTIONAL/
C           SEPARATE, OR OPTIONAL/SEPARATE AND APPORTIONS DIVIDENDS
C           RECEIVED
C
C      ******************************************************************
  321  TAX(1)=AT3+BT3+CT3
       TAX(2)=AT3+BT3+CT1
       TAX(3)=AT3+BATS+CT1SY
       TAX(4)=AT3+BCT+CT1
       TAX(5)=AT3+BT1S+CT1SY
       TAX(6)=AT3+BT3+CAT
       TAX(7)=AT3+BT1C+CATC
       TAX(8)=ABTS+BT3+CT1SX
       TAX(9)=ABTS+BATS+CT1S2
       TAX(10)=ABTS+BCT+CT1SX
       TAX(11)=ABTS+BT1S+CT1S2
       TAX(12)=AT3+BT3+CBT
       TAX(13)=AT3+BCT+CBT
       TAX(14)=ACT+BT3+CT1
       TAX(15)=ACT+BATS+CT1SY
       TAX(16)=ACT+BCT+CT1
       TAX(17)=ACT+BT1S+CT1SY
       TAX(18)=ACT+BT3+CAT
       TAX(19)=ACT+BT1C+CATC
       TAX(20)=AT1S+BT3+CT1SX
       TAX(21)=AT1S+BATS+CT1S2
       TAX(22)=AT1S+BCT+CT1SX
       TAX(23)=AT1S+BT1S+CT1S2
       TAX(24)=AT1C+BT3+CBTC
       TAX(25)=AT1C+BCT+CBTC
       VAT(1)=AT3
       VAT(2)=AT3
       VAT(3)=AT3
       VAT(4)=AT3
       VAT(5)=AT3
       VAT(6)=AT3
       VAT(7)=AT3
       VAT(8)=ABTS
       VAT(9)=ABTS
       VAT(10)=ABTS
       VAT(11)=ABTS
       VAT(12)=AT3
       VAT(13)=AT3
       VAT(14)=ACT
       VAT(15)=ACT
       VAT(16)=ACT
       VAT(17)=ACT
       VAT(18)=ACT
       VAT(19)=ACT
       VAT(20)=AT1S
       VAT(21)=AT1S
       VAT(22)=AT1S
       VAT(23)=AT1S
```

ILLUSTRATION B.1 (Continued)

```
C      ********** CPTAX1 ********** PAGE     8


       VAT(24)=AT1C
       VAT(25)=AT1C
  322  MFIL(1)=666
       MFIL(2)=663
       MFIL(3)=633
       MFIL(4)=653
       MFIL(5)=623
       MFIL(6)=664
       MFIL(7)=624
       MFIL(8)=363
       MFIL(9)=333
       MFIL(10)=353
       MFIL(11)=323
       MFIL(12)=665
       MFIL(13)=655
       MFIL(14)=463
       MFIL(15)=433
       MFIL(16)=453
       MFIL(17)=423
       MFIL(18)=464
       MFIL(19)=424
       MFIL(20)=163
       MFIL(21)=133
       MFIL(22)=153
       MFIL(23)=123
       MFIL(24)=165
       MFIL(25)=155
       NO=25
       GO TO 358
C      ************************************************************************
C
C      TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE SEPARATE/SEPARATE
C
C      ************************************************************************
  324  TAX(1)=AT3+BT3+CT3
       TAX(2)=AT3+BT1C+CATC
       TAX(3)=ACT+BT1C+CATC
       TAX(4)=AT3+BCT+CBT
       TAX(5)=AT1C+BCT+CBTC
       TAX(6)=AT3+BATS+CT1SY
       TAX(7)=ABTS+BATS+CT1S2
       TAX(8)=AT3+BT1S+CT1SY
       TAX(9)=ABTS+BT1S+CT1S2
       TAX(10)=ACT+BT1S+CT1SY
       TAX(11)=AT1S+BT1S+CT1S2
       VAT(1)=AT3
       VAT(2)=AT3
       VAT(3)=ACT
       VAT(4)=AT3
       VAT(5)=AT1C
       VAT(6)=AT3
       VAT(7)=ABTS
       VAT(8)=AT3
       VAT(9)=ABTS
       VAT(10)=ACT
       VAT(11)=AT1S
  326  MFIL(1)=666
```

ILLUSTRATION B.1 (Continued)

```
C     ********** CPTAX1 ********** PAGE     9


      MFIL(2)=624
      MFIL(3)=424
      MFIL(4)=655
      MFIL(5)=155
      MFIL(6)=633
      MFIL(7)=333
      MFIL(8)=623
      MFIL(9)=323
      MFIL(10)=423
      MFIL(11)=123
      NO=11
      GO TO 358
C     ****************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/UNITARY
C
C     ****************************************************************
  327 TAX(1)=AT3+BT3+CT3
      TAX(2)=ABT+BT3+CT3
      TAX(3)=ACT+BT3+CT3
      TAX(4)=AT1+BT3+CT3
  328 VAT(1)=AT3
      VAT(2)=ABT
      VAT(3)=ACT
      VAT(4)=AT1
  329 MFIL(1)=666
      MFIL(2)=366
      MFIL(3)=466
      MFIL(4)=166
      NO=4
      GO TO 358
C     ****************************************************************
C
C     DETERMINATION OF THE MINIMUM POSSIBLE TOTAL STATE TAX:  OTAX
C
C     ****************************************************************
  358 J=1
      OTAX=TAX(1)
      OVAT=VAT(1)
      MOFIL(1)=MFIL(1)
  360 DO 370 I=2,NO
      IF(OTAX.LT.TAX(I)) GO TO 370
      IF(OTAX.GT.TAX(I)) GO TO 365
      IF(OVAT.GT.VAT(I)) GO TO 365
      J=J+1
      MOFIL(J)=MFIL(I)
      GO TO 370
  365 OTAX=TAX(I)
      OVAT=VAT(I)
      MOFIL(1)=MFIL(I)
      J=1
  370 CONTINUE
C     ****************************************************************
C
C     DETERMINATION OF THE MAXIMUM POSSIBLE TOTAL STATE TAX:  GTAX
C
C     ****************************************************************
```

ILLUSTRATION B.1 (Continued)

```
C     ********** CPTAX1 ********************************** PAGE   10


  458 N=1
      GTAX=TAX(1)
      GVAT=VAT(1)
      MOFL(1)=MFIL(1)
  460 DO 470 I=2,NO
      IF(GTAX.GT.TAX(I)) GO TO 470
      IF(GTAX.LT.TAX(I)) GO TO 465
      IF(GVAT.LT.VAT(I)) GO TO 465
      N=N+1
      MOFL(N)=MFIL(I)
      GO TO 470
  465 GTAX=TAX(I)
      GVAT=VAT(I)
      MOFL(1)=MFIL(I)
      N=1
  470 CONTINUE
C     ************************************************************************
C
C     COMPUTATION OF THE PERCENTAGE COST OF NOT PLANNING:  TSP
C
C     ************************************************************************
  510 TS=GTAX-OTAX
      TSP=(TS/OTAX)*100
C     VTS=GVAT-OVAT
C     VTSP=(VTS/OVAT)*100
C 519 WRITE(1,2101) IT,IM,LF,LH,IO,IR,MOFIL(1),OTAX,MOFL(1),
C    1GTAX,TS,TSP
  520 WRITE (1,2101) MOFIL(1),OTAX
      WRITE (1,2102) MOFL(1),GTAX
      WRITE (1,2103) TS,TSP
C2101 FORMAT (3X,I1,I1,I1,I1,I1,I1,4X,I3,4X,F5.2,
C    14X,I3,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,
C    24X,F5.2,4X,F7.2)
 2101 FORMAT(1X,'FILING ELECTIONS TO MINIMIZE TAX ',I3,'.  MINIMUM TAX ',
     1F12.2)
 2102 FORMAT(1X,'FILING ELECTIONS TO MAXIMIZE TAX ',I3,'.  MAXIMUM TAX ',
     1F12.2)
 2103 FORMAT(1X,'COST OF NOT PLANNING',F12.2,'.  PERCENTAGE COST OF NOT
     1 PLANNING ',F6.2)
 2150 FORMAT (13F6.2)
      RETURN
      END
```

Table B.1

Inputs to CPTAX1

```
(1)  1 6
(2)  .06 .04
(3)  1 3 2
(4)  1000 1000 1000
(5)  .55 .20 .25
(6)  .55 .20 .25
(7)  92.22 38.39 38.89
(8)  710. 710. 0. 0. 0. 0.
(9)  0. 0. 94.33 94.33 0. 0.
(10) 0. 0. 0. 0. 47.17 47.17
```

Explanation:

(1) Code indicating whether State 2 uses a sales throwback rule, and code indicating which combination of laws are utilized by State 1 and State 2.

(2) Tax rates in State 1 and State 2.

(3) Location of the business's factory (Virginia (1), State 1 (2), or State 2 (3)), location of the headquarters, and location of the research facility.

(4) External sales made in each state -- Virginia, State 1, and State 2.

(5) Proportion of property held in each state -- Virginia, State 1, and State 2.

(6) Proportion of payroll paid in each state -- Virginia, State 1, and State 2.

(7) Profit in each state -- Virginia, State 1, and State 2.

(8) Sales of goods and intercompany expense allocations for headquarters cost and research facility cost from Virginia to State 1 and State 2.

(9) Sales of goods and intercompany expense allocations for headquarters cost and research facility cost from State 1 to State 2 and Virginia.

(10) Sales of goods and intercompany expense allocations for headquarters cost and research facility cost from State 2 to Virginia and State 1.

TABLE B.2

SAMPLE OUTPUT FROM COMPUTER MODEL CPTAX1

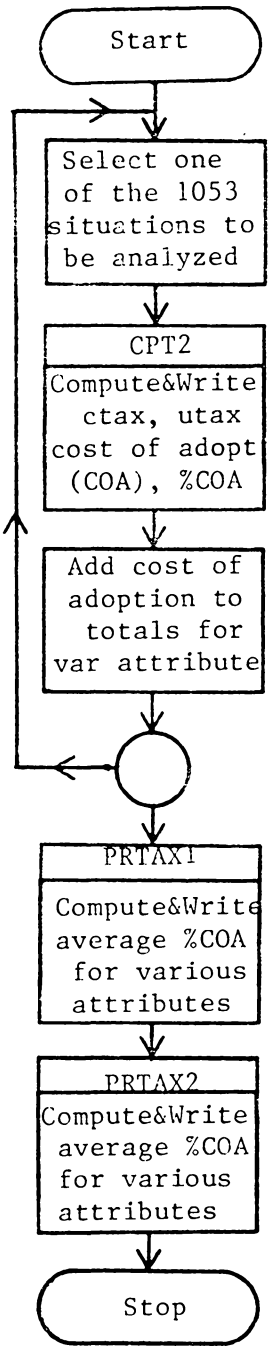
```
FILING ELECTIONS TO MINIMIZE TAX 423.  MINIMUM TAX          10.14
FILING ELECTIONS TO MAXIMIZE TAX 333.  MAXIMUM TAX          12.00
COST OF NOT PLANNING          1.86.  PERCENTAGE COST OF NOT  PLANNING  18.38
```

APPENDIX C

COMPUTER MODEL ADOPT1

This appendix provides documentation for the computer model ADOPT1. The purpose of ADOPT1 is to compute the average percentage cost of Virginia adopting the unitary method to businesses in 1,053 situations examined. The program logic utilized by ADOPT1 is similar to that used by PLAN1. CPT2 is the primary computational subroutine. Its job is to compute the percentage cost of adoption for each individual situation examined. Subroutines PRTAX1 and PRTAX2, which compute and print the overall averages, are the same programs that are utilized with PLAN1.

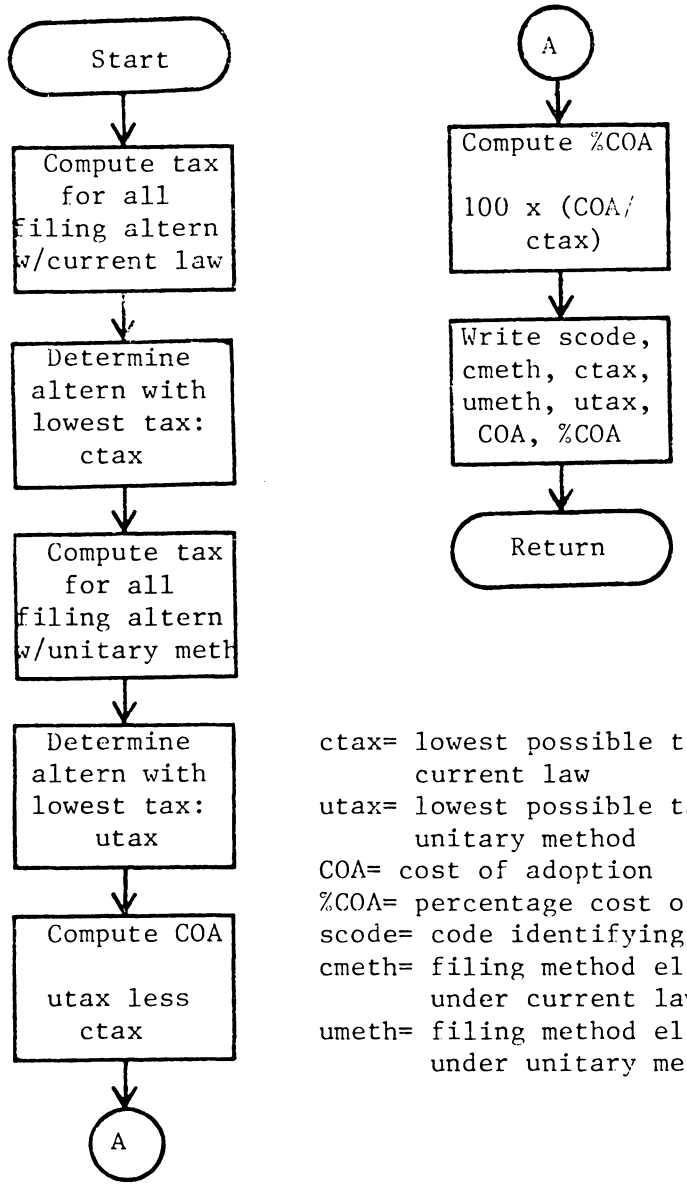
Figure C.1 provides a flowchart overview of the main program, and Figure C.2 provides a flowchart overview of CPT1. Illustrations C.1 and C.2 give the program codes for the main program and CPT2. Table C.1 provides a sample of the CPT2 output -- a listing of the situations and their individual costs of adoption. Table C.2 gives a listing of the percentage cost of adoption averages computed by PRTAX1 and PRTAX2.



ctax= lowest possible tax
under current law
utax= lowest possible tax
under unitary method
COA= cost of adoption
%COA= percentage cost of adoption

FIGURE C.1

FLOWCHART OVERVIEW OF ADOPT1



ctax= lowest possible tax under current law
utax= lowest possible tax under unitary method
COA= cost of adoption
%COA= percentage cost of adoption
scode= code identifying situation
cmeth= filing method election used under current law
umeth= filing method election used under unitary method

FIGURE C.2

FLOWCHART OVERVIEW OF CPT2

ILLUSTRATION C.1

PROGRAM CODE FOR ADOP1

