REPORT OF THE
SECRETARY OF TECHNOLOGY
DEPARTMENT OF TAXATION
STATE COUNCIL OF HIGHER EDUCATION
VIRGINIA ECONOMIC DEVELOPMENT PARTNERSHIP

A JOINT STUDY OF RESEARCH AND DEVELOPMENT TAX INCENTIVES

TO THE GOVERNOR AND
THE GENERAL ASSEMBLY OF VIRGINIA

HOUSE DOCUMENT NO. 46

COMMONWEALTH OF VIRGINIA
RICHMOND
2000

COMMONWEALTH of VIRGINIA

Office of the Governor

James S. Gilmore, III
Governor

Donald W. Upson
Secretary of Technology

December 6, 1999

The Honorable James S. Gilmore, III
Governor of Virginia
State Capitol
Richmond, Virginia 23219

Members of the Virginia General Assembly
General Assembly Building
Richmond, Virginia 23219

Dear Governor Gilmore and Members of the General Assembly:

On behalf of the multi-agency study group that conducted this effort, I am pleased to submit to you ***A Joint Study of Research and Development Tax Incentives***. This study fulfills the directives of House Bill 1667 and House Joint Resolution 700 of the 1999 General Assembly.

The study group, consisting of agency representatives from the Commerce and Trade, Education, Finance, and Technology Secretariats, was able to view the topic of R&D tax incentives from multiple perspectives. Virginia's comprehensive program of economic development incentives has served the Commonwealth well in bringing new businesses into the state and encouraging the expansion of existing ones. In approaching its assignments, the study group recognized that the state is under increasing competitive pressures on several important, interrelated fronts, including higher education and technology leadership as well as economic development. The enclosed study offers for your consideration potential actions that may support initiatives in each of these vital arenas.

We trust that you will find the study report responsive and informative.

Respectfully submitted,

Donald W. Upson

Donald W. Upson

Enclosure

C: The Honorable Wilbert Bryant
The Honorable Barry E. DuVal
The Honorable Ronald L. Tillett

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A JOINT STUDY OF RESEARCH AND DEVELOPMENT TAX INCENTIVES

PREFACE

Authority Directing the Study

House Bill 1667 directs the Secretaries of Technology and Commerce and Trade to conduct a broad study of research and development (R&D) investment incentives, including: the effectiveness of investment incentives offered by other states for R&D investments, the amount spent annually in Virginia on qualified research expenses, the relative benefits and liabilities of an incentive program offering an income tax credit compared to a grant, and an appropriate cap on tax credits or grant funding to induce greater R&D investments in Virginia.

House Joint Resolution 700 requests that the Department of Taxation, the State Council of Higher Education for Virginia, and the Virginia Economic Development Partnership conduct a study of the Florida tax incentive program that encourages R&D projects and promotes expansion or relocation of high-technology manufacturers in that state.

The multi-agency study group (see below) formed to conduct these related studies determined that a single report would best present the studies' results in a cohesive manner. The work group initially considered also including a third study—SJR 502, regarding a coordinated R&D policy for the Commonwealth—within this single report (see Appendix C). However, the results of that study were subsequently determined to warrant a separate document.

Study Group Membership

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Office of Fiscal Research:
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Acknowledgments

The study group wishes to acknowledge the work of Cheng G. Ong in conducting the research and developing the text for the study of tax incentives for R&D investments presented in Section 5 of this document.

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I. EXECUTIVE SUMMARY

Purpose of Study

Use of state-level income tax and sales tax incentives to promote research and development (R&D) activities within Virginia, as witnessed by current state law, is accepted state policy and practice. HB 1667 and HJR 700 collectively direct investigation of what other states are doing in the way of such incentives and whether the Commonwealth could effectively do more to encourage R&D.

Study Approach and Findings

The multi-agency study group undertook a broad reconnaissance of current state and federal level R&D tax incentives, as well as available reports and statistical information, to assist in analyzing the nature, extent, and effective impacts of such incentives. In terms of the Commonwealth's R&D performance compared to its sister states, the results of this analysis present a less-than-glowing picture. While the state is 12th nationally in population, Virginia ranks anywhere from 14th to 21st by most statistical measures of R&D conducted in the state.

Twenty-one states currently provide R&D tax credits. In terms of the actual effectiveness of these state-level tax incentives in bringing in R&D dollars, though, there appears to be little more than anecdotal evidence. At the federal level, a somewhat greater level of relevant data does exist. One analysis of eight different studies of federal research tax credits, for example, found the results were mostly positive but taken as a whole, not strongly conclusive. Few policymakers or practitioners argue, however, that a comprehensive state policy towards promoting high-tech growth could exist and be well perceived without a meaningful R&D tax incentive component. And federal studies do suggest that corporate R&D spending is sensitive to incentives.

As the economy of the nation and Virginia in particular becomes increasingly technology-oriented—and, therefore, increasingly dependent on technological innovation—the study group feels that R&D tax incentives may be a significant tool in increasing the state's competitive position in the global economy. The study group determined that Virginia could learn much from the nationwide experience to date in strengthening its current R&D tax incentive program. Incentives can be directed where there is the greatest likelihood of paybacks. And the identified, inherent weaknesses in current federal and many other states' incentives do not have to be repeated in future Virginia initiatives.

Recommended Goals for R&D Tax Incentives

To ensure that future state initiatives are well focused and take advantage of lessons learned to date, the study group recommends that Virginia's R&D tax incentives support the following goals:

- Avoid creating incentive programs which reward taxpayers for conducting R&D activities that they would in all likelihood conduct in the absence of any such incentive.
- Create incentive programs that have the minimum amount of negative impact on the natural action of market forces.
- Create incentive programs that will assist small, research intensive start-ups where, dollar-for-dollar, more marketable products may result from applying such incentives.
- Create incentive programs that will encourage private companies to sponsor more research at Virginia's universities.
- Structure incentives that avoid the type of complexity that is present in federal research tax programs.

Legislative Recommendations

Consistent with the study findings and the above-noted goals, the study group recommends the following legislation, should the General Assembly consider the results to be fiscally worthwhile:

- *Research and Development Tax Credit*—Consider extending the provisions of the Equity and Subordinated Debt Investors Tax Credit Act (Section 58.1-339.4, *Code of Virginia*) to companies with gross receipts of less than $5 million. Allow the credits to be sold back to the Commonwealth at 70 cents on the dollar when the company does not have sufficient Virginia tax liability to use the entire credit to which entitled in any taxable year. House Bill No. 1667's investment tax credit for R&D expenditures should be appropriately revised to reconcile that initiative with this proposal and avoid any use of the same expenditure to claim multiple credits by technology start-ups.
- *Research Sponsored at Virginia Universities Tax Credit*—Consider allowing firms an annual tax credit of 40% of the total amount of funds spent to sponsor qualified research activities at Virginia's public or private universities. House Bill No. 1667's investment tax credit for R&D expenditures should be appropriately revised to reconcile that initiative with this proposal and avoid any use of the same expenditure to claim multiple credits by technology start-ups.

As per the requirements of HJR 700, the study group also evaluated Florida's program of tax incentives targeted to specific high technology manufacturers. In general, the study group favored more generally applied incentives, such as those recommended for consideration above, over those aimed at specific industries. In addition, the industry-specific sales and use tax exemptions included in the Florida legislation have long been available to all firms operating in Virginia.

II. INTRODUCTION

A study group of staff from relevant state agencies has been meeting to coordinate efforts on conducting a series of studies, under the guidance of the Secretaries of Technology, Education, Finance, and Commerce and Trade, regarding research and development (R&D) activities in the Commonwealth. The study group included representatives from the Department of Taxation, the Virginia Economic Development Partnership, the State Council of Higher Education for Virginia, the Department of Technology Planning, and the Office of the Secretary of Technology.

The group determined that a single joint report, addressing the requirements of both HB 1667 and HJR 700 in a comprehensive manner, would be of the most utility to both the Administration and the General Assembly. To accomplish that objective, this report is organized as follows:

- Section I provides an executive summary of the findings and recommendations of the joint studies, focusing on the legislative recommendations regarding R&D tax incentives;
- Section II provides an introduction to the study, including the study background and approach, and a recommended set of goals for utilizing tax incentives to promote increased R&D efforts in the Commonwealth;
- Section III presents a set of recommended legislative actions regarding R&D tax incentives;
- Section IV estimates the revenue impacts of the recommended R&D legislation;
- Section V summarizes the results of the compilation of available information and research regarding existing R&D tax incentives at both the state and national level, including the impacts of such incentives, which was conducted as part of the joint studies;
- Section VI presents the results of the study of specific tax incentives offered by the State of Florida, as directed by HJR 700.