```
C     ********************        ADOPT1        ************************ PAGE     1


C     ********************        ADOPT1        ********************************
C     ***************************************************************************
C     ***************************************************************************
C
C     THE PURPOSE OF THIS PROGRAM IS TO COMPUTE THE AVERAGE COST OF
C     VIRGINIA ADOPTING THE UNITARY METHOD TO BUSINESSES IN 1053
C     SITUATIONS EXAMINED.  THE COST OF ADOPTION IS DEFINED AS
C
C     100 X ((THE MINIMIZED TAX UNDER THE UNITARY METHOD LESS THE
C     MINIMIZED TAX UNDER CURRENT LAW) / (THE MINIMIZED TAX UNDER
C     CURRENT LAW)
C
C     THE PURPOSE OF THIS MAIN PROGRAM IS TO (1) GENERATE SITUATIONS
C     TO BE USED AS INPUT TO THE COMPUTATIONAL SUBROUTINE, AND (2)
C     TABULATE THE RESULTS OF THE COMPUTATIONAL SUBROUTINE.
C
C     ***************************************************************
      DIMENSION RATE(3), TAX(100), VAT(100), TX(100), PROP(3)
      DIMENSION S(3), R(2), PAY(3), DIV(2)
      DIMENSION MFIL(100), MOFIL(100), MFL(100), MOFL(100)
      DIMENSION TTST(2,3), TTSPT(2,3), ITK(2,3), TTSL(7,2,3)
      DIMENSION TTSPL(7,2,3), IMK(7,2,3), TTSH(3,3), TTSPH(3,3)
      DIMENSION LHK(3,3), TTSF(3,3), TTSPF(3,3), LFK(3,3)
      DIMENSION ATST(2,3), ATSPT(2,3), ATSL(7,2,3), ATSPL(7,2,3)
      DIMENSION ATSH(2,3), ATSPH(2,3), ATSF(2,3), ATSPF(2,3)
      DIMENSION TVTST(2,3), TVTSPT(2,3), TVTSL(7,2,3)
      DIMENSION TVTSPL(7,2,3), TVTSH(3,3), TVTSPH(3,3), TVTSF(3,3)
      DIMENSION TVTSPF(3,3), AVTST(2,3), AVTSPT(2,3), AVTSL(7,2,3)
      DIMENSION AVTSPL(7,2,3), AVTSH(2,3), AVTSPH(2,3)
      DIMENSION AVTSF(2,3), AVTSPF(2,3)
      DIMENSION ATSR(3), ATSPR(3), AVTSR(3), AVTSPR(3)
      DIMENSION TTSR(3), TTSPR(3), TVTSR(3), TVTSPR(3), IRK(3)
      DIMENSION TTSB(7,2,3,3), TTSPB(7,2,3,3), TVTSB(7,2,3,3)
      DIMENSION TVTSPB(7,2,3,3), IBK(7,2,3,3)
      DIMENSION TTSZ(7,2,3,3), TTSPZ(7,2,3,3), TVTSZ(7,2,3,3)
      DIMENSION TVTSPZ(7,2,3,3), IZK(7,2,3,3)
      DIMENSION ATSB(7,2,3,2), ATSPB(7,2,3,2), AVTSB(7,2,3,2)
      DIMENSION AVTSPB(7,2,3,2)
      DIMENSION ATSZ(7,2,3,2), ATSPZ(7,2,3,2), AVTSZ(7,2,3,2)
      DIMENSION AVTSPZ(7,2,3,2)
      DIMENSION TP(7,2,3), VP(7,2,3), IK(7,2,3)
      DIMENSION TPX(7,2,3,3), VPX(7,2,3,3), IKX(7,2,3,3)
      CHARACTER*20 TB(2), MET(7,2), FAC(2), HQ(2)
      CHARACTER*20 SAVE, SPACE(2), TITLE(7,7), TITLE2(2)
      CHARACTER*60 HEAD(2,2)
      SPACE(1)='                    '
      SAVE='ALL SITUATIONS       '
      TB(1)='STATE 2 - NO T/B     '
      TB(2)='STATE 2 - T/B        '
      MET(1,1)='UNIT/SEP              '
      MET(2,1)='UNIT/OPT              '
      MET(3,1)='OPT/SEP               '
      MET(4,1)='OPT/SEP,APP DIV       '
      MET(5,1)='UNIT/SEP,APP DIV      '
      MET(1,2)='UNIT/SEP,T/B          '
      MET(2,2)='UNIT/OPT,T/B          '
      MET(3,2)='OPT/SEP,T/B           '
```

ILLUSTRATION C.1 (Continued)

```
C      ********************          ADOPT1          ************************ PAGE     2


      MET(4,2)='OPT/SEP,APP DIV,T/B '
      MET(5,2)='UNIT/SEP,APP DIV,T/B'
      MET(6,1)='SEP/SEP              '
      MET(6,2)='SEP/SEP,T/B          '
      MET(7,1)='UNIT/UNIT            '
      MET(7,2)='UNIT/UNIT,T/B        '
      FAC(1)='VA FAC                 '
      FAC(2)='NON-VA FAC             '
      HQ(1)='VA HQ                   '
      HQ(2)='NON-VA HQ               '
      HEAD(1,1)='  SITUATION  MIN      MIN      MAX      MAX       CNP
     1CNP%       '
      HEAD(1,2)='               METH     TAX      METH     TAX
     1            '
      HEAD(2,1)='      ATTRIBUTE                    TAX RATE IN STATE 2
     1     '
      HEAD(2,2)='                                4%        6%        8%       ALL
     1     '
      DO 10 JA=1,3
      TTSR(JA)=0.
      TTSPR(JA)=0.
      TVTSR(JA)=0.
      TVTSPR(JA)=0.
      IRK(JA)=0.
      DO 6 JB=1,3
      TTSH(JB,JA)=0.
      TTSPH(JB,JA)=0.
      LHK(JB,JA)=0
      TTSF(JB,JA)=0.
      TTSPF(JB,JA)=0.
      LFK(JB,JA)=0
      TVTSH(JB,JA)=0.
      TVTSPH(JB,JA)=0.
      TVTSF(JB,JA)=0.
      TVTSPF(JB,JA)=0.
    6 CONTINUE
      DO 10 JC=1,2
      DO 9 JD=1,7
      TTSL(JD,JC,JA)=0.
      TTSPL(JD,JC,JA)=0.
      IMK(JD,JC,JA)=0
      TVTSL(JD,JC,JA)=0.
      TVTSPL(JD,JC,JA)=0.
      DO 9 JE=1,3
      TTSB(JD,JC,JA,JE)=0.
      TTSPB(JD,JC,JA,JE)=0.
      TVTSB(JD,JC,JA,JE)=0.
      TVTSPB(JD,JC,JA,JE)=0.
      IBK(JD,JC,JA,JE)=0.
      TTSZ(JD,JC,JA,JE)=0.
      TTSPZ(JD,JC,JA,JE)=0.
      TVTSZ(JD,JC,JA,JE)=0.
      TVTSPZ(JD,JC,JA,JE)=0.
      IZK(JD,JC,JA,JE)=0.
    9 CONTINUE
      TTST(JC,JA)=0.
      TTSPT(JC,JA)=0.
```

ILLUSTRATION C.1 (Continued)

```
C     ********************          ADOPT1          ************************ PAGE     3


      ITK(JC,JA)=0.
      TVTST(JC,JA)=0.
      TVTSPT(JC,JA)=0.
   10 CONTINUE
      RATE(1)=.04
      RATE(2)=.06
      RATE(3)=.08
      TTSP=0.
      TTS=0.
      TVTSP=0.
      TVTS=0.
      K=0
C     *************** WRITE OUTPUT HEADINGS *********************
      WRITE(7,2148)
      WRITE(7,2147)
      WRITE(7,2140)
      WRITE(7,2141)
      WRITE(7,2147)
C     ********************************************************************
C     ************ IDENTIFY SITUATIONS TO BE EXAMINED ************
C     ********************************************************************
      DO 20 IS=1,3
      PROP(IS)=(.15/1.0)
   20 CONTINUE
C     ********** TAX METHODS USED IN STATE 1 & STATE 2 **********
      DO 1000 IT=1,2
      DO 1000 IM=1,7
      IF (IT.EQ.1) GO TO 21
      IF (IM.EQ.7) GO TO 1000
C     ***************** LOCATION OF FACTORY **********************
   21 DO 1000 LF=1,3
      PROP(LF)=PROP(LF)+(.4/1.0)
C     *************** LOCATION OF HEADQUARTERS *******************
      DO 1000 LH=1,3
      PROP(LH)=PROP(LH)+.05
C     ************** LOCATION OF OTHER ACTIVITIES ***************
      DO 1000 IO=1,3
      PROP(IC)=PROP(IO)+(.1/1.0)
C     ***************** TAX RATE IN STATE 2 **********************
      DO 1000 IR=1,3
      DO 22 IP=1,3
      PAY(IP)=PROP(IP)
   22 CONTINUE
      R(1)=.06
      R(2)=RATE(IR)
C     ***************** PROFIT IN EACH STATE **********************
      AP=38.89
      BP=38.89
      CP=38.89
      IF(LF.EQ.1) AP=92.22
      IF(LF.EQ.2) BP=92.22
      IF(LF.EQ.3) CP=92.22
C     ****************** INTERCOMPANY SALES **********************
      SXY=0.
      SXZ=0.
      HXY=0.
      HXZ=0.
```

ILLUSTRATION C.1 (Continued)

```
C      ********************          ADOPT1          ************************ PAGE     4


       RXY=0.
       RXZ=0.
       SYZ=0.
       SYX=0.
       HYZ=0.
       HYX=0.
       RYZ=0.
       RYX=0.
       SZX=0.
       SZY=0.
       HZX=0.
       HZY=0.
       RZX=0.
       RZY=0.
       IF(LF.EQ.1) SXY=710.
       IF(LF.EQ.1) SXZ=710.
       IF(LF.EQ.2) SYZ=710.
       IF(LF.EQ.2) SYX=710.
       IF(LF.EQ.3) SZX=710.
       IF(LF.EQ.3) SZY=710.
       IF(LH.EQ.1) HXY=141.5/3.
       IF(LH.EQ.1) HXZ=141.5/3.
       IF(LH.EQ.2) HYZ=141.5/3.
       IF(LH.EQ.2) HYX=141.5/3.
       IF(LH.EQ.3) HZX=141.5/3.
       IF(LH.EQ.3) HZY=141.5/3.
       IF(IO.EQ.1) RXY=283./3.
       IF(IO.EQ.1) RXZ=283./3.
       IF(IO.EQ.2) RYZ=283./3.
       IF(IO.EQ.2) RYX=283./3.
       IF(IO.EQ.3) RZX=283./3.
       IF(IO.EQ.3) RZY=283./3.
C      ************** EXTERNAL SALES FORM EACH STATE ***************
       S(1)=1000.
       S(2)=1000.
       S(3)=1000.
C      ***********************************************************
C      ************** CALL SUBROUTINE TO COMPUTE *****************
C      ******************** COST OF ADOPTION *********************
C      ***********************************************************
       CALL CPT2 (IT,IM,R,IR,
      1LF,LH,IO,
      2S,PROP,PAY,
      3AP,BP,CP,
      4SXY,SXZ,HXY,HXZ,RXY,RXZ,
      5SYZ,SYX,HYZ,HYX,RYZ,RYX,
      6SZX,SZY,HZX,HZY,RZX,RZY,
      7TS,TSP,VTS,VTSP)
C      ************** TABULATE RESULTS OF SUBROUTINE ***************
       K=K+1
       TTS=TTS+TS
       TTSP=TTSP+TSP
       TVTS=TVTS+VTS
       TVTSP=TVTSP+VTSP
  520  TTST(IT,IR)=TTST(IT,IR)+TS
       TTSPT(IT,IR)=TTSPT(IT,IR)+TSP
       TVTST(IT,IR)=TVTST(IT,IR)+VTS
```

ILLUSTRATION C.1 (Continued)

```
C      ********************          ADOPT1          ************************ PAGE     5


       TVTSPT(IT,IR)=TVTSPT(IT,IR)+VTSP
       ITK(IT,IR)=ITK(IT,IR)+1
       TTSL(IM,IT,IR)=TTSL(IM,IT,IR)+TS
       TTSPL(IM,IT,IR)=TTSPL(IM,IT,IR)+TSP
       TVTSL(IM,IT,IR)=TVTSL(IM,IT,IR)+VTS
       TVTSPL(IM,IT,IR)=TVTSPL(IM,IT,IR)+VTSP
       IMK(IM,IT,IR)=IMK(IM,IT,IR)+1
       TTSH(LH,IR)=TTSH(LH,IR)+TS
       TTSPH(LH,IR)=TTSPH(LH,IR)+TSP
       TVTSH(LH,IR)=TVTSH(LH,IR)+VTS
       TVTSPH(LH,IR)=TVTSPH(LH,IR)+VTSP
       LHK(LH,IR)=LHK(LH,IR)+1
       TTSF(LF,IR)=TTSF(LF,IR)+TS
       TTSPF(LF,IR)=TTSPF(LF,IR)+TSP
       TVTSF(LF,IR)=TVTSF(LF,IR)+VTS
       TVTSPF(LF,IR)=TVTSPF(LF,IR)+VTSP
       LFK(LF,IR)=LFK(LF,IR)+1
       TTSR(IR)=TTSR(IR)+TS
       TTSPR(IR)=TTSPR(IR)+TSP
       TVTSR(IR)=TVTSR(IR)+VTS
       TVTSPR(IR)=TVTSPR(IR)+VTSP
       IRK(IR)=IRK(IR)+1
       TTSB(IM,IT,IR,LH)=TTSB(IM,IT,IR,LH)+TS
       TTSPB(IM,IT,IR,LH)=TTSPB(IM,IT,IR,LH)+TSP
       TVTSB(IM,IT,IR,LH)=TVTSB(IM,IT,IR,LH)+VTS
       TVTSPB(IM,IT,IR,LH)=TVTSPB(IM,IT,IR,LH)+VTSP
       IBK(IM,IT,IR,LH)=IBK(IM,IT,IR,LH)+1
       TTSZ(IM,IT,IR,LF)=TTSZ(IM,IT,IR,LF)+TS
       TTSPZ(IM,IT,IR,LF)=TTSPZ(IM,IT,IR,LF)+TSP
       TVTSZ(IM,IT,IR,LF)=TVTSZ(IM,IT,IR,LF)+VTS
       TVTSPZ(IM,IT,IR,LF)=TVTSPZ(IM,IT,IR,LF)+VTSP
       IZK(IM,IT,IR,LF)=IZK(IM,IT,IR,LF)+1
       GO TO 525
   525 IF(IR.LT.3) GO TO 590
       IF(IO.LT.3) GO TO 528
       IF(LH.LT.3) GO TO 527
   526 PROP(LF)=PROP(LF)-(.4/1.0)
   527 PROP(LH)=PROP(LH)-.05
   528 PROP(IO)=PROP(IO)-(.1/1.0)
   590 CONTINUE
  1000 CONTINUE
  1010 ATSP=TTSP/K
       ATS=TTS/K
       AVTS=TVTS/K
       AVTSP=TVTSP/K
C      ********** WRITE HEADINGS FOR OUTPUT AVERAGES *************
       WRITE(7,2149)
       WRITE(7,2147)
       WRITE(7,2142)
       WRITE(7,2143)
       WRITE(7,2147)
       DO 605 IR=1,3
       TP(1,1,IR)=TTSPR(IR)
       VP(1,1,IR)=TVTSPR(IR)
       IK(1,1,IR)=IRK(IR)
   605 CONTINUE
       TITLE(1,1)=SAVE
```

ILLUSTRATION C.1 (Continued)

```
C      *******************          ADOPT1          *********************** PAGE    6

C      ************************************************************
C      *********** CALL SUBROUTINE TO AVERAGE THE ****************
C      *********** RESULTS AND PRINT THE AVERAGES ****************
C      ************************************************************
        CALL PRTAX1 (TITLE, SPACE, TP, VP, IK, 1, 1, 3)
  603 CONTINUE
      DO 615 IT=1,2
      DO 610 IR=1,3
      TP(1,IT,IR)=TTSPT(IT,IR)
      VP(1,IT,IR)=TVTSPT(IT,IR)
      IK(1,IT,IR)=ITK(IT,IR)
  610 CONTINUE
      TITLE(1,IT)=TB(IT)
  615 CONTINUE
        CALL PRTAX1 (TITLE, SPACE, TP, VP, IK, 1, 2, 3)
        CALL PRTAX1 (MET, SPACE, TTSPL, TVTSPL, IMK, 7, 2, 3)
      DO 640 L=1,3
      DO 640 IR=1,3
      TPX(1,1,IR,L)=TTSPH(L,IR)
      VPX(1,1,IR,L)=TVTSPH(L,IR)
      IKX(1,1,IR,L)=LHK(L,IR)
  640 CONTINUE
      DO 645 L=1,2
      TITLE(1,L)=HQ(L)
  645 CONTINUE
        CALL PRTAX2 (TITLE, SPACE, TPX, VPX, IKX, 1, 1, 3, 3)
      DO 655 L=1,3
      DO 655 IR=1,3
      TPX(1,1,IR,L)=TTSPF(L,IR)
      VPX(1,1,IR,L)=TVTSPF(L,IR)
      IKX(1,1,IR,L)=LFK(L,IR)
  655 CONTINUE
      DO 660 L=1,2
      TITLE(1,L)=FAC(L)
  660 CONTINUE
        CALL PRTAX2 (TITLE, SPACE, TPX, VPX, IKX, 1, 1, 3, 3)
  680 CONTINUE
 2100 FORMAT(3X,I1,3X,I1,2X,I1,2X,I1,2X,I1,2X,I1,4X,I3,4X,F5.2,4X,I1,
     14X,I3,4X,F5.2,4X,I1,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,
     2F7.2)
 2140 FORMAT(' SITUATION  CUR     CUR     UNI     UNI      COA      %CO
     1A     CUR      UNI       VA        VA')
 2141 FORMAT('                   METH    TAX     METH    TAX
     1      VA       VA        COA      %COA')
 2142 FORMAT('    ATTRIBUTE                              TOTAL TAX
     1        VIRGINIA TAX')
 2143 FORMAT(' STATE 2 TAX RATE             4%       6%       8%       ALL
     1    4%       6%       8%       ALL')
 2147 FORMAT (10X)
 2148 FORMAT (1H1,'                                              COST OF ADOPTIO
     1N (COA)')
 2149 FORMAT (1H1,'                                          COST OF ADOPTION AVE
     1RAGES')
 2150 FORMAT(A60)
 2200 FORMAT('1',10X,F5.2,10X,F5.2,10X,F5.2,10X,F7.2)
 2300 FORMAT('0',A20,3X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,
     14X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F6.2,4X,F6.2,4X,F6.2)
```

ILLUSTRATION C.1 (Continued)

```
C      ********************          ADOPT1          ************************ PAGE     7


 2301 FORMAT('1',A20,' AND ',A20)
 2400 FORMAT(3X,I1,2X,I1,2X,I1,2X,I1,2X,I1,2X,I1,2X,I1,2X,F5.2,2X,F5.2,
     12X,F5.2,2X,F5.2,2X,F5.2,2X,F5.2,2X,F5.2,2X,F6.2)
      STOP
      END
```

ILLUSTRATION C.2

PROGRAM CODE FOR CPT2

```
      SUBROUTINE CPT2                                                PAGE     1


      SUBROUTINE CPT2
     1(IT,IM,R,IR,
     2LF,LH,IO,
     3S,PROP,PAY,
     4AP,BP,CP,
     5SXY,SXZ,HXY,HXZ,RXY,RXZ,
     6SYZ,SYX,HYZ,HYX,RYZ,RYX,
     7SZX,SZY,HZX,HZY,RZX,RZY,
     8TS,TSP,VTS,VTSP)
C     ****************************************************************
C
C     THE PURPOSE OF THIS SUBROUTINE IS TO
C
C     (1)  CALCULATE THE TOTAL STATE TAX LIABILITY FOR A BUSINESS UNDER
C     EACH ALTERNATE SUBUNIT ORGANIZATION AND FILING METHOD ELECTION
C     AVAILABLE TO THAT BUSINESS UNDER CURRENT VIRGINIA LAW,
C
C     (2)  DETERMINE THE PARTICULAR COMBINATION OF SUBUNIT ORGANIZATION
C     AND FILING METHOD ELECTIONS THAT GENERATE THE LOWEST TOTAL STATE
C     TAX LIABILITY FOR THE BUSINESS UNDER CURRENT VIRGINIA LAW,
C
C     (3)  CALCULATE THE TOTAL STATE TAX LIABILITY FOR THE BUSINESS
C     UNDER EACH ALTERNATIVE SUBUNIT ORGANIZATION AND FILING METHOD
C     ELECTION AVAILABLE TO THE BUSINESS UNDER THE UNITARY METHOD,
C
C     (4)  DETERMINE THE PARTICULAR COMBINATION OF SUBUNIT ORGANIZATION
C     AND FILING METHOD ELECTIONS THAT GENERATE THE LOWEST TOTAL STATE
C     TAX LIABILITY FOR THE BUSINESS UNDER THE UNITARY METHOD,
C
C     (5)  COMPUTE THE POTENTIAL COST OF ADOPTION WHICH IS THE DIFFERENCE
C     BETWEEN THE MINIMIZED TAX UNDER THE UNITARY METHOD AND THE
C     MINIMIZED TAX UNDER CURRENT LAW,
C
C     (6)  COMPUTE THE PERCENTAGE COST OF ADOPTION WHICH IS THE COST OF
C     ADOPTION STATED AS A PERCENTAGE OF THE MINIMIZED TAX UNDER CURRENT
C     LAW.
C
C     (5)  COMPUTE THE PERCENTAGE COST OF NOT PLANNING, WHICH IS THE
C     COST OF NOT PLANNING STATED AS A PERCENTAGE OF THE MINIMIZED TAX.
C
C     THE COMPUTATIONS ARE MADE FOR A BUSINESS WHICH OPERATES
C     IN VIRGINIA AND TWO OTHER STATES.
C
C     ****************************************************************
      DIMENSION RATE(3), TAX(100), VAT(100), TX(100), PROP(3)
      DIMENSION MFIL(100), MOFIL(100), MFL(100), MOFL(100)
      DIMENSION PAY(3), S(3), R(2), DIV(2)
      APDA=0.
      APDB=0.
      APDAC=0.
      APDBC=0.
      T=.06
      DIV(1)=1.-(T+((1.-T)*.46))
      DIV(2)=1.-(R(1)+((1.-R(1))*.46))
C     ****************************************************************
C
C     COMPUTATION OF POTENTIAL SALES FACTORS TO BE UTILIZED
```

ILLUSTRATION C.2 (Continued)

```
      SUBROUTINE CPT2                                                    PAGE     2


C           UNDER DIFFERENT FILING ELECTIONS.
C
C     ****************************************************************
      SFX=(S(1)+HXY+HXZ+RXY+RXZ)/(S(1)+SXY+SXZ+HXY+HXZ+RXY+RXZ)
      SFXY=(S(1)+HXZ+RXZ)/(S(1)+SXZ+HXZ+RXZ+S(2)+SYZ+HYZ+RYZ)
      SFXZ=(S(1)+HXY+RXY)/(S(1)+SXY+HXY+RXY+S(3)+SZY+HZY+RZY)
      SFX3=S(1)/(S(1)+S(2)+S(3))
      SFY=(S(2)+HYZ+HYX+RYZ+RYX)/(S(2)+SYZ+SYX+HYZ+HYX+RYZ+RYX)
      SFYZ=(S(2)+HYX+RYX)/(S(2)+SYX+HYX+RYX+S(3)+SZX+HZX+RZX)
      SFYX=(S(2)+HYZ+RYZ)/(S(2)+SYZ+HYZ+RYZ+S(1)+SXZ+HXZ+RXZ)
      SFY3=S(2)/(S(1)+S(2)+S(3))
      SFZ=(S(3)+HZX+HZY+RZX+RZY)/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY)
      SFZX=(S(3)+HZY+RZY)/(S(3)+SZY+HZY+RZY+S(1)+SXY+HXY+RXY)
      SFZY=(S(3)+HZX+RZX)/(S(3)+SZX+HZX+RZX+S(2)+SYX+HYX+RYX)
      SFZ3=S(3)/(S(1)+S(2)+S(3))
      GO TO 68
   68 IF(IM.EQ.4) GO TO 70
   69 IF(IM.NE.5) GO TO 119
   70 GO TO(80,90,100) LH
   80 APDBC=BP*DIV(2)
      GO TO 119
   90 APDAC=AP*DIV(1)
      GO TO 119
  100 APDAC=AP*DIV(1)
      APDBC=BP*DIV(2)
      APDA=AP*DIV(1)
      APDB=BP*DIV(2)
  119 CONTINUE
C     ****************************************************************
C
C     COMPUTATION OF VIRGINIA TAX UNDER DIFFERENT FILING ELECTIONS
C
C     ****************************************************************
  120 AT1=AP*((2.+SFX)/3.)*T
      ABT=(AP+BP)*(((PROP(1)/(PROP(1)+PROP(2)))+(PAY(1)/(PAY(1)+PAY(2)))
     1+SFXY)/3.)*T
      ACT=(AP+CP)*(((PROP(1)/(PROP(1)+PROP(3)))+(PAY(1)/(PAY(1)+PAY(3)))
     1+SFXZ)/3.)*T
      AT3=(AP+BP+CP)*((PROP(1)+PAY(1)+SFX3)/3.)*T
C     ****************************************************************
C
C     COMPUTATION OF STATE 1 TAX UNDER DIFFERENT FILING ELECTIONS
C
C     ****************************************************************
      BT1=BP*((2.+SFY)/3.)*R(1)
      BCT=(BP+CP)*(((PROP(2)/(PROP(2)+PROP(3)))+(PAY(2)/(PAY(2)+PAY(3)))
     1+SFYZ)/3.)*R(1)
      BAT=(BP+AP)*(((PROP(2)/(PROP(1)+PROP(2)))+(PAY(2)/(PAY(1)+PAY(2)))
     1+SFYX)/3.)*R(1)
      BT3=(AP+BP+CP)*((PROP(2)+PAY(2)+SFY3)/3.)*R(1)
C     ****************************************************************
C
C     COMPUTATION OF STATE 2 TAX UNDER DIFFERENT FILING ELECTIONS
C
C     ****************************************************************
      CT1=(APDA+APDB+CP)*((2.+SFZ)/3.)*R(2)
      CAT=(APDBC+CP+AP)*(((PROP(3)/(PROP(1)+PROP(3)))+
```

ILLUSTRATION C.2 (Continued)

```
      SUBROUTINE CPT2                                                    PAGE     3


     1(PAY(3)/(PAY(1)+PAY(3)))+SFZX)/3.)*R(2)
      C3T=(APDAC+CP+BP)*(((PROP(3)/(PROP(2)+PROP(3)))+
     1(PAY(3)/(PAY(2)+PAY(3)))+SFZY)/3.)*R(2)
      CT3=(AP+BP+CP)*((PROP(3)+PAY(3)+SFZ3)/3.)*R(2)
  200 CONTINUE
C     ****************************************************************
C
C     INITIALIZE SALES THROWBACK (OR THROWFORWARD)
C
C     ****************************************************************
  300 TFXC=0.
      TFXS=0.
      T3XC=0.
      TBXS=0.
      TFYC=0.
      TFYS=0.
      TBYC=0.
      TBYS=0.
C     ****************************************************************
C
C     WHERE THROWBACK RULE IS UTILIZED, COMPUTATION OF ADDITIONAL
C          TAX RESULTING FROM SALES FACTOR ADJUSTMENT.
C
C     ****************************************************************
  301 IF(IT.EQ.1) GO TO 307
      IF(LF.NE.3) GO TO 307
      TFBZX=CP*(SZX/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY))/3.
      TFBZY=CP*(SZY/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY))/3.
      TFBZXC=(CP+BP)*(SZX/(S(3)+SZX+HZX+RZX+S(2)+SYX+HYX+RYX))/3.
      TFBZYC=(CP+AP)*(SZY/(S(3)+SZY+HZY+RZY+S(1)+SXY+HXY+RXY))/3.
      IF(R(2).LT.T) GO TO 302
      TFXC=TFBZXC*T
      TFXS=TFBZX*T
      GO TO 303
  302 TBXC=TFBZXC*R(2)
      TBXS=TFBZX*R(2)
  303 IF(R(2).LT.R(1)) GO TO 304
      TFYC=TFBZYC*R(1)
      TFYS=TFBZY*R(1)
      GO TO 307
  304 TBYC=TFBZYC*R(2)
      TBYS=TFBZY*R(2)
C     ****************************************************************
C
C     RECOMPUTATION OF EACH STATE'S TAX WITH THE ADDITIONAL TAX
C          RESULTING FROM SALES FACTOR ADJUSTMENTS INCLUDED.
C
C     ****************************************************************
  307 AT1S=AT1+TFXS
      AT1C=AT1+TFXC
      ABTS=ABT+TFXS
      ABTC=ABT+TFXC
      BT1S=BT1+TFYS
      BT1C=BT1+TFYC
      BATS=BAT+TFYS
      BATC=BAT+TFYC
      CT1SX=CT1+TBXS
```

ILLUSTRATION C.2 (Continued)

```
      SUBROUTINE CPT2                                                    PAGE    4


      CT1SY=CT1+TBYS
      CT1S2=CT1+TBXS+TBYS
      CATC=CAT+TBYC
      CBTC=CBT+TBXC
C     ****************************************************************
C
C     CURRENT LAW TOTAL STATE TAX COMPUTATIONS:
C          TAX=TOTAL STATE TAX LIABILITY
C          VAT=VIRGINIA TAX LIABILITY
C          MFIL=CODE INDICATING METHODS USED IN EACH STATE:
C               FIRST DIGIT INDICATES METHOD USED IN VIRGINIA
C               SECOND DIGIT FOR STATE 1
C               THIRD DIGIT FOR STATE 2
C               EACH DIGIT INDICATES THE INCOME FROM WHICH STATES
C                    ARE INCLUDED IN THAT STATE'S RETURN
C               1 - ONLY VIRGINIA INCOME
C               2 - ONLY STATE 1 INCOME
C               3 - ONLY STATE 2 INCOME
C               3 - INCOME OF VIRGINIA AND STATE 1
C               4 - INCOME OF VIRGINIA AND STATE 2
C               5 - INCOME OF STATE 1 AND STATE 2
C               6 - INCOME OF VIRGINIA, STATE 1, AND STATE 2
C
C     ****************************************************************
  308 GO TO (311,316,321,321,311,324,327),IM
C     ****************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/SEPARATE
C          OR UNITARY/SEPARATE AND APPORTIONS DIVIDENDS RECEIVED
C
C     ****************************************************************
  311 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT3+CT1
      TAX(3)=ABTS+BT3+CT1SX
      TAX(4)=AT3+BT3+CAT
      TAX(5)=ACT+BT3+CAT
      TAX(6)=ACT+BT3+CT1
      TAX(7)=AT1S+BT3+CT1SX
      TAX(8)=AT3+BT3+CBT
      TAX(9)=AT1C+BT3+CBTC
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=ABTS
      VAT(4)=AT3
      VAT(5)=ACT
      VAT(6)=ACT
      VAT(7)=AT1S
      VAT(8)=AT3
      VAT(9)=AT1C
  312 MFIL(1)=666
      MFIL(2)=663
      MFIL(3)=363
      MFIL(4)=664
      MFIL(5)=464
      MFIL(6)=463
      MFIL(7)=163
      MFIL(8)=665
```

ILLUSTRATION C.2 (Continued)

```
      SUBROUTINE CPT2                                                    PAGE     5


      MFIL(9)=165
      NO=9
      GO TO 358
C     ****************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/
C          OPTIONAL SEPARATE OR CONSOLIDATED
C
C     ****************************************************************
  316 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT3+CAT
      TAX(3)=AT3+BT3+CBT
      TAX(4)=AT3+BT3+CT1
      TAX(5)=ABT+BT3+CT3
      TAX(6)=ABT+BT3+CAT
      TAX(7)=ABTC+BT3+CBTC
      TAX(8)=ABTS+BT3+CT1SX
      TAX(9)=ACT+BT3+CT3
      TAX(10)=ACT+BT3+CAT
      TAX(11)=ACT+BT3+CBT
      TAX(12)=ACT+BT3+CT1
      TAX(13)=AT1+BT3+CT3
      TAX(14)=AT1+BT3+CAT
      TAX(15)=AT1C+BT3+CBTC
      TAX(16)=AT1S+BT3+CT1SX
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=AT3
      VAT(4)=AT3
      VAT(5)=ABT
      VAT(6)=ABT
      VAT(7)=ABTC
      VAT(8)=ABTS
      VAT(9)=ACT
      VAT(10)=ACT
      VAT(11)=ACT
      VAT(12)=ACT
      VAT(13)=AT1
      VAT(14)=AT1
      VAT(15)=AT1C
      VAT(16)=AT1S
  317 MFIL(1)=666
      MFIL(2)=664
      MFIL(3)=665
      MFIL(4)=663
      MFIL(5)=366
      MFIL(6)=364
      MFIL(7)=365
      MFIL(8)=363
      MFIL(9)=466
      MFIL(10)=464
      MFIL(11)=465
      MFIL(12)=463
      MFIL(13)=166
      MFIL(14)=164
      MFIL(15)=165
      MFIL(16)=163
```

ILLUSTRATION C.2 (Continued)

```
      SUBROUTINE CPT2                                                PAGE     6


      NO=16
      GO TO 358
C     ****************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE OPTIONAL/
C          SEPARATE, OR OPTIONAL/SEPARATE AND APPORTIONS DIVIDENDS
C          RECEIVED
C
C     ****************************************************************
  321 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT3+CT1
      TAX(3)=AT3+BATS+CT1SY
      TAX(4)=AT3+BCT+CT1
      TAX(5)=AT3+BT1S+CT1SY
      TAX(6)=AT3+BT3+CAT
      TAX(7)=AT3+BT1C+CATC
      TAX(8)=ABTS+BT3+CT1SX
      TAX(9)=ABTS+BATS+CT1S2
      TAX(10)=ABTS+BCT+CT1SX
      TAX(11)=ABTS+BT1S+CT1S2
      TAX(12)=AT3+BT3+CBT
      TAX(13)=AT3+BCT+CBT
      TAX(14)=ACT+BT3+CT1
      TAX(15)=ACT+BATS+CT1SY
      TAX(16)=ACT+BCT+CT1
      TAX(17)=ACT+BT1S+CT1SY
      TAX(18)=ACT+BT3+CAT
      TAX(19)=ACT+BT1C+CATC
      TAX(20)=AT1S+BT3+CT1SX
      TAX(21)=AT1S+BATS+CT1S2
      TAX(22)=AT1S+BCT+CT1SX
      TAX(23)=AT1S+BT1S+CT1S2
      TAX(24)=AT1C+BT3+CBTC
      TAX(25)=AT1C+BCT+CBTC
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=AT3
      VAT(4)=AT3
      VAT(5)=AT3
      VAT(6)=AT3
      VAT(7)=AT3
      VAT(8)=ABTS
      VAT(9)=ABTS
      VAT(10)=ABTS
      VAT(11)=ABTS
      VAT(12)=AT3
      VAT(13)=AT3
      VAT(14)=ACT
      VAT(15)=ACT
      VAT(16)=ACT
      VAT(17)=ACT
      VAT(18)=ACT
      VAT(19)=ACT
      VAT(20)=AT1S
      VAT(21)=AT1S
      VAT(22)=AT1S
      VAT(23)=AT1S
```

ILLUSTRATION C.2 (Continued)