Additional supplementary information is also provided in the appendices.

Background

The General Assembly has been willing in the past to enact income tax and sales tax incentives to promote research and development activity within the Commonwealth. (Sections 58.1-402C.14, 58.1-609.3.5, *Code of Virginia*). However, an even bolder, more dynamic approach seems to be appropriate in an economy that is increasingly dependent upon the process of technological innovation. A strong research base plus a tax climate that encourages high-tech entrepreneurial activity can be major factors in increasing the overall competitiveness of the Commonwealth in the global economy. Further, establishing effective incentives can create stronger linkages between Virginia's universities and the private sector, can help foster more "spin-off" and "start-up" companies based on leading edge university research, and can even be helpful in

attracting increased Federal R&D investment. Accordingly, the working group has examined a wide range of options based on the experiences of the federal government and other state governments, academic studies and the expertise and experience of the agencies involved.

Goals

The study group recognized that there are widely differing philosophies on the use of tax incentives to promote economic development, as well as differing opinions on the relative importance of being able to offer such incentives and the relative impacts of applying them. In this regard, the results of the research conducted for this study did not uncover any startlingly new information that would drastically change the direction of discussions on these topics. The study group does feel that the results of the study research, coupled with the imperative to be proactive in attracting R&D investments to Virginia, support consideration of additional incentives. In determining what additional incentives to consider, it is important that there be a clear understanding of what these new incentives are intended to accomplish. Therefore, in developing the recommendations that follow, the study group articulated the following goals:

- Avoid creating incentive programs which reward taxpayers for conducting R&D activities that they would in all likelihood conduct in the absence of any such incentive.
- Create incentive programs that have the minimum amount of negative impact on the natural action of market forces.
- Create incentive programs that will assist small, research intensive start-ups where, dollar-for-dollar, more leverage can be gained in applying such incentives.
- Create incentive programs that will encourage private companies to sponsor more research at Virginia's universities.
- Structure incentives that avoid the type of complexity that has bedeviled Federal research tax programs.

III. LEGISLATIVE RECOMMENDATIONS

Based on its evaluation of the available research and information gathered for this study (see Sections V and VI), the study group considered tax incentive legislation in four specific areas:

- R&D tax credit
- Research sponsored at Virginia universities tax credit
- Corporate income tax incentive for sponsored research with state universities
- Sales and use tax exemption

Potential legislation in each of these areas is discussed below.

Research and Development Tax Credit

The study group recommends considering extending the provisions of the Equity and Subordinated Debt Investors Tax Credit Act (Section 58.1-339.4, *Code of Virginia*) to companies with gross receipts of less than $5 million. It also recommends considering allowing the credits to be sold back to the Commonwealth at 70 cents on the dollar when the company does not have sufficient Virginia tax liability to use the entire credit to which entitled in any taxable year.

- This amendment would have the effect of allowing self-financed technology companies owned by a single entrepreneur or small group of entrepreneurs to claim the same credits currently extended to outside investors in such companies.
- Since most technology start-ups do not have a positive cash flow during their early, research-intensive phase, the sellback provision would still allow them to benefit from the credit. This approach, in effect, allows the marketplace to decide on a case-by-case basis whether a tax credit or a cash payment (i.e., the equivalent of a grant or venture capital seed money) has the greatest impact.
- The tax credit would be applied to all qualified research expenses (not just expenses above a base amount).
- The tax credit would be in lieu of any income tax deduction for the same expense, i.e., either the credit or the deduction could be claimed, but not both.
- House Bill 1667's investment tax credit for R&D expenditures should be appropriately revised to reconcile that initiative with this proposal and avoid any use of the same expenditure to claim multiple credits by technology start-ups.

As this proposal would be a new approach to applying incentive concepts already in use in Virginia for other purposes, the General Assembly may wish to place a time limit on the availability of these incentives and require a study of their efficiency and effectiveness during that period.

Research Sponsored at Virginia Universities Tax Credit

The study group recommends considering allowing firms an annual tax credit of 40% of the total amount of funds spent to sponsor qualified research activities at Virginia's public or private universities.

- This credit would offer a strong incentive for Virginia companies to sponsor research at Virginia universities rather than elsewhere.
- The credit could encourage R&D intensive firms to conduct all or a portion of their business operations in the Commonwealth in order to lower their overall R&D costs.
- The credit would be in lieu of any income tax deduction for the same expense, i.e., either the credit or the deduction could be claimed, but not both.
- The credit should be enacted for a four-year period in order to allow sufficient time to evaluate its impact and should be reenacted if the anticipated benefits accrue, and modified or allowed to lapse if they do not.
- House Bill 1667's investment tax credit for R&D expenditures should be appropriately revised to reconcile that initiative with this proposal and avoid any use of the same expenditure to claim multiple credits by technology start-ups.

The study group recognizes that R&D tax incentives are but one component of a necessarily multifaceted approach to increasing sponsored research at Virginia's universities. Improving facilities, faculty resources, and the transfer of intellectual property rights must also be considered. Other initiatives underway, including recommendations being developed as a result of the SJR 502 study on a coordinated R&D policy for the state, are addressing these other important components.

Florida's Corporate Income Tax Incentive for Sponsored Research with State Universities and Sales and Use Tax Exemption

As per the requirements of HJR 700, the study group evaluated Florida's program of tax incentives targeted to specific high technology manufacturers (see Sections IV and VI). In general, the study group favored more generally applied incentives, such as those recommended for consideration above, over those aimed at specific industries. In addition, the industry-specific sales and use tax exemptions included in the Florida legislation have long been available to all firms operating in Virginia.

IV. REVENUE IMPACTS OF LEGISLATIVE PROPOSALS

Small Business Research and Development Tax Credit

Proposal--The proposed credit would be extended to small Virginia-based corporations with annual gross receipts no greater than $5 million. The credit is viewed as a companion to the current Qualified Equity and Subordinated Debt Investment Tax Credit (§58.1-339.4) and shares some, but not all, of its features and restrictions.

The new credit would be made available to the firm itself, rather than to investors in the firm. Unlike the existing credit, which returns up to 50% of a taxpayer's cash investment in the firm, the new credit would be limited to 50% of qualified research[1] and development expenditures made by the firm itself. The existing credit is limited to $50,000 per investment, and may be carried forward for fifteen years. The new credit is not capped, and may be sold back to the Commonwealth, at 70 cents on the dollar, by firms with insufficient tax liability.

Taxpayers would not be able to claim both the new credit and the existing credit for the same R&D expenses. In addition, a Virginia addition would be created for overlapping R&D expenses allowed as a deduction from federal taxable income. The credit would be effective for taxable years beginning on or after January 1, 2001.

Revenue Impact--The following revenue estimates are based on R&D expenditure data reported by the National Science Foundation, and corporate income tax data reported by the Internal Revenue Service. The information provided by these sources is somewhat general in nature. As a result of the uncertainty created by the lack of data specific to firms targeted by this bill, a range of estimates is presented.

Table IV-1

Small Business Research and Development Tax Credit

Revenue Effect (millions)

Fiscal Year	Lower Estimate	Higher Estimate
2001	$0.0	$0.0
2002	(3.4)	(4.2)
2003	(7.0)	(8.7)
2004	(7.4)	(9.3)

[1] Qualified research expenses are those defined for purposes of the federal Research and Experimentation Tax Credit.

The estimates assume that the credit would be made available for taxable years beginning on or after January 1, 2001. The full effect of the credit is not realized until TY 2001 returns are filed in late FY 2002 and early FY 2003.

Tax Credit for Research Sponsored at Virginia Universities

Proposal--A 40% tax credit would be made available to corporations which fund qualified research activity at any of Virginia's public or private colleges or universities. Corporations would be limited to either the current Virginia subtraction or the new tax credit for any given dollar of R&D. In addition, corporations that claim the new credit would be required to add back to Virginia taxable income the value of the federal R&D deduction.

The sponsored research credit is not refundable, but could be carried forward for a period of ten years. The credit is effective for taxable years beginning on or after January 1, 2001 and ending before January 1, 2005.

Revenue Impact--The estimate shown below is also based on National Science Foundation and IRS data. Like the estimate for the small business credit, there is some uncertainty in the sponsored research estimate. Again, lower and higher estimates have been developed.