```
      SUBROUTINE CPT2                                                PAGE     7


      VAT(24)=AT1C
      VAT(25)=AT1C
  322 MFIL(1)=666
      MFIL(2)=663
      MFIL(3)=633
      MFIL(4)=653
      MFIL(5)=623
      MFIL(6)=664
      MFIL(7)=624
      MFIL(8)=363
      MFIL(9)=333
      MFIL(10)=353
      MFIL(11)=323
      MFIL(12)=665
      MFIL(13)=655
      MFIL(14)=463
      MFIL(15)=433
      MFIL(16)=453
      MFIL(17)=423
      MFIL(18)=464
      MFIL(19)=424
      MFIL(20)=163
      MFIL(21)=133
      MFIL(22)=153
      MFIL(23)=123
      MFIL(24)=165
      MFIL(25)=155
      NO=25
      GO TO 358
C     ******************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE SEPARATE/SEPARATE
C
C     ******************************************************************
  324 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT1C+CATC
      TAX(3)=ACT+BT1C+CATC
      TAX(4)=AT3+BCT+CBT
      TAX(5)=AT1C+BCT+CBTC
      TAX(6)=AT3+BATS+CT1SY
      TAX(7)=ABTS+BATS+CT1S2
      TAX(8)=AT3+BT1S+CT1SY
      TAX(9)=ABTS+BT1S+CT1S2
      TAX(10)=ACT+BT1S+CT1SY
      TAX(11)=AT1S+BT1S+CT1S2
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=ACT
      VAT(4)=AT3
      VAT(5)=AT1C
      VAT(6)=AT3
      VAT(7)=ABTS
      VAT(8)=AT3
      VAT(9)=ABTS
      VAT(10)=ACT
      VAT(11)=AT1S
  326 MFIL(1)=666
```

ILLUSTRATION C.2 (Continued)

```
      SUBROUTINE CPT2                                                    PAGE     8


      MFIL(2)=624
      MFIL(3)=424
      MFIL(4)=655
      MFIL(5)=155
      MFIL(6)=633
      MFIL(7)=333
      MFIL(8)=623
      MFIL(9)=323
      MFIL(10)=423
      MFIL(11)=123
      NO=11
      GO TO 358
C     ****************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/UNITARY
C
C     ****************************************************************
  327 TAX(1)=AT3+BT3+CT3
      TAX(2)=ABT+BT3+CT3
      TAX(3)=ACT+BT3+CT3
      TAX(4)=AT1+BT3+CT3
  328 VAT(1)=AT3
      VAT(2)=ABT
      VAT(3)=ACT
      VAT(4)=AT1
  329 MFIL(1)=666
      MFIL(2)=366
      MFIL(3)=466
      MFIL(4)=166
      NO=4
      GO TO 358
C     ****************************************************************
C
C     DETERMINATION OF THE MINIMUM POSSIBLE TOTAL STATE TAX
C          UNDER CURRENT LAW:  OTAX
C
C     ****************************************************************
  358 J=1
      OTAX=TAX(1)
      OVAT=VAT(1)
      MOFIL(1)=MFIL(1)
  360 DO 370 I=2,NO
      IF(OTAX.LT.TAX(I)) GO TO 370
      IF(OTAX.GT.TAX(I)) GO TO 365
      IF(OVAT.GT.VAT(I)) GO TO 365
      J=J+1
      MOFIL(J)=MFIL(I)
      GO TO 370
  365 OTAX=TAX(I)
      OVAT=VAT(I)
      MOFIL(1)=MFIL(I)
      J=1
  370 CONTINUE
C     ****************************************************************
C
C     UNITARY METHOD TOTAL STATE TAX COMPUTATIONS:
C          TX=TOTAL STATE TAX LIABILITY
```

ILLUSTRATION C.2 (Continued)

```
      SUBROUTINE CPT2                                                    PAGE     9


C           AT3=VIRGINIA TAX LIABILITY
C           MFL=CODE INDICATING MEHTODS USED IN EACH STATE
C
C     ***************************************************************
  408 GO TO (411,411,421,421,411,424,427),IM
C     ***************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE WTHER STATES USE UNITARY/SEPARATE,
C           UNITARY/OPTIONAL SEPARATE OR CONSOLIDATED, OR UNITARY/SEPARATE
C           AND APPORTIONS DIVIDENDS RECENIVED
C
C     ***************************************************************
  411 TX(1)=AT3+BT3+CT3
      TX(2)=AT3+BT3+CT1
      TX(3)=AT3+BT3+CAT
      TX(4)=AT3+BT3+CBT
  412 MFL(1)=666
      MFL(2)=663
      MFL(3)=664
      MFL(4)=665
      NO=4
      GO TO 478
C     ***************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE OPTIONAL/
C           SEPARATE OP OPTIONAL/SEPARATE AND APPORTIONS DIVIDENDS
C           RECEIVED
C
C     ***************************************************************
  421 TX(1)=AT3+BT3+CT3
      TX(2)=AT3+BT3+CT1
      TX(3)=AT3+BATS+CT1SY
      TX(4)=AT3+BT3+CAT
      TX(5)=AT3+BT1C+CATC
      TX(6)=AT3+BT1S+CT1SY
      TX(7)=AT3+BCT+CT1
      TX(8)=AT3+BT3+CBT
      TX(9)=AT3+BCT+CBT
  422 MFL(1)=666
      MFL(2)=663
      MFL(3)=633
      MFL(4)=664
      MFL(5)=624
      MFL(6)=623
      MFL(7)=653
      MFL(8)=665
      MFL(9)=655
      NO=9
      GO TO 478
C     ***************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE SEPARATE/SEPARATE
C
C     ***************************************************************
  424 TX(1)=AT3+BT3+CT3
      TX(2)=AT3+BT1C+CATC
      TX(3)=AT3+BCT+CBT
```

ILLUSTRATION C.2 (Continued)

```
      SUBROUTINE CPT2                                                PAGE   10


      TX(4)=AT3+BATS+CT1SY
      TX(5)=AT3+BT1S+CT1SY
  425 MFL(1)=666
      MFL(2)=624
      MFL(3)=655
      MFL(4)=633
      MFL(5)=623
      NO=5
      GO TO 478
C     ****************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/UNITARY
C
C     ****************************************************************
  427 TX(1)=AT3+BT3+CT3
  429 MFL(1)=666
      NO=1
      GO TO 478
C     ****************************************************************
C
C     DETERMINATION OF THE MINIMUM POSSIBLE TOTAL STATE
C          TAX UNDER THE UNITARY METHOD:  OTX
C
C     ****************************************************************
  478 N=1
      UVAT=AT3
      OTX=TX(1)
      MOFL(1)=MFL(1)
      IF(NO.EQ.1) GO TO 490
      DO 490 I=2,NO
      IF(OTX.LT.TX(I)) GO TO 490
      IF(OTX.GT.TX(I)) GO TO 485
      N=N+1
      MOFL(N)=MFL(I)
      GO TO 490
  485 OTX=TX(I)
      MOFL(1)=MFL(I)
      N=1
  490 CONTINUE
C     ****************************************************************
C
C     COMPUTATION OF THE PERCENTAGE COST OF ADOPTION
C
C     ****************************************************************
  510 TS=OTX-OTAX
      TSP=(TS/OTAX)*100.
      VTS=UVAT-OVAT
      VTSP=(VTS/OVAT)*100.
C     ****************************************************************
C
C     WRITE MINIMIZED TAX UNDER CURRENT LAW, MINIMIZED TAX UNDER
C          THE UNITARY METHOD, AND THE COST OF ADOPTION
C
C     ****************************************************************
  519 WRITE(7,2101) IT,IM,LF,LH,IO,IR,MOFIL(1),OTAX,MOFL(1),
     1OTX,TS,TSP,OVAT,UVAT,VTS,VTSP
 2101 FORMAT (3X,I1,I1,I1,I1,I1,I1,4X,I3,4X,F5.2,
```

ILLUSTRATION C.2 (Continued)

```
      SUBROUTINE CPT2                                          PAGE   11


     14X,I3,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,
     24X,F5.2,4X,F7.2)
      RETURN
      END
```

TABLE C.1 - SAMPLE OUTPUT FROM COMPUTER MODEL ADOPT1

COST OF ADOPTION (COA)

SITUATION	CUR METH	CUR TAX	UNI METH	UNI TAX	COA	%COA	CUR VA	UNI VA	VA COA	VA %COA
111111	163	8.27	664	9.28	1.00	12.13	4.56	5.89	1.33	29.12
111112	163	9.05	664	9.89	0.84	9.29	4.56	5.89	1.33	29.12
111113	163	9.83	664	10.51	0.68	6.90	4.56	5.89	1.33	29.12
111121	165	8.60	665	9.32	0.72	8.39	4.49	5.21	0.72	16.07
111122	165	9.23	665	9.96	0.72	7.82	4.49	5.21	0.72	16.07
111123	165	9.87	665	10.59	0.72	7.31	4.49	5.21	0.72	16.07
111131	163	8.20	663	8.92	0.72	8.80	4.49	5.21	0.72	16.07
111132	163	8.98	663	9.70	0.72	8.04	4.49	5.21	0.72	16.07
111133	163	9.76	663	10.48	0.72	7.40	4.49	5.21	0.72	16.07
111211	165	8.42	664	9.33	0.91	10.78	4.53	5.55	1.02	22.61
111212	165	9.12	664	9.97	0.85	9.32	4.53	5.55	1.02	22.61
111213	165	9.81	664	10.60	0.79	8.06	4.53	5.55	1.02	22.61
111221	165	8.80	665	9.22	0.42	4.80	4.45	4.87	0.42	9.49
111222	165	9.39	665	9.81	0.42	4.50	4.45	4.87	0.42	9.49
111223	165	9.98	665	10.40	0.42	4.23	4.45	4.87	0.42	9.49
111231	163	8.50	663	8.92	0.42	4.97	4.45	4.87	0.42	9.49
111232	163	9.28	663	9.70	0.42	4.55	4.45	4.87	0.42	9.49
111233	163	10.06	663	10.48	0.42	4.20	4.45	4.87	0.42	9.49
111311	163	8.24	664	9.17	0.93	11.33	4.53	5.55	1.02	22.61
111312	163	9.02	664	9.90	0.89	9.85	4.53	5.55	1.02	22.61
111313	163	9.79	664	10.64	0.84	8.60	4.53	5.55	1.02	22.61
111321	165	8.71	665	9.14	0.42	4.85	4.45	4.87	0.42	9.49
111322	165	9.43	665	9.85	0.42	4.48	4.45	4.87	0.42	9.49
111323	165	10.14	665	10.56	0.42	4.16	4.45	4.87	0.42	9.49
111331	463	8.02	663	8.58	0.56	6.98	4.31	4.87	0.56	12.99
111332	463	8.80	663	9.36	0.56	6.37	4.31	4.87	0.56	12.99
111333	463	9.58	663	10.14	0.56	5.85	4.31	4.87	0.56	12.99
112111	165	8.60	664	9.22	0.62	7.22	2.33	3.17	0.84	36.00
112112	165	9.30	664	9.81	0.51	5.51	2.33	3.17	0.84	36.00
112113	165	10.00	664	10.40	0.40	4.03	2.33	3.17	0.84	36.00
112121	165	9.17	665	9.33	0.16	1.74	2.33	2.49	0.16	6.85
112122	165	9.81	665	9.97	0.16	1.63	2.33	2.49	0.16	6.85
112123	165	10.44	665	10.60	0.16	1.53	2.33	2.49	0.16	6.85
112131	463	8.57	663	8.92	0.35	4.08	2.14	2.49	0.35	16.32
112132	463	9.35	663	9.70	0.35	3.74	2.14	2.49	0.35	16.32
112133	463	10.13	663	10.48	0.35	3.45	2.14	2.49	0.35	16.32
112211	165	8.88	664	9.32	0.44	4.95	2.33	2.83	0.50	21.42
112212	165	9.55	664	9.96	0.41	4.29	2.33	2.83	0.50	21.42
112213	165	10.21	664	10.59	0.38	3.71	2.33	2.83	0.50	21.42
112221	665	9.28	665	9.28	0.00	0.00	2.15	2.15	0.00	0.00

TABLE C.2 - SAMPLE OUTPUT FROM COMPUTER MODEL ADOPT1

COST OF ADOPTION AVERAGES

ATTRIBUTE STATE 2 TAX RATE	TOTAL TAX 4%	TOTAL TAX 6%	TOTAL TAX 8%	TOTAL TAX ALL	VIRGINIA TAX 4%	VIRGINIA TAX 6%	VIRGINIA TAX 8%	VIRGINIA TAX ALL
ALL SITUATIONS	5.13	4.31	3.80	4.41	16.26	15.92	14.64	15.61
STATE 2 - NO T/B	5.50	4.67	4.11	4.76	17.36	17.38	16.20	16.98
STATE 2 - T/B	4.69	3.89	3.44	4.00	14.98	14.22	12.81	14.00
UNIT/SEP	5.57	4.74	4.10	4.80	17.39	17.39	17.05	17.28
UNIT/SEP,T/B	4.81	4.10	3.58	4.16	15.00	14.01	13.67	14.23
UNIT/OPT	6.41	5.77	5.26	5.82	18.39	18.39	13.39	18.39
UNIT/OPT,T/B	6.01	5.39	4.91	5.44	17.49	17.04	16.66	17.06
OPT/SEP	6.07	4.99	4.30	5.11	18.39	18.39	15.74	17.50
OPT/SEP,T/B	5.20	4.17	3.61	4.33	16.10	15.01	12.36	14.49
OPT/SEP,APP DIV	5.12	4.29	3.73	4.38	15.53	15.53	14.22	15.09
OPT/SEP,APP DIV,T/B	4.44	3.69	3.18	3.76	13.81	12.86	11.55	12.74
UNIT/SEP,APP DIV	4.63	3.83	3.25	3.90	15.22	15.22	13.91	14.79
UNIT/SEP,APP DIV,T/B	4.00	3.23	2.74	3.32	13.51	12.56	11.25	12.44
SEP/SEP	4.55	3.62	3.18	3.78	18.26	18.39	15.74	17.46
SEP/SEP,T/B	3.65	2.80	2.61	3.02	13.99	13.85	11.36	13.07
UNIT/UNIT	6.17	5.49	4.96	5.54	18.39	18.39	18.39	18.39
VA HQ	6.69	5.66	5.01	5.79	20.37	19.34	18.00	19.24
NON-VA HQ	4.34	3.64	3.20	3.72	14.21	14.21	12.95	13.79
VA FAC	7.84	6.80	6.05	6.90	16.00	16.06	15.94	16.00
NON-VA FAC	3.77	3.07	2.67	3.17	16.40	15.85	13.98	15.41

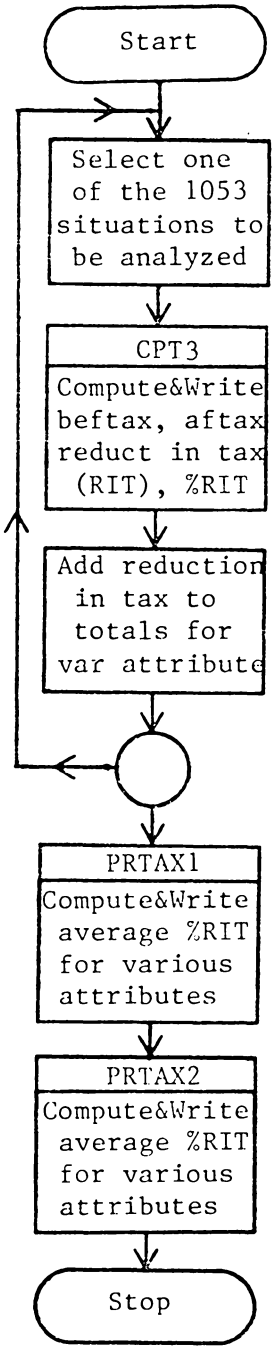
APPENDIX D

COMPUTER MODEL TRANS1

Documentation supporting the computer model TRANS1 is provided by this appendix. TRANS1 is designed to compute the average percentage reduction in tax obtainable with a 1% change in transfer price for 1,053 business situations examined. The model is designed to make such computations under either of two alternative assumptions. One is that current Virginia law is in effect. The other assumption is that Virginia utilizes the unitary method in taxing multistate businesses.

The primary computational subroutine used by TRANS1 is CPT3. It computes the percentage reduction in tax for each situation analyzed. Just as in PLAN1 and ADOPT1, PRTAX1 and PRTAX2 are used to average the measurements obtained from the individual observations and print the averages.

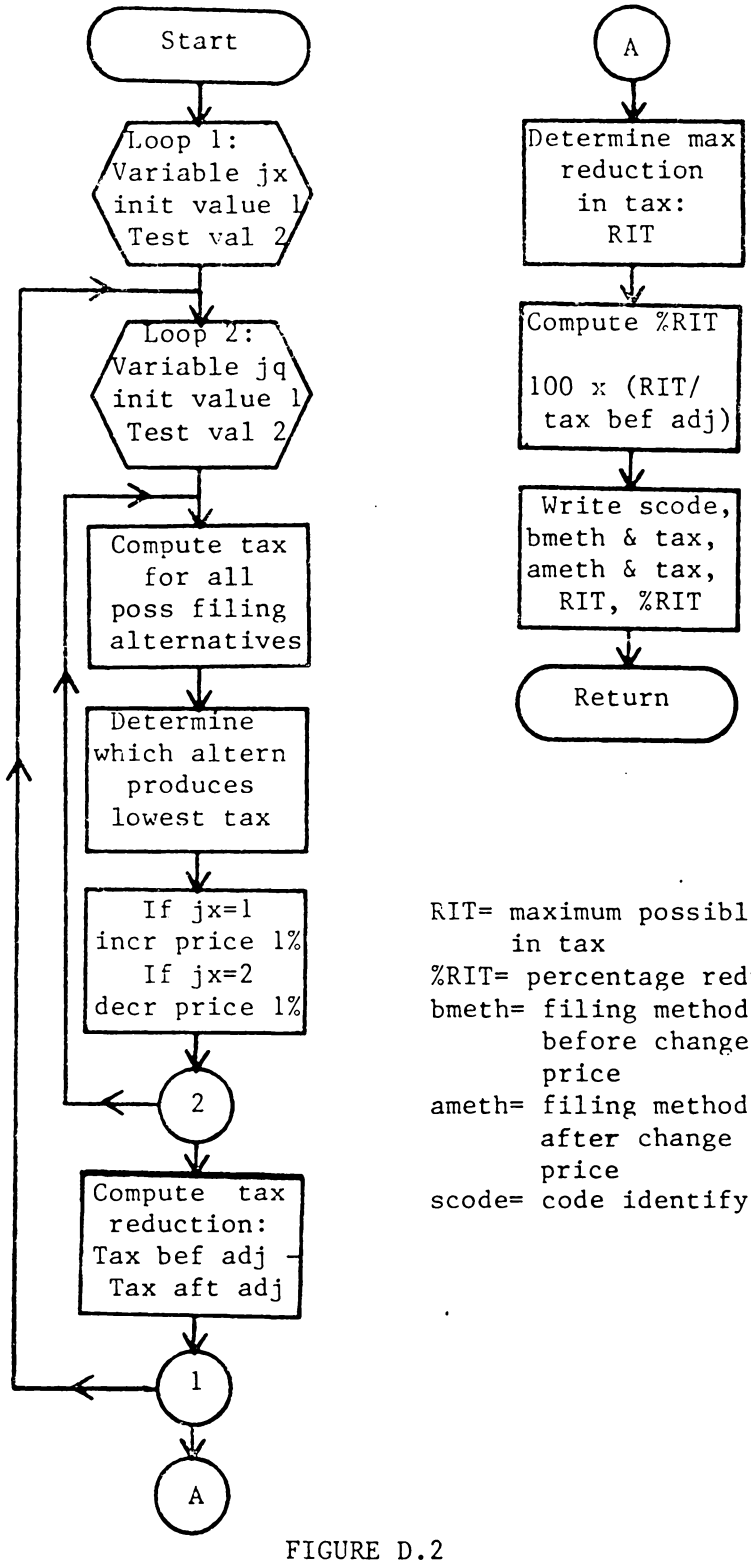
Figure D.1 provides a flowchart overview of TRANS1, and Figure D.2 gives a flowchart overview of CPT3. Illustrations D.1 and D.2 give the program code listings for TRANS1 and CPT3, respectively. A sample of CPT3 output, consisting of the individual percentage reductions in tax computations, is provided in Table D.1, and the percentage reduction in tax averages are presented in Table D.2.



beftax= lowest possible tax before change in transfer price
aftax= lowest possible tax after change in transfer price
RIT= reduction in tax
%RIT= percentage reduction in tax

FIGURE D.1

FLOWCHART OVERVIEW OF TRANS1



RIT= maximum possible reduction in tax
%RIT= percentage reduction in tax
bmeth= filing method election used before change in transfer price
ameth= filing method election used after change in transfer price
scode= code identifying situation

FIGURE D.2

FLOWCHART OVERVIEW OF CPT3

ILLUSTRATION D.1

PROGRAM CODE FOR TRANS1

```
C     **********        TRANS1        ******************************   PAGE     1


C     **********        TRANS1        ******************************
C     ************************************************************
C     ************************************************************
C
C     THE PURPOSE OF THIS PROGRAM IS TO COMPUTE THE AVERAGE PERCENTAGE
C     REDUCTION IN TAX OBTAINABLE WITH A 1% CHANGE IN TRANSFER PRICE
C     FOR 1053 SITUATIONS EXAMINED.  THE PROGRAM MAY BE USED TO PERFORM
C     THOSE COMPUTATIONS UNDER VIRGINIA'S CURRENT LAW OR UNDER
C     THE ASSUMPTION THAT VIRGINIA UTILIZES THE UNITARY METHOD.  THE
C     REDUCTION IN TAX OBTAINABLE WITH A 1% CHANGE IN TRANSFER PRICE IS
C     DEFINED AS:
C
C     100 X ((THE MINIMIZED TAX BEFORE THE TRANSFER PRICE MANIPULATION
C     LESS THE TAX AFTER THE TRANSFER PRICE MANIPULATION) / (THE TAX
C     BEFORE THE TRANSFER PRICE MANIPULATION)
C
C     THE PURPOSE OF THIS MAIN PROGRAM IS TO (1) GENERATE SITUATIONS TO
C     BE USED AS INPUT TO THE COMPUTATIONAL SUBROUTINE, AND (2) TABULATE
C     THE RESULTS OF THE COMPUTATIONAL SUBROUTINE.
C
C     ****************************************************************
      DIMENSION RATE(3), TAX(100), VAT(100), TX(100), PROP(3)
      DIMENSION S(3), R(2), PAY(3), DIV(2)
      DIMENSION MFIL(100), MOFIL(100), MFL(100), MOFL(100)
      DIMENSION TTST(2,3), TTSPT(2,3), ITK(2,3), TTSL(7,2,3)
      DIMENSION TTSPL(7,2,3), IMK(7,2,3), TTSH(3,3), TTSPH(3,3)
      DIMENSION LHK(3,3), TTSF(3,3), TTSPF(3,3), LFK(3,3)
      DIMENSION ATST(2,3), ATSPT(2,3), ATSL(7,2,3), ATSPL(7,2,3)
      DIMENSION ATSH(2,3), ATSPH(2,3), ATSF(2,3), ATSPF(2,3)
      DIMENSION TVTST(2,3), TVTSPT(2,3), TVTSL(7,2,3)
      DIMENSION TVTSPL(7,2,3), TVTSH(3,3), TVTSPH(3,3), TVTSF(3,3)
      DIMENSION TVTSPF(3,3), AVTST(2,3), AVTSPT(2,3), AVTSL(7,2,3)
      DIMENSION AVTSPL(7,2,3), AVTSH(2,3), AVTSPH(2,3)
      DIMENSION AVTSF(2,3), AVTSPF(2,3)
      DIMENSION ATSR(3), ATSPR(3), AVTSR(3), AVTSPR(3)
      DIMENSION TTSR(3), TTSPR(3), TVTSR(3), TVTSPR(3), IRK(3)
      DIMENSION TTSB(7,2,3,3), TTSPB(7,2,3,3), TVTSB(7,2,3,3)
      DIMENSION TVTSPB(7,2,3,3), IBK(7,2,3,3)
      DIMENSION TTSZ(7,2,3,3), TTSPZ(7,2,3,3), TVTSZ(7,2,3,3)
      DIMENSION TVTSPZ(7,2,3,3), IZK(7,2,3,3)
      DIMENSION ATSB(7,2,3,2), ATSPB(7,2,3,2), AVTSB(7,2,3,2)
      DIMENSION AVTSPB(7,2,3,2)
      DIMENSION ATSZ(7,2,3,2), ATSPZ(7,2,3,2), AVTSZ(7,2,3,2)
      DIMENSION AVTSPZ(7,2,3,2)
      DIMENSION TP(7,2,3), VP(7,2,3), IK(7,2,3)
      DIMENSION TPX(7,2,3,3), VPX(7,2,3,3), IKX(7,2,3,3)
      CHARACTER*20 TB(2), MET(7,2), FAC(2), HD(2)
      CHARACTER*20 SAVE, SPACE(2), TITLE(7,7), TITLE2(2)
      CHARACTER*60 HEAD(2,2)
      SPACE(1)='                    '
      SAVE='ALL SITUATIONS       '
      TB(1)='STATE 2 - NO T/B     '
      TB(2)='STATE 2 - T/B        '
      MET(1,1)='UNIT/SEP             '
      MET(2,1)='UNIT/OPT             '
      MET(3,1)='OPT/SEP              '
      MET(4,1)='OPT/SEP,APP DIV      '
```

ILLUSTRATION D.1 (Continued)

```
C      **********          TRANS1          ******************************    PAGE     2


      MET(5,1)='UNIT/SEP,APP DIV     '
      MET(1,2)='UNIT/SEP,T/B         '
      MET(2,2)='UNIT/OPT,T/B         '
      MET(3,2)='OPT/SEP,T/B          '
      MET(4,2)='OPT/SEP,APP DIV,T/B  '
      MET(5,2)='UNIT/SEP,APP DIV,T/B'
      MET(6,1)='SEP/SEP              '
      MET(6,2)='SEP/SEP,T/B          '
      MET(7,1)='UNIT/UNIT            '
      MET(7,2)='UNIT/UNIT,T/B        '
      FAC(1)='VA FAC                '
      FAC(2)='NON-VA FAC            '
      HQ(1)='VA HQ                  '
      HQ(2)='NON-VA HQ              '
      HEAD(1,1)='  SITUATION  MIN      MIN      MAX      MAX       CNP
     1CNP%       '
      HEAD(1,2)='              METH     TAX      METH     TAX
     1           '
      HEAD(2,1)='      ATTRIBUTE                    TAX RATE IN STATE 2
     1      '
      HEAD(2,2)='                                4%        6%        8%       ALL
     1      '
      DO 10 JA=1,3
      TTSR(JA)=0.
      TTSPR(JA)=0.
      TVTSR(JA)=0.
      TVTSPR(JA)=0.
      IRK(JA)=0.
      DO 6 JB=1,3
      TTSH(JB,JA)=0.
      TTSPH(JB,JA)=0.
      LHK(JB,JA)=0
      TTSF(JB,JA)=0.
      TTSPF(JB,JA)=0.
      LFK(JB,JA)=0
      TVTSH(JB,JA)=0.
      TVTSPH(JB,JA)=0.
      TVTSF(JB,JA)=0.
      TVTSPF(JB,JA)=0.
    6 CONTINUE
      DO 10 JC=1,2
      DO 9 JD=1,7
      TTSL(JD,JC,JA)=0.
      TTSPL(JD,JC,JA)=0.
      IMK(JD,JC,JA)=0
      TVTSL(JD,JC,JA)=0.
      TVTSPL(JD,JC,JA)=0.
      DO 9 JE=1,3
      TTSB(JD,JC,JA,JE)=0.
      TTSPB(JD,JC,JA,JE)=0.
      TVTSB(JD,JC,JA,JE)=0.
      TVTSPB(JD,JC,JA,JE)=0.
      IBK(JD,JC,JA,JE)=0.
      TTSZ(JD,JC,JA,JE)=0.
      TTSPZ(JD,JC,JA,JE)=0.
      TVTSZ(JD,JC,JA,JE)=0.
      TVTSPZ(JD,JC,JA,JE)=0.
```

ILLUSTRATION D.1 (Continued)

```
C     *************          TRANS1          ******************************    PAGE     3


      IZK(JD,JC,JA,JE)=0.
    9 CONTINUE
      TTST(JC,JA)=0.
      TTSPT(JC,JA)=0.
      ITK(JC,JA)=0.
      TVTST(JC,JA)=0.
      TVTSPT(JC,JA)=0.
   10 CONTINUE
      RATE(1)=.04
      RATE(2)=.06
      RATE(3)=.08
      TTSP=0.
      TTS=0.
      TVTSP=0.
      TVTS=0.
      K=0
C     ************** WRITE OUTPUT HEADINGS ***************************
      WRITE(7,2148)
      WRITE(7,2147)
      WRITE(7,2140)
      WRITE(7,2141)
      WRITE(7,2147)
C     ************************************************************************
C     ************* IDENTIFY SITUATIONS TO BE EXAMINED *************
C     ************************************************************************
      DO 20 IS=1,3
      PROP(IS)=(.15/1.0)
   20 CONTINUE
C     ********** TAX METHODS IN STATE 1 & STATE 2 *****************
      DO 1000 IT=1,2
      DO 1000 IM=1,7
      IF (IT.EQ.1) GO TO 21
      IF (IM.EQ.7) GO TO 1000
C     ****************** LOCATION OF FACTORY ************************
   21 DO 1000 LF=1,3
      PROP(LF)=PROP(LF)+(.4/1.0)
C     ***************** LOCATION OF HEADQUARTERS ******************
      DO 1000 LH=1,3
      PROP(LH)=PROP(LH)+.05
C     ***************** LOCATION OF OTHER ACTIVITIES ***************
      DO 1000 IO=1,3
      PROP(IO)=PROP(IO)+(.1/1.0)
C     ***************** TAX RATE IN STATE 2 ************************
      DO 1000 IR=1,3
      DO 22 IP=1,3
      PAY(IP)=PROP(IP)
   22 CONTINUE
      R(1)=.06
      R(2)=RATE(IR)
C     ********************* PROFIT IN EACH STATE *********************
      AP=38.89
      BP=38.89
      CP=38.89
      IF(LF.EQ.1) AP=92.22
      IF(LF.EQ.2) BP=92.22
      IF(LF.EQ.3) CP=92.22
C     ********************** INTERCOMPANY SALES **********************
```

ILLUSTRATION D. 1 (Continued)

```
C     *************        TRANS1        ****************************   PAGE    4


      SXY=0.
      SXZ=0.
      HXY=0.
      HXZ=0.
      RXY=0.
      RXZ=0.
      SYZ=0.
      SYX=0.
      HYZ=0.
      HYX=0.
      RYZ=0.
      RYX=0.
      SZX=0.
      SZY=0.
      HZX=0.
      HZY=0.
      RZX=0.
      RZY=0.
      IF(LF.EQ.1) SXY=710.
      IF(LF.EQ.1) SXZ=710.
      IF(LF.EQ.2) SYZ=710.
      IF(LF.EQ.2) SYX=710.
      IF(LF.EQ.3) SZX=710.
      IF(LF.EQ.3) SZY=710.
      IF(LH.EQ.1) HXY=141.5/3.
      IF(LH.EQ.1) HXZ=141.5/3.
      IF(LH.EQ.2) HYZ=141.5/3.
      IF(LH.EQ.2) HYX=141.5/3.
      IF(LH.EQ.3) HZX=141.5/3.
      IF(LH.EQ.3) HZY=141.5/3.
      IF(IO.EQ.1) RXY=283./3.
      IF(IO.EQ.1) RXZ=283./3.
      IF(IO.EQ.2) RYZ=283./3.
      IF(IO.EQ.2) RYX=283./3.
      IF(IO.EQ.3) RZX=283./3.
      IF(IO.EQ.3) RZY=283./3.
C     ************* EXTERNAL SALES FROM EACH STATE *****************
      S(1)=1000.
      S(2)=1000.
      S(3)=1000.
C     ***********************************************************************
C     ***************** CALL SUBROUTINE TO COMPUTE ******************
C     ********************* REDUCTION IN TAX ************************
C     ***********************************************************************
      CALL CPT3 (IT,IM,R,IR,
     1LF,LH,IO,
     2S,PROP,PAY,
     3AP,BP,CP,
     4SXY,SXZ,HXY,HXZ,RXY,RXZ,
     5SYZ,SYX,HYZ,HYX,RYZ,RYX,
     6SZX,SZY,HZX,HZY,RZX,RZY,
     7TS,TSP,VTS,VTSP)
C     ************* TABULATE RESULTS OF SUBROUTINE *****************
      K=K+1
      TTS=TTS+TS
      TTSP=TTSP+TSP
      TVTS=TVTS+VTS
```

ILLUSTRATION D.1 (Continued)