Table IV-2

Tax Credit for Research Sponsored at Virginia Universities

Revenue Effect (millions)

Fiscal Year	Lower Estimate	Higher Estimate
2001	$0.0	$0.0
2002	(7.6)	(11.3)
2003	(15.6)	(23.4)
2004	(16.6)	(24.9)

Exclusion from Corporate Income Apportionment Formula for Property and Payroll Dedicated to Sponsored Research with State Universities

Proposal--Exclude property and payroll expense dedicated to research sponsored by corporate taxpayers at Virginia's universities from the property and payroll factors in Virginia's corporate income tax apportionment formula (Sections 58.1-409 and 58.1-412, *Code of Virginia*). While not recommended by the study group, this proposal parallels Florida's R&D approach. The evaluation of its revenue impact upon Virginia is included here in response to the requirements of HJR 700.

Revenue Impact--The National Science Foundation estimates that industry funded research and development at Virginia's public and private colleges and universities totaled $45.9 million in 1995. If all of that money were excluded from the sponsoring firms' Virginia taxable income, then those firms would have realized a TY 1995 tax benefit of about $2.8 million. However, Florida's exclusion is not that simple, and requires further analysis.

Under Florida law, multi-state corporations with a presence in Florida reduce the property and payroll factors used in the state's corporate income apportionment formula by an amount equal to their Florida R&D investment. The tax benefit realized by individual firms is dependent not only on the sum invested in Florida university R&D programs, but also on the relative size of that investment to the value of the firm's total U.S. operations.

Estimating the benefit to Virginia industry of enacting a similar incentive requires some knowledge of the level of investment in university research by multi-state corporations, and the share of those firms' total economic activity in Virginia. Unfortunately, detailed profiles of the firms supporting research at Virginia universities are unavailable. It must also be noted that corporate profits are highly unpredictable; each year, in fact, there are almost certainly some firms that sponsor research at Virginia universities that report no taxable income at all.

Given these uncertainties, an estimate better than the $2.8 million TY 1995 figure noted above is unavailable. That number is probably best viewed as a reasonable upper limit of the true impact of granting an R&D exclusion, like Florida's, to Virginia's corporate taxpayers. Assuming future growth in industry funded R&D at Virginia universities of 6.4% per year (the average rate of growth in total U.S. R&D spending over the last few years), the $2.8 million industry benefit will grow to $4 million by TY 2001.

Sales and Use Tax Exemption for Industrial Machinery and Equipment and Equipment Used in Silicon Technology Production and Research

Proposal—Exclude industrial machinery and equipment from state sales and use taxes. This proposal parallels Florida's R&D approach; Virginia law already provides this exclusion for all firms. The evaluation of its revenue impact upon Virginia is included here in response to the requirements of HJR 700.

Revenue Impact--Under current Virginia law (Section 58.1-609.3(2)(iii), *Code of Virginia*), the purchase of machinery and equipment to be used primarily in the manufacture of products for sale or resale is exempt from sales and use tax. Also, the purchase of all tangible personal property, including machinery and other equipment, is exempt from sales and use tax if devoted "directly and exclusively in basic research or research and development in the experimental or laboratory sense (Section 58.1-609.3(5), *Code of Virginia*). The reference in the statute to "experimental" or "laboratory" research is not meant to exclude product development by high technology companies. It is

intended to distinguish between research in the physical or biological sciences from management studies, consumer product testing, historical research and similar activities.

The sales and use tax exemptions extended to silicon technology firms through legislation enacted by the Florida legislature since 1997 have long been available to firms operating in Virginia. Florida's universities have, however, been appropriated a matching fund to use for silicon technology research. This fund is a one-to-one match for a company that elects to use its sales and use tax exemption value for research. The funding need anticipated was a maximum $17.6 million appropriation over a three-year period. While Virginia has an equivalent sales and use tax exemption, Virginia does not permit transfer of the exemption's value to Virginia's universities, as in the Florida legislation. Although permitting such transfers between private firms and Virginia universities would have no impact on state revenues, matching those transfers with a state appropriation could prove significant. Unfortunately, there is no way to anticipate the interest that might be generated by a tax exemption transfer option. Without that knowledge, a reasonable estimate of a state matching grant program cannot be determined.

V. STUDY OF TAX INCENTIVES FOR R&D INVESTMENTS

House Bill 1667 directed the Secretaries of Technology and Commerce and Trade to conduct a broad study of R&D investment incentives generally, including the effectiveness of investment incentives offered by other states for R&D investments, the amount spent annually in Virginia on qualified research expenses, the relative benefits and liabilities of an incentive program offering an income tax credit compared to a grant, and an appropriate cap on tax credits or grant funding to induce greater R&D investments in Virginia.

Virginia's Performance in R&D

Virginia's performance in R&D falls somewhat behind its national rankings in terms of its population or gross state product (GSP). While Virginia ranks 12th in population and 13th in GSP, she ranks 14th in total R&D (see Table V-1)[2]. This lag is more pronounced in industrial R&D where Virginia is ranked 18th and in R&D intensity (R&D as a percentage of GSP) where she is ranked 20th. By comparison, Massachusetts which is ranked next to Virginia in population and 11th in GSP, is ranked in the top five among all states in total R&D, industrial R&D and research intensity. Though Virginia and Massachusetts both rank highly in SBIR awards, 3rd and 2nd respectively, Massachusetts outranked Virginia significantly in number of patents awarded as 9th compared to Virginia's 21st. This may result largely from the world-renowned research universities located in Massachusetts.

Table V-1

Comparative Rankings

	Virginia	Massachusetts
Population '97 (000s)	12 (6,734)	13 (6,118)
Gross State Product '96	13	11
Total R&D '95	14	4
Industrial R&D '97	18	5
R&D Intensity '95	20	4
SBIR Awards 1990-97	3	2
Patents Awarded '97	21	9

Private sector funds the majority of R&D performed in the US. However, Virginia's profile of R&D activity and funding is the reverse of the national trend with an unduly high dependence on federal R&D dollars (see Figures V-1and V-2[3]). Unlike other states,

[2] These data are drawn from the National Science Foundation (NSF) report "National Patterns of R&D Resources: 1998" and "Science and Engineering Indicators 1998" which provide data on Virginia for 1995

a disproportionate amount of R&D in Virginia is performed at federal agencies and funded by the federal government. This dependence is especially high in industrial R&D where the state is ranked 3rd for federal funding for industry (see Figure V-3). Virginia's low level of industrial R&D spending has remained constant in the last twenty years compared with the growth in leading states (see Figure 4). While Massachusetts improved its ranking from 8th to 5th and Texas went from 9th to 6th, Virginia's ranking remained the same at 18th from 1976 to 1997.

Figure V-1
Sources of R&D Activity, 1995

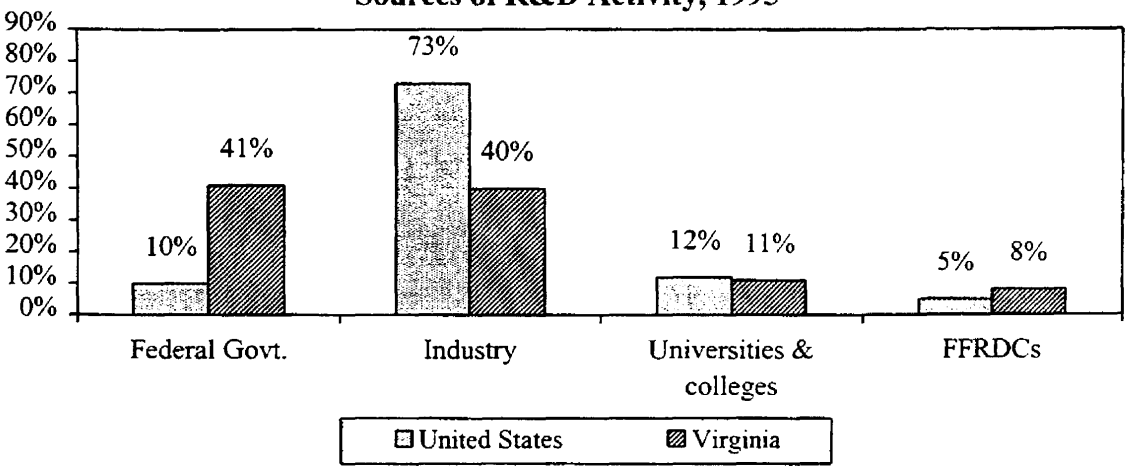