```
C     *************        TRANS1        ******************************   PAGE     5


      TVTSP=TVTSP+VTSP
  520 TTST(IT,IR)=TTST(IT,IR)+TS
      TTSPT(IT,IR)=TTSPT(IT,IR)+TSP
      TVTST(IT,IR)=TVTST(IT,IR)+VTS
      TVTSPT(IT,IR)=TVTSPT(IT,IR)+VTSP
      ITK(IT,IR)=ITK(IT,IR)+1
      TTSL(IM,IT,IR)=TTSL(IM,IT,IR)+TS
      TTSPL(IM,IT,IR)=TTSPL(IM,IT,IR)+TSP
      TVTSL(IM,IT,IR)=TVTSL(IM,IT,IR)+VTS
      TVTSPL(IM,IT,IR)=TVTSPL(IM,IT,IR)+VTSP
      IMK(IM,IT,IR)=IMK(IM,IT,IR)+1
      TTSH(LH,IR)=TTSH(LH,IR)+TS
      TTSPH(LH,IR)=TTSPH(LH,IR)+TSP
      TVTSH(LH,IR)=TVTSH(LH,IR)+VTS
      TVTSPH(LH,IR)=TVTSPH(LH,IR)+VTSP
      LHK(LH,IR)=LHK(LH,IR)+1
      TTSF(LF,IR)=TTSF(LF,IR)+TS
      TTSPF(LF,IR)=TTSPF(LF,IR)+TSP
      TVTSF(LF,IR)=TVTSF(LF,IR)+VTS
      TVTSPF(LF,IR)=TVTSPF(LF,IR)+VTSP
      LFK(LF,IR)=LFK(LF,IR)+1
      TTSR(IR)=TTSR(IR)+TS
      TTSPR(IR)=TTSPR(IR)+TSP
      TVTSR(IR)=TVTSR(IR)+VTS
      TVTSPR(IR)=TVTSPR(IR)+VTSP
      IRK(IR)=IRK(IR)+1
      TTSB(IM,IT,IR,LH)=TTSB(IM,IT,IR,LH)+TS
      TTSPB(IM,IT,IR,LH)=TTSPB(IM,IT,IR,LH)+TSP
      TVTSB(IM,IT,IR,LH)=TVTSB(IM,IT,IR,LH)+VTS
      TVTSPB(IM,IT,IR,LH)=TVTSPB(IM,IT,IR,LH)+VTSP
      IBK(IM,IT,IR,LH)=IBK(IM,IT,IR,LH)+1
      TTSZ(IM,IT,IR,LF)=TTSZ(IM,IT,IR,LF)+TS
      TTSPZ(IM,IT,IR,LF)=TTSPZ(IM,IT,IR,LF)+TSP
      TVTSZ(IM,IT,IR,LF)=TVTSZ(IM,IT,IR,LF)+VTS
      TVTSPZ(IM,IT,IR,LF)=TVTSPZ(IM,IT,IR,LF)+VTSP
      IZK(IM,IT,IR,LF)=IZK(IM,IT,IR,LF)+1
      GO TO 525
  525 IF(IR.LT.3) GO TO 590
      IF(IO.LT.3) GO TO 528
      IF(LH.LT.3) GO TO 527
  526 PROP(LF)=PROP(LF)-(.4/1.0)
  527 PROP(LH)=PROP(LH)-.05
  528 PROP(IO)=PROP(IO)-(.1/1.0)
  590 CONTINUE
 1000 CONTINUE
 1010 ATSP=TTSP/K
      ATS=TTS/K
      AVTS=TVTS/K
      AVTSP=TVTSP/K
C     ************** WRITE HEADINGS FOR AVERAGES ********************
      WRITE(7,2149)
      WRITE(7,2147)
      WRITE(7,2142)
      WRITE(7,2143)
      WRITE(7,2147)
      DO 605 IR=1,3
      TP(1,1,IR)=TTSPR(IR)
```

ILLUSTRATION D.1 (Continued)

```
C     *************        TRANS1        ****************************   PAGE     6


      VP(1,1,IR)=TVTSPR(IR)
      IK(1,1,IR)=IRK(IR)
  605 CONTINUE
      TITLE(1,1)=SAVE
C     ********************************************************************
C     ************ CALL SUBROUTINE TO AVERAGE THE ********************
C     ************ RESULTS AND PRINT THE AVERAGES ********************
C     ********************************************************************
       CALL PRTAX1 (TITLE, SPACE, TP, VP, IK, 1, 1, 3)
  608 CONTINUE
      DO 615 IT=1,2
      DO 610 IR=1,3
      TP(1,IT,IR)=TTSPT(IT,IR)
      VP(1,IT,IR)=TVTSPT(IT,IR)
      IK(1,IT,IR)=ITK(IT,IR)
  610 CONTINUE
      TITLE(1,IT)=TB(IT)
  615 CONTINUE
       CALL PRTAX1 (TITLE, SPACE, TP, VP, IK, 1, 2, 3)
       CALL PRTAX1 (MET, SPACE, TTSPL, TVTSPL, IMK, 7, 2, 3)
      DO 640 L=1,3
      DO 640 IR=1,3
      TPX(1,1,IR,L)=TTSPH(L,IR)
      VPX(1,1,IR,L)=TVTSPH(L,IR)
      IKX(1,1,IR,L)=LHK(L,IR)
  640 CONTINUE
      DO 645 L=1,2
      TITLE(1,L)=HQ(L)
  645 CONTINUE
       CALL PRTAX2 (TITLE, SPACE, TPX, VPX, IKX, 1, 1, 3, 3)
      DO 655 L=1,3
      DO 655 IR=1,3
      TPX(1,1,IR,L)=TTSPF(L,IR)
      VPX(1,1,IR,L)=TVTSPF(L,IR)
      IKX(1,1,IR,L)=LFK(L,IR)
  655 CONTINUE
      DO 660 L=1,2
      TITLE(1,L)=FAC(L)
  660 CONTINUE
       CALL PRTAX2 (TITLE, SPACE, TPX, VPX, IKX, 1, 1, 3, 3)
  680 CONTINUE
 2100 FORMAT(3X,I1,3X,I1,2X,I1,2X,I1,2X,I1,2X,I1,4X,I3,4X,F5.2,4X,I1,
     14X,I3,4X,F5.2,4X,I1,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,
     2F7.2)
 2140 FORMAT('  SITUATION  BEF      BEF      AFT      AFT       RIT       %RI
     1T       BEF       AFT        VA         VA')
 2141 FORMAT('                 METH     TAX      METH     TAX
     1       VA        VA        RIT       %RIT')
 2142 FORMAT('    ATTRIBUTE                          TOTAL TAX
     1        VIRGINIA TAX')
 2143 FORMAT(' STATE 2 TAX RATE          4%        6%        8%       ALL
     1    4%        6%        8%       ALL')
 2147 FORMAT (10X)
 2148 FORMAT (1H1,'                    REDUCTION IN TAX (RIT) RESULTING FRO
     1M 1% CHANGE IN TRANSFER PRICE')
 2149 FORMAT (1H1,'AVERAGE PERCENTAGE REDUCTION IN TAX RESULTING FROM 1%
     1 CHANGE IN TRANSFER PRICE (CURRENT LAW)')
```

ILLUSTRATION D.1 (Continued)

```
C     *************        TRANS1        ******************************   PAGE     7


 2150 FORMAT(A60)
 2200 FORMAT('1',10X,F5.2,10X,F5.2,10X,F5.2,10X,F7.2)
 2300 FORMAT('0',A20,3X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,
     14X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F6.2,4X,F6.2,4X,F6.2)
 2301 FORMAT('1',A20,' AND ',A20)
 2400 FORMAT(3X,I1,2X,I1,2X,I1,2X,I1,2X,I1,2X,I1,2X,F5.2,2X,F5.2,
     12X,F5.2,2X,F5.2,2X,F5.2,2X,F5.2,2X,F5.2,2X,F5.2,2X,F6.2)
      STOP
      END
```

ILLUSTRATION D.2

PROGRAM CODE FOR CPT3

```
      SUBROUTINE CPT3                                                    PAGE     1


      SUBROUTINE CPT3
     1(IT,IM,R,IR,
     2LF,LH,IO,
     3S,PROP,PAY,
     4AP,BP,CP,
     5SXY,SXZ,HXY,HXZ,RXY,RXZ,
     6SYZ,SYX,HYZ,HYX,RYZ,RYX,
     7SZX,SZY,HZX,HZY,RZX,RZY,
     8QTS,QTSP,QVTS,QVTSP)
C     ****************************************************************
C
C     THE PURPOSE OF THIS SUBROUTINE IS TO
C
C     (1)  CALCULATE THE TOTAL STATE TAX LIABILITY FOR A BUSINESS UNDER
C     EACH ALTERNATE SUBUNIT ORGANIZATION AND FILING METHOD ELECTION
C     AVAILABLE TO THAT BUSINESS,
C
C     (2)  DETERMINE THE PARTICULAR COMBINATION OF SUBUNIT ORGANIZATION
C     AND FILING METHOD ELECTIONS THAT GENERATE THE LOWEST TOTAL STATE
C     TAX LIABILITY FOR THE BUSINESS,
C
C     (3)  AFTER INCREASING AND DECREASING THE INTERCOMPANY TRANSFER
C     PRICE ON GOODS BY 1%, RECALCULATE THE TOTAL STATE TAX LIABILITY
C     FOR THE BUSINESS UNDER EACH ALTERNATIVE SUBUNIT ORGANIZATION AND
C     FILING METHOD ELECTION AVAILABLE TO THE BUSINESS,
C
C     (4)  DETERMINE THE PARTICULAR COMBINATION OF SUBUNIT ORGANIZATION
C     AND FILING METHOD ELECTION THAT GENERATES THE LOWEST TOTAL STATE
C     TAX LIABILITY FOR THE BUSINESS AFTER THE TRANSFER PRICE MANIPULATION,
C
C     (5)  COMPUTE THE REDUCTION IN TAX OBTAINABLE WITH THE 1% CHANGE IN
C     TRANSFER PRICE WHICH IS THE DIFFERENCE BETWEEN THE MINIMUM TAX
C     BEFORE THE CHANGE IN TRANSFER PRICE AND THE MINIMUM TAX AFTER
C     THE CHAGNE IN TRANSFER PRICE,
C
C     (6)  COMPUTE THE PERCENTAGE REDUCTION IN TAX, WHICH IS THE
C     REDUCTION IN TAX STATED AS A PERCENTAGE OF THE MINIMUM TAX BEFORE
C     THE CHANGE IN TRANSFER PRICE.
C
C     THE COMPUTATIONS ARE MADE FOR A BUSINESS WHICH OPERATES IN VIRGINIA
C     AND TWO OTHER STATES.
C
C
C     ****************************************************************
      DIMENSION RATE(3), TAX(100), VAT(100), TX(100), PROP(3)
      DIMENSION MFIL(100), MOFIL(100), MFL(100), MOFL(100)
      DIMENSION QTAX(2,2), QVAT(2,2), QTSX(2), QVTSX(2), QMOFL(2,2)
      DIMENSION PAY(3), S(3), R(2), DIV(2)
      APDA=0.
      APDB=0.
      APDAC=0.
      APDBC=0.
      T=.06
      DIV(1)=1.-(T+((1.-T)*.46))
      DIV(2)=1.-(R(1)+((1.-R(1))*.46))
      APT=AP
      BPT=BP
```

ILLUSTRATION D.2 (Continued)

```
      SUBROUTINE CPT3                                                    PAGE     2


      CPT=CP
      SXYT=SXY
      SYZT=SYZ
      SZXT=SZX
      SXZT=SXZ
      SYXT=SYX
      SZYT=SZY
C     ******************************************************************
C
C     DO COMPUTATIONS TWICE:  ONCE FOR A DECREASE IN TRANSFER PRICE
C          AND AGAIN FOR AN INCREASE IN TRANSFER PRICE
C
C     ******************************************************************
      DO 3020 JX=1,2
      AP=APT
      BP=BPT
      CP=CPT
      SXY=SXYT
      SYZ=SYZT
      SZX=SZXT
      SXZ=SXZT
      SYX=SYXT
      SZY=SZYT
C     ******************************************************************
C
C     COMPUTE TAX TWICE:  ONCE BEFORE THE CHANGE IN TRANSFER PRICE
C          AND AGAIN AFTER THE CHANGE IN TRANSFER PRICE
C
C     ******************************************************************
   30 DO 3010 JQ=1,2
      IF (JQ.EQ.1) GO TO 64
      IF (JX.EQ.1) Q=.01
      IF (JX.EQ.2) Q=-.01
      IF (LF.EQ.1) GO TO 35
      IF (LF.EQ.2) GO TO 40
      SZX=SZX*(1.+Q)
      SZY=SZY*(1.+Q)
      CP=CP+(SZX+SZY-SZXT-SZYT)
      AP=AP-(SZX-SZXT)
      BP=BP-(SZY-SZYT)
      GO TO 65
   35 SXY=SXY*(1.+Q)
      SXZ=SXZ*(1.+Q)
      AP=AP+(SXY+SXZ-SXYT-SXZT)
      BP=BP-(SXY-SXYT)
      CP=CP-(SXZ-SXZT)
      GO TO 65
   40 SYZ=SYZ*(1.+Q)
      SYX=SYX*(1.+Q)
      AP=AP-(SYX-SYXT)
      BP=BP+(SYZ+SYX-SYZT-SYXT)
      CP=CP-(SYZ-SYZT)
      GO TO 65
   64 IF (JX.EQ.2) GO TO 3010
C     ******************************************************************
C
C     COMPUTATION OF POTENTIAL SALES FACTORS TO BE UTILIZED
```

ILLUSTRATION D.2 (Continued)

```
      SUBROUTINE CPT3                                                    PAGE     3


C           UNDER DIFFERENT FILING ELECTIONS.
C
C     ****************************************************************
   65 SFX=(S(1)+HXY+HXZ+RXY+RXZ)/(S(1)+SXY+SXZ+HXY+HXZ+RXY+RXZ)
      SFXY=(S(1)+HXZ+RXZ)/(S(1)+SXZ+HXZ+RXZ+S(2)+SYZ+HYZ+RYZ)
      SFXZ=(S(1)+HXY+RXY)/(S(1)+SXY+HXY+RXY+S(3)+SZY+HZY+RZY)
      SFX3=S(1)/(S(1)+S(2)+S(3))
      SFY=(S(2)+HYZ+HYX+RYZ+RYX)/(S(2)+SYZ+SYX+HYZ+HYX+RYZ+RYX)
      SFYZ=(S(2)+HYX+RYX)/(S(2)+SYX+HYX+RYX+S(3)+SZX+HZX+RZX)
      SFYX=(S(2)+HYZ+RYZ)/(S(2)+SYZ+HYZ+RYZ+S(1)+SXZ+HXZ+RXZ)
      SFY3=S(2)/(S(1)+S(2)+S(3))
      SFZ=(S(3)+HZX+HZY+RZX+RZY)/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY)
      SFZX=(S(3)+HZY+RZY)/(S(3)+SZY+HZY+RZY+S(1)+SXY+HXY+RXY)
      SFZY=(S(3)+HZX+RZX)/(S(3)+SZX+HZX+RZX+S(2)+SYX+HYX+RYX)
      SFZ3=S(3)/(S(1)+S(2)+S(3))
      GO TO 68
   68 IF(IM.EQ.4) GO TO 70
   69 IF(IM.NE.5) GO TO 119
   70 GO TO(80,90,100) LH
   80 APDBC=BP*DIV(2)
      GO TO 119
   90 APDAC=AP*DIV(1)
      GO TO 119
  100 APDAC=AP*DIV(1)
      APDBC=BP*DIV(2)
      APDA=AP*DIV(1)
      APDB=BP*DIV(2)
  119 CONTINUE
C     ****************************************************************
C
C     COMPUTATION OF VIRGINIA TAX UNDER DIFFERENT FILING ELECTIONS
C
C     ****************************************************************
  120 AT1=AP*((2.+SFX)/3.)*T
      ABT=(AP+BP)*(((PROP(1)/(PROP(1)+PROP(2)))+(PAY(1)/(PAY(1)+PAY(2)))
     1+SFXY)/3.)*T
      ACT=(AP+CP)*(((PROP(1)/(PROP(1)+PROP(3)))+(PAY(1)/(PAY(1)+PAY(3)))
     1+SFXZ)/3.)*T
      AT3=(AP+BP+CP)*((PROP(1)+PAY(1)+SFX3)/3.)*T
C     ****************************************************************
C
C     COMPUTATION OF STATE 1 TAX UNDER DIFFERENT FILING ELECTIONS
C
C     ****************************************************************
      BT1=BP*((2.+SFY)/3.)*R(1)
      BCT=(BP+CP)*(((PROP(2)/(PROP(2)+PROP(3)))+(PAY(2)/(PAY(2)+PAY(3)))
     1+SFYZ)/3.)*R(1)
      BAT=(BP+AP)*(((PROP(2)/(PROP(1)+PROP(2)))+(PAY(2)/(PAY(1)+PAY(2)))
     1+SFYX)/3.)*R(1)
      BT3=(AP+BP+CP)*((PROP(2)+PAY(2)+SFY3)/3.)*R(1)
C     ****************************************************************
C
C     COMPUTATION OF STATE 2 TAX UNDER DIFFERENT FILING ELECTIONS
C
C     ****************************************************************
      CT1=(APDA+APDB+CP)*((2.+SFZ)/3.)*R(2)
      CAT=(APDBC+CP+AP)*(((PROP(3)/(PROP(1)+PROP(3)))+
```

ILLUSTRATION D.2 (Continued)

```
      SUBROUTINE CPT3                                                    PAGE    4


     1(PAY(3)/(PAY(1)+PAY(3)))+SFZX)/3.)*R(2)
      CBT=(APDAC+CP+BP)*(((PROP(3)/(PROP(2)+PROP(3)))+
     1(PAY(3)/(PAY(2)+PAY(3)))+SFZY)/3.)*R(2)
      CT3=(AP+BP+CP)*((PROP(3)+PAY(3)+SFZ3)/3.)*R(2)
  200 CONTINUE
C     ******************************************************************
C
C     INITIALIZE SALES THROWBACK (OR THROWFORWARD)
C
C     ******************************************************************
  300 TFXC=0.
      TFXS=0.
      TBXC=0.
      TBXS=0.
      TFYC=0.
      TFYS=0.
      TBYC=0.
      TBYS=0.
C     ******************************************************************
C
C     WHERE THROWBACK RULE IS UTILIZED, COMPUTATION OF ADDITIONAL
C          TAX RESULTING FROM SALES FACTOR ADJUSTMENT.
C
C     ******************************************************************
  301 IF(IT.EQ.1) GO TO 307
      IF(LF.NE.3) GO TO 307
      TFBZX=CP*(SZX/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY))/3.
      TFBZY=CP*(SZY/(S(3)+SZX+SZY+HZX+HZY+RZX+RZY))/3.
      TFBZXC=(CP+BP)*(SZX/(S(3)+SZX+HZX+RZX+S(2)+SYX+HYX+RYX))/3.
      TFBZYC=(CP+AP)*(SZY/(S(3)+SZY+HZY+RZY+S(1)+SXY+HXY+RXY))/3.
      IF(R(2).LT.T) GO TO 302
      TFXC=TFBZXC*T
      TFXS=TFBZX*T
      GO TO 303
  302 TBXC=TFBZXC*R(2)
      TBXS=TFBZX*R(2)
  303 IF(R(2).LT.R(1)) GO TO 304
      TFYC=TFBZYC*R(1)
      TFYS=TFBZY*R(1)
      GO TO 307
  304 TBYC=TFBZYC*R(2)
      TBYS=TFBZY*R(2)
C     ******************************************************************
C
C     RECOMPUTATION OF EACH STATE'S TAX WITH THE ADDITIONAL TAX
C          RESULTING FROM SALES FACTOR ADJUSTMENTS INCLUDED.
C
C     ******************************************************************
  307 AT1S=AT1+TFXS
      AT1C=AT1+TFXC
      ABTS=ABT+TFXS
      ABTC=ABT+TFXC
      BT1S=BT1+TFYS
      BT1C=BT1+TFYC
      BATS=BAT+TFYS
      BATC=BAT+TFYC
      CT1SX=CT1+TBXS
```

ILLUSTRATION D.2 (Continued)

```
      SUBROUTINE CPT3                                                    PAGE     5


      CT1SY=CT1+TBYS
      CT1S2=CT1+TBXS+TBYS
      CATC=CAT+TBYC
      CBTC=CBT+TBXC
C     ***************************************************************
C
C     TOTAL STATE TAX COMPUTATIONS:
C          TAX=TOTAL STATE TAX LIABILITY
C          VAT=VIRGINIA TAX LIABILITY
C          MFIL=CODE INDICATING METHODS USED IN EACH STATE:
C               FIRST DIGIT INDICATES METHOD USED IN VIRGINIA
C               SECOND DIGIT FOR STATE 1
C               THIRD DIGIT FOR STATE 2
C               EACH DIGIT INDICATES THE INCOME FROM WHICH STATES
C                    ARE INCLUDED IN THAT STATE'S RETURN
C               1 - ONLY VIRGINIA INCOME
C               2 - ONLY STATE 1 INCOME
C               3 - ONLY STATE 2 INCOME
C               3 - INCOME OF VIRGINIA AND STATE 1
C               4 - INCOME OF VIRGINIA AND STATE 2
C               5 - INCOME OF STATE 1 AND STATE 2
C               6 - INCOME OF VIRGINIA, STATE 1, AND STATE 2
C
C     ***************************************************************
C
C     THE COMPUTATIONS BRANCHED TO FROM STATEMENT 308 ARE PREPARED
C          FOR A BUSINESS OPERATING UNDER VIRGINIA'S CURRENT LAW
C
C     ***************************************************************
C
C     WHEN THE PROGRAM IS USED TO COMPUTE THE REDUCTION IN TAX UNDER
C          THE UNITARY METHOD, STATEMENT 307 IS ADDED AT THIS POINT
C
C 307 GO TO 408
C
C     ***************************************************************
  308 GO TO (311,316,321,321,311,324,327),IM
C     ***************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/SEPARATE
C          OR UNITARY/SEPARATE AND APPORTIONS DIVIDENDS RECEIVED
C
C     ***************************************************************
  311 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT3+CT1
      TAX(3)=ABTS+BT3+CT1SX
      TAX(4)=AT3+BT3+CAT
      TAX(5)=ACT+BT3+CAT
      TAX(6)=ACT+BT3+CT1
      TAX(7)=AT1S+BT3+CT1SX
      TAX(8)=AT3+BT3+CBT
      TAX(9)=AT1C+BT3+CBTC
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=ABTS
      VAT(4)=AT3
      VAT(5)=ACT
```

ILLUSTRATION D.2 (Continued)

```
      SUBROUTINE CPT3                                                  PAGE     6


      VAT(6)=ACT
      VAT(7)=AT1S
      VAT(8)=AT3
      VAT(9)=AT1C
  312 MFIL(1)=666
      MFIL(2)=663
      MFIL(3)=363
      MFIL(4)=664
      MFIL(5)=464
      MFIL(6)=463
      MFIL(7)=163
      MFIL(8)=665
      MFIL(9)=165
      NO=9
      GO TO 358
C     ****************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/
C          OPTIONAL SEPARATE OR CONSOLIDATED
C
C     ****************************************************************
  316 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT3+CAT
      TAX(3)=AT3+BT3+CBT
      TAX(4)=AT3+BT3+CT1
      TAX(5)=ABT+BT3+CT3
      TAX(6)=ABT+BT3+CAT
      TAX(7)=ABTC+BT3+CBTC
      TAX(8)=ABTS+BT3+CT1SX
      TAX(9)=ACT+BT3+CT3
      TAX(10)=ACT+BT3+CAT
      TAX(11)=ACT+BT3+CBT
      TAX(12)=ACT+BT3+CT1
      TAX(13)=AT1+BT3+CT3
      TAX(14)=AT1+BT3+CAT
      TAX(15)=AT1C+BT3+CBTC
      TAX(16)=AT1S+BT3+CT1SX
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=AT3
      VAT(4)=AT3
      VAT(5)=ABT
      VAT(6)=ABT
      VAT(7)=ABTC
      VAT(8)=ABTS
      VAT(9)=ACT
      VAT(10)=ACT
      VAT(11)=ACT
      VAT(12)=ACT
      VAT(13)=AT1
      VAT(14)=AT1
      VAT(15)=AT1C
      VAT(16)=AT1S
  317 MFIL(1)=666
      MFIL(2)=664
      MFIL(3)=665
      MFIL(4)=663
```

ILLUSTRATION D.2 (Continued)

```
      SUBROUTINE CPT3                                                    PAGE    7


      MFIL(5)=366
      MFIL(6)=364
      MFIL(7)=365
      MFIL(8)=363
      MFIL(9)=466
      MFIL(10)=464
      MFIL(11)=465
      MFIL(12)=463
      MFIL(13)=166
      MFIL(14)=164
      MFIL(15)=165
      MFIL(16)=163
      NO=16
      GO TO 358
C     ******************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE OPTIONAL/
C          SEPARATE, OR OPTIONAL/SEPARATE AND APPORTIONS DIVIDENDS
C          RECEIVED
C
C     ******************************************************************
  321 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT3+CT1
      TAX(3)=AT3+BATS+CT1SY
      TAX(4)=AT3+BCT+CT1
      TAX(5)=AT3+BT1S+CT1SY
      TAX(6)=AT3+BT3+CAT
      TAX(7)=AT3+BT1C+CATC
      TAX(8)=ABTS+BT3+CT1SX
      TAX(9)=ABTS+BATS+CT1S2
      TAX(10)=ABTS+BCT+CT1SX
      TAX(11)=ABTS+BT1S+CT1S2
      TAX(12)=AT3+BT3+CBT
      TAX(13)=AT3+BCT+CBT
      TAX(14)=ACT+BT3+CT1
      TAX(15)=ACT+BATS+CT1SY
      TAX(16)=ACT+BCT+CT1
      TAX(17)=ACT+BT1S+CT1SY
      TAX(18)=ACT+BT3+CAT
      TAX(19)=ACT+BT1C+CATC
      TAX(20)=AT1S+BT3+CT1SX
      TAX(21)=AT1S+BATS+CT1S2
      TAX(22)=AT1S+BCT+CT1SX
      TAX(23)=AT1S+BT1S+CT1S2
      TAX(24)=AT1C+BT3+CBTC
      TAX(25)=AT1C+BCT+CBTC
      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=AT3
      VAT(4)=AT3
      VAT(5)=AT3
      VAT(6)=AT3
      VAT(7)=AT3
      VAT(8)=ABTS
      VAT(9)=ABTS
      VAT(10)=ABTS
      VAT(11)=ABTS
```

ILLUSTRATION D.2 (Continued)

```
      SUBROUTINE CPT3                                                  PAGE     8


      VAT(12)=AT3
      VAT(13)=AT3
      VAT(14)=ACT
      VAT(15)=ACT
      VAT(16)=ACT
      VAT(17)=ACT
      VAT(18)=ACT
      VAT(19)=ACT
      VAT(20)=AT1S
      VAT(21)=AT1S
      VAT(22)=AT1S
      VAT(23)=AT1S
      VAT(24)=AT1C
      VAT(25)=AT1C
  322 MFIL(1)=666
      MFIL(2)=663
      MFIL(3)=633
      MFIL(4)=653
      MFIL(5)=623
      MFIL(6)=664
      MFIL(7)=624
      MFIL(8)=363
      MFIL(9)=333
      MFIL(10)=353
      MFIL(11)=323
      MFIL(12)=665
      MFIL(13)=655
      MFIL(14)=463
      MFIL(15)=433
      MFIL(16)=453
      MFIL(17)=423
      MFIL(18)=464
      MFIL(19)=424
      MFIL(20)=163
      MFIL(21)=133
      MFIL(22)=153
      MFIL(23)=123
      MFIL(24)=165
      MFIL(25)=155
      NO=25
      GO TO 358
C     ********************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE SEPARATE/SEPARATE
C
C     ********************************************************************
  324 TAX(1)=AT3+BT3+CT3
      TAX(2)=AT3+BT1C+CATC
      TAX(3)=ACT+BT1C+CATC
      TAX(4)=AT3+BCT+CBT
      TAX(5)=AT1C+BCT+CBTC
      TAX(6)=AT3+BATS+CT1SY
      TAX(7)=ABTS+BATS+CT1S2
      TAX(8)=AT3+BT1S+CT1SY
      TAX(9)=ABTS+BT1S+CT1S2
      TAX(10)=ACT+BT1S+CT1SY
      TAX(11)=AT1S+BT1S+CT1S2
```

ILLUSTRATION D.2 (Continued)

```
      SUBROUTINE CPT3                                                    PAGE    9


      VAT(1)=AT3
      VAT(2)=AT3
      VAT(3)=ACT
      VAT(4)=AT3
      VAT(5)=AT1C
      VAT(6)=AT3
      VAT(7)=ABTS
      VAT(8)=AT3
      VAT(9)=ABTS
      VAT(10)=ACT
      VAT(11)=AT1S
  326 MFIL(1)=666
      MFIL(2)=624
      MFIL(3)=424
      MFIL(4)=655
      MFIL(5)=155
      MFIL(6)=633
      MFIL(7)=333
      MFIL(8)=623
      MFIL(9)=323
      MFIL(10)=423
      MFIL(11)=123
      NO=11
      GO TO 358
C     ******************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/UNITARY
C
C     ******************************************************************
  327 TAX(1)=AT3+BT3+CT3
      TAX(2)=ABT+BT3+CT3
      TAX(3)=ACT+BT3+CT3
      TAX(4)=AT1+BT3+CT3
  328 VAT(1)=AT3
      VAT(2)=ABT
      VAT(3)=ACT
      VAT(4)=AT1
  329 MFIL(1)=666
      MFIL(2)=366
      MFIL(3)=466
      MFIL(4)=166
      NO=4
      GO TO 358
C     ******************************************************************
C
C     DETERMINATION OF THE MINIMUM POSSIBLE TOTAL STATE TAX
C          UNDER CURRENT LAW:  OTAX
C
C     ******************************************************************
  358 J=1
      OTAX=TAX(1)
      OVAT=VAT(1)
      MOFIL(1)=MFIL(1)
  360 DO 370 I=2,NO
      IF(OTAX.LT.TAX(I)) GO TO 370
      IF(OTAX.GT.TAX(I)) GO TO 365
      IF(OVAT.GT.VAT(I)) GO TO 365
```

ILLUSTRATION D.2 (Continued)

```
      SUBROUTINE CPT3                                                PAGE   10


      J=J+1
      MOFIL(J)=MFIL(I)
      GO TO 370
  365 OTAX=TAX(I)
      OVAT=VAT(I)
      MOFIL(1)=MFIL(I)
      J=1
  370 CONTINUE
      GO TO 3000
C     ******************************************************************
C
C     THE COMPUTATIONS BRANCHED TO FROM STATEMENT 408 ARE PREPARED
C          FOR A BUSINESS OPERATING IN VIRGINIA UNDER THE ASSUMPTION
C          THAT THE STATE UTILIZES THE UNITARY METHOD
C
C     ******************************************************************
  408 GO TO (411,411,421,421,411,424,427),IM
C     ******************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/SEPARATE,
C          UNITARY/OPTIONAL SEPARATE OR CONSOLIDATED, OR UNITARY/
C          SEPARATE AND APPORTIONS DIVIDENDS RECEIVED
C
C     ******************************************************************
  411 TX(1)=AT3+BT3+CT3
      TX(2)=AT3+BT3+CT1
      TX(3)=AT3+BT3+CAT
      TX(4)=AT3+BT3+CBT
  412 MFL(1)=666
      MFL(2)=663
      MFL(3)=664
      MFL(4)=665
      NO=4
      GO TO 478
C     ******************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE OPTIONAL/SEPARATE,
C          OR OPTIONAL/SEPARATE AND APPORTIONS DIVIDENDS RECEIVED
C
C     ******************************************************************
  421 TX(1)=AT3+BT3+CT3
      TX(2)=AT3+BT3+CT1
      TX(3)=AT3+BATS+CT1SY
      TX(4)=AT3+BT3+CAT
      TX(5)=AT3+BT1C+CATC
      TX(6)=AT3+BT1S+CT1SY
      TX(7)=AT3+BCT+CT1
      TX(8)=AT3+BT3+CBT
      TX(9)=AT3+BCT+CBT
  422 MFL(1)=666
      MFL(2)=663
      MFL(3)=633
      MFL(4)=664
      MFL(5)=624
      MFL(6)=623
      MFL(7)=653
      MFL(8)=665
```

ILLUSTRATION D.2 (Continued)

```
      SUBROUTINE CPT3                                                    PAGE   11


      MFL(9)=655
      NO=9
      GO TO 478
C     ******************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE SEPARATE/SEPARATE
C
C     ******************************************************************
  424 TX(1)=AT3+BT3+CT3
      TX(2)=AT3+BT1C+CATC
      TX(3)=AT3+BCT+CBT
      TX(4)=AT3+BATS+CT1SY
      TX(5)=AT3+BT1S+CT1SY
  426 MFL(1)=666
      MFL(2)=624
      MFL(3)=655
      MFL(4)=633
      MFL(5)=623
      NO=5
      GO TO 478
C     ******************************************************************
C
C     TOTAL STATE TAX COMPUTED WHERE OTHER STATES USE UNITARY/UNITARY
C
C     ******************************************************************
  427 TX(1)=AT3+BT3+CT3
  429 MFL(1)=666
      NO=1
      GO TO 478
C     ******************************************************************
C
C     DETERMINATION OF THE MINIMUM POSSIBLE TOTAL STATE TAX UNDER
C          THE UNITARY METHOD:  OTX
C
C     ******************************************************************
  475 N=1
      UVAT=AT3
      OTX=TX(1)
      MOFL(1)=MFL(1)
      IF(NO.EQ.1) GO TO 490
      DO 490 I=2,NO
      IF(OTX.LT.TX(I)) GO TO 490
      IF(OTX.GT.TX(I)) GO TO 485
      N=N+1
      MOFL(N)=MFL(I)
      GO TO 490
  485 OTX=TX(I)
      MOFL(1)=MFL(I)
      N=1
  490 CONTINUE
C     ******************************************************************
C
C     SAVE MINIMUM TAX FOR PARTICULAR CONDITIONS DESCRIBED
C
C     ******************************************************************
 3000 QTAX(JQ,JX)=OTAX
      QVAT(JQ,JX)=OVAT
```

ILLUSTRATION D.2 (Continued)

```
      SUBROUTINE CPT3                                                    PAGE   12


      QMOFL(JQ,JX)=MOFIL(1)
 3010 CONTINUE
C     ******************************************************************
C
C     COMPUTE THE REDUCTION IN TAX WITH EITHER A TRANSFER PRICE
C          INCREASE OR A TRANSFER PRICE DECREASE
C
C     ******************************************************************
      QTSX(JX)=QTAX(1,1)-QTAX(2,JX)
      QVTSX(JX)=QVAT(1,1)-QVAT(2,JX)
 3020 CONTINUE
C     ******************************************************************
C
C     DETERMINE THE MAXIMUM REDUCTION IN TAX POSSIBLE WITH EITHER
C          AN INCREASE OR A DECREASE IN TRANSFER PRICE
C
C     ******************************************************************
      IF(QTSX(1).LE.QTSX(2)) GO TO 3022
 3021 QTS=QTSX(1)
      QVTS=QVTSX(1)
      MJX=1
      GO TO 3030
 3022 IF(QTSX(1).EQ.QTSX(2)) GO TO 3024
 3023 QTS=QTSX(2)
      QVTS=QVTSX(2)
      MJX=2
      GO TO 3030
 3024 IF(QVTSX(1).LE.QVTSX(2)) GO TO 3023
      GO TO 3021
 3030 CONTINUE
C     ******************************************************************
C
C     COMPUTE THE PERCENTAGE REDUCTION IN TAX FROM THE TRANSFER
C          PRICE MANIPULATION:  OTSP
C
C     ******************************************************************
      QTSP=100.*QTS/QTAX(1,1)
      QVTSP=100.*QVTS/QVAT(1,1)
C     ******************************************************************
C
C     WRITE THE TAX BEFORE THE CHANGE IN TRANSFER PRICE, THE TAX AFTER
C          THE CHANGE IN TRANSFER PRICE, AND THE REDUCTION IN TAX
C
C     ******************************************************************
      WRITE(7,2400) IT,IM,LF,LH,IO,IR,
     1QMOFL(1,1),QTAX(1,1),QMOFL(2,MJX),QTAX(2,MJX),
     2QTS,QTSP,QVAT(1,1),QVAT(2,MJX),
     3QVTS,QVTSP
 3035 CONTINUE
 2400 FORMAT(3X,I1,I1,I1,I1,I1,I1,4X,I3,4X,F5.2,4X,I3,4X,F5.2,
     14X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F5.2,4X,F7.2)
 2401 FORMAT(12F5.2)
      RETURN
      END
```

TABLE D.1 - SAMPLE OUTPUT FROM COMPUTER MODEL TRANS1

REDUCTION IN TAX (RIT) RESULTING FROM 1% CHANGE IN TRANSFER PRICE

SITUATION	BEF METH	BEF TAX	AFT METH	AFT TAX	RIT	%RIT	BEF VA	AFT VA	VA RIT	VA %RIT
111111	163	8.27	163	7.86	0.41	5.01	4.56	3.87	0.70	15.31
111112	163	9.05	163	8.78	0.27	3.02	4.56	3.87	0.70	15.31
111113	163	9.83	464	9.56	0.27	2.70	4.56	5.08	-0.52	-11.31
111121	165	8.60	165	8.14	0.46	5.30	4.49	3.80	0.69	15.31
111122	165	9.23	165	8.90	0.34	3.67	4.49	3.80	0.69	15.31
111123	165	9.87	165	9.65	0.22	2.26	4.49	3.80	0.69	15.31
111131	163	8.20	163	7.80	0.40	4.92	4.49	3.80	0.69	15.31
111132	163	8.98	163	8.72	0.26	2.92	4.49	3.80	0.69	15.31
111133	163	9.76	463	9.61	0.14	1.48	4.49	4.91	-0.42	-9.43
111211	165	8.42	165	7.98	0.44	5.21	4.53	3.84	0.69	15.31
111212	165	9.12	165	8.80	0.31	3.42	4.53	3.84	0.69	15.31
111213	165	9.81	165	9.63	0.18	1.87	4.53	3.84	0.69	15.31
111221	165	8.80	165	8.33	0.47	5.31	4.45	3.77	0.68	15.31
111222	165	9.39	165	9.03	0.36	3.83	4.45	3.77	0.68	15.31
111223	165	9.98	165	9.72	0.25	2.53	4.45	3.77	0.68	15.31
111231	163	8.50	163	8.10	0.40	4.68	4.45	3.77	0.68	15.31
111232	163	9.28	163	9.02	0.26	2.75	4.45	3.77	0.68	15.31
111233	163	10.06	463	9.82	0.23	2.34	4.45	4.78	-0.33	-7.48
111311	163	8.24	163	7.83	0.41	4.97	4.53	3.84	0.69	15.31
111312	163	9.02	163	8.75	0.27	2.97	4.53	3.84	0.69	15.31
111313	163	9.79	163	9.67	0.13	1.28	4.53	3.84	0.69	15.31
111321	165	8.71	165	8.29	0.42	4.83	4.45	3.77	0.68	15.31
111322	165	9.43	165	9.14	0.29	3.08	4.45	3.77	0.68	15.31
111323	165	10.14	165	9.98	0.16	1.58	4.45	3.77	0.68	15.31
111331	463	8.02	163	7.76	0.26	3.24	4.31	3.77	0.54	12.60
111332	463	8.80	463	8.60	0.19	2.21	4.31	4.54	-0.23	-5.36
111333	463	9.58	463	9.24	0.34	3.52	4.31	4.54	-0.23	-5.36
112111	165	8.60	163	8.05	0.55	6.38	2.33	1.91	0.43	18.26
112112	165	9.30	163	8.69	0.61	6.56	2.33	1.91	0.43	18.26
112113	165	10.00	464	9.17	0.83	8.27	2.33	2.37	-0.04	-1.71
112121	165	9.17	163	8.73	0.43	4.73	2.33	1.91	0.43	18.26
112122	165	9.81	163	9.37	0.44	4.46	2.33	1.91	0.43	18.26
112123	165	10.44	464	9.94	0.51	4.85	2.33	2.10	0.23	9.84
112131	463	8.57	463	7.90	0.68	7.88	2.14	1.75	0.39	18.26
112132	463	9.35	463	8.53	0.82	8.74	2.14	1.75	0.39	18.26
112133	463	10.13	463	9.17	0.96	9.47	2.14	1.75	0.39	18.26
112211	165	8.88	163	8.39	0.49	5.49	2.33	1.91	0.43	18.26
112212	165	9.55	163	9.03	0.52	5.43	2.33	1.91	0.43	18.26
112213	165	10.21	464	9.55	0.66	6.51	2.33	2.25	0.08	3.41
112221	665	9.28	464	9.07	0.20	2.20	2.15	1.91	0.25	11.42

TABLE D.2 - SAMPLE OUTPUT FROM COMPUTER MODEL TRANS1

AVERAGE PERCENTAGE REDUCTION IN TAX RESULTING FROM 1% CHANGE IN TRANSFER PRICE (CURRENT LAW)

ATTRIBUTE	TOTAL TAX				VIRGINIA TAX			
STATE 2 TAX RATE	4%	6%	8%	ALL	4%	6%	8%	ALL
ALL SITUATIONS	5.21	5.23	5.47	5.30	8.27	7.66	6.47	7.47
STATE 2 - NO T/B	5.04	4.86	5.10	5.00	9.29	7.74	5.92	7.65
STATE 2 - T/B	5.41	5.66	5.90	5.66	7.09	7.56	7.12	7.26
UNIT/SEP	5.34	5.47	5.81	5.54	9.43	8.77	4.42	7.54
UNIT/SEP,T/B	6.03	6.05	6.28	6.12	11.58	11.77	7.42	10.25
UNIT/OPT	6.30	6.68	7.10	6.69	11.38	9.58	8.25	9.74
UNIT/OPT,T/B	6.66	7.02	7.42	7.03	11.07	10.81	9.80	10.56
OPT/SEP	5.68	5.45	5.74	5.63	8.28	6.03	5.39	6.57
OPT/SEP,T/B	6.46	6.75	6.82	6.67	6.00	6.57	8.39	6.99
OPT/SEP,APP DIV	4.97	4.40	4.56	4.64	9.70	5.70	4.20	6.54
OPT/SEP,APP DIV,T/B	5.37	5.50	5.50	5.46	5.18	5.61	6.58	5.79
UNIT/SEP,APP DIV	4.21	4.16	4.31	4.23	8.90	7.23	4.60	6.91
UNIT/SEP,APP DIV,T/B	4.75	4.69	4.76	4.74	10.04	9.61	6.97	8.87
SEP/SEP	3.65	3.31	4.05	3.67	2.12	1.71	-0.64	1.06
SEP/SEP,T/B	3.18	3.93	4.62	3.91	-1.32	1.01	3.52	1.07
UNIT/UNIT	5.11	4.55	4.11	4.59	15.19	15.19	15.19	15.19
VA HQ	5.52	5.53	5.77	5.61	10.20	9.16	6.11	8.49
NON-VA HQ	5.05	5.08	5.32	5.15	7.31	6.91	6.65	6.96
VA FAC	5.06	4.57	4.29	4.64	8.16	5.22	2.82	5.40
NON-VA FAC	5.28	5.56	6.06	5.63	8.33	8.88	8.30	8.50

APPENDIX E

EXAMPLE VALIDATION PROCEDURES

The purpose of this appendix is to illustrate the recomputations performed in testing the internal validity of the computer models. Two examples of such recomputations are provided. The recomputations are made for results generated by PLAN1, the computer model used to compute the business's percentage cost of not planning.

The cost of not planning for an individual situation is the difference between the business's maximized tax without planning and its minimized tax with planning. The percentage cost of not planning is the cost of not planning stated as a percentage of the minimized tax.

Once a situation is selected for validation, the recomputations are performed in two steps. First, the accuracy of the computations provided in the program output are verified. The minimum tax, maximum tax, and the percentage cost of not planning are each hand computed using the organization and filing method elections identified in the computer output.

Second, alternative corporate organization and filing method elections are reviewed to determine if any might produce a total state tax either higher than the maximized tax or lower than the minimized tax computed by the model. Where such results appear possible, the tax is computed under the alternate election, and that tax is

compared with either the maximized tax or the minimized tax computed by the computer model.

An example of the recomputation procedures involves a situation where a business operates in Virginia and two separate accounting states (State 1 and State 2). State 2 has a 6% tax rate and does not use a sales throwback rule. The business has a Virginia headquarters, a State 1 factory, and a State 2 research facility.

The program output indicates that the maximum tax of $10.20 is found where the business files a fully consolidated return in all three states. Hand calculations of the tax under those filing methods indicate a Virginia tax of $2.49, a State 1 tax of $4.87, and a State 2 tax of $2.83 (each rounded here), for a total tax of $10.20.

The minimized tax of $8.93 is computed where the business files a Virginia return which consolidates its Virginia and State 2 operations, and it files a separate return in each of the other two states. Recomputation reveals a Virginia tax of $2.14, a State 1 tax of $4.45, and a State 2 tax of $2.33 (each rounded here), for a total tax of $8.93.

The percentage cost of not planning is then recomputed by dividing the cost of not planning ($10.20 - $8.93 = $1.27) by the minimized tax of $8.93 (each rounded here) to get 14.25%.

Once the percentage cost of not planning computations are verified, consideration is given to the tax liability generated under other possible corporate organization and filing method elections. Those possible elections are listed in Table E.1.

TABLE E.1

OTHER FILING ELECTIONS POSSIBLE IN FIRST EXAMPLE

VA Separate
S1 Separate
S2 Separate

VA Consolidates with S2
S1 Separate
S2 Consolidates with VA

VA Consolidates with S1
S1 Separate
S2 Separate

VA Consolidates with S1 and S2
S1 Separate
S2 Consolidates with VA

VA Consolidates with S1 and S2
S1 Separate
S2 Separate

VA Consolidates with S1 and S2
S1 Consolidates with S2
S2 Consolidates with S1

VA Consolidates with S1
S1 Consolidates with VA
S2 Separate

VA Separate
S1 Consolidate with S2
S2 Consolidates with S1

VA Consolidates with S1 and S2
S1 Consolidates with VA
S2 Separate

Of the other possible organization and filing method elections, the only alternative that appears to have chance of producing a total state tax liability which is less than the minimum tax is where the business files a Virginia return which consolidates the operations of Virginia and State 1, and it files separate returns in each of the other two states. Under that alternative, however, the total state tax liability is computed to be $9.18 with Virginia, State 1, and State 2 tax liabilities of $2.39, $4.45, and $3.11, respectively. The total state tax liability is higher than the minimum tax computed by the model. Therefore, it is concluded that the minimum tax computation is correct.

No combination of corporate organization and filing method elections appear to have a chance of producing a higher total state tax liability than the maximum tax generated by the model. Therefore, it is concluded the maximum tax computations are correct.

A second example of the recomputation procedures involves a situation where the business operates in Virginia, a unitary method state (State 1), and a state which allows separate or consolidated returns (State 2). The tax rate in State 2 is 4%, and it does not use a throwback rule. The business's headquarters and research facility are located in State 1, and the factory is located in State 2.

The computer model generates a minimum tax of $7.81 utilizing filing elections which consist of a Virginia return that consolidates the Virginia and State 1 operations, a fully consolidated (unitary)

State 1 return, and a State 2 return which consolidates State 1 and State 2 operations. Recomputing the tax with those elections gives a Virginia tax of $1.76, a State 1 tax of $3.17, and a State 2 tax of $2.88, for a total tax of $7.81.

The maximum tax computed by the model is $8.90. The filing methods used to compute the maximum tax consist of a separate Virginia return, a fully consolidated State 1 return, and a State 2 return that consolidates the Virginia and State 2 operations. Recomputations show a tax liability of $2.33 in Virginia, $3.17 in State 1, and $3.39 in State 2 (all rounded here), for a total tax of $8.90. Recomputations also confirm the percentage cost of not planning to be 13.91%.

In addition to the corporate organization and filing method elections used by the computer model to compute the maximum tax and the minimum tax, the business in this situation has fourteen other alternative elections which could have been made. Those other possible corporate organization and filing method elections are listed in Table E.2.

After recomputing the maximum tax and the minimum tax liabilities listed in the computer output, the other possible corporate organization and filing method elections are reviewed to determine if any of those might generate a tax liability that is either less than the minimized tax or greater than the maximized tax.

Of the other corporate organization and filing elections available, one appears to have a chance of generating a total state

TABLE E.2

OTHER FILING ELECTIONS POSSIBLE IN SECOND EXAMPLE

VA Separate S1 Unitary S2 Separate	VA Separate S1 Unitary S2 Consolidates with S1
VA Consolidates with S1 S1 Unitary S2 Separate	VA Consolidates with S2 S1 Unitary S2 Consolidates with S1
VA Consolidates with S2 S1 Unitary S2 Separate	VA Consolidates with S1 and S2 S1 Unitary S2 Consolidates with S1
VA Consolidates with S1 and S2 S1 Unitary S2 Separate	VA Separate S1 Unitary S2 Consolidates with VA and S1
VA Consolidates with S1 S1 Unitary S2 Consolidates with VA	VA Consolidates with S1 S1 Unitary S2 Consolidates with VA and S1
VA Consolidates with S2 S1 Unitary S2 Consolidates with VA	VA Consolidates with S2 S1 Unitary S2 Consolidates with VA and S1
VA Consolidates with S1 and S2 S1 Unitary S2 Consolidates with VA	VA Consolidates with S1 and S2 S1 Unitary S2 Consolidates with VA and S1

tax liability that is less than the minimized tax. That election is to file a Virginia return that consolidates the operations of Virginia and State 1, a fully consolidated State 1 return, and a separate return in State 2. Under that election, however, the total tax is computed to be $7.90. Since that tax is greater than the minimized tax computed by the model, it is concluded that the minimum tax computations are correct.

Two alternative filing elections appear to have the potential to produce a tax higher than the maximum tax. The first is where a separate return is filed in Virginia, a fully consolidated return (unitary) is filed in State 1, and a fully consolidated return is also filed in State 2. Under those elections the total state tax liability is hand computed to be $8.76.

The other alternative which might produce a tax liability greater than the maximum tax is where separate returns are filed in Virginia and State 2, and a fully consolidated return is filed in State 1. Using such elections the tax is computed to be $8.47. Since the tax under neither alternative is greater than the computed maximized tax of $8.90, it is concluded that the maximum tax computations are correct.

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AN ANALYSIS OF CERTAIN TAX AVOIDANCE TECHNIQUES AVAILABLE UNDER VIRGINIA LAW TO MULTISTATE CORPORATE BUSINESSES

by

Wayne M. Schell

(ABSTRACT)

There are currently two methods states generally use to tax the income of multistate multi-corporate businesses. One is separate accounting, and the other is the unitary method. Virginia currently uses separate accounting to tax such income. Under separate accounting businesses have greater ability to avoid state income tax with (1) their choice of corporate organization (branches or affiliates) and filing methods, and (2) transfer price manipulations.

The objectives of the research were to (1) measure the incentive provided multistate businesses to utilize corporate organization and filing methods as a tax planning tool, and (2) measure the extent to which current Virginia law helps multistate businesses to avoid tax in Virginia and other states.

Computer models were developed to compute the total state tax liability of a hypothetical representative multistate business which operated in Virginia and two other states. The models were utilized to compute the Virginia and total state tax for the business in 1,053 different situations.

To measure the incentive provided multistate businesses to utilize corporate organization and filing methods as a tax planning tool, a comparison was made of the state tax liability of a business which made elections that minimized its tax with the tax liability of a similar business which made elections that maximized its tax.

The tax avoidable under current Virginia law with corporate organization and filing metbod planning was measured by comparing the business's minimized tax under current law with its minimized tax under the assumption that Virginia utilized the unitary method.

The effectiveness of current Virginia law in limiting the ability of businesses to use transfer price manipulations to reduce their state tax liabilities was measured by comparing the effects of a given transfer price manipulation between current law and the unitary method.

The results of the analyses show that businesses have a clear incentive to utilize corporate organization and filing method planning, and that current Virginia law makes a substantial contribution to the ability of businesses to avoid state income tax.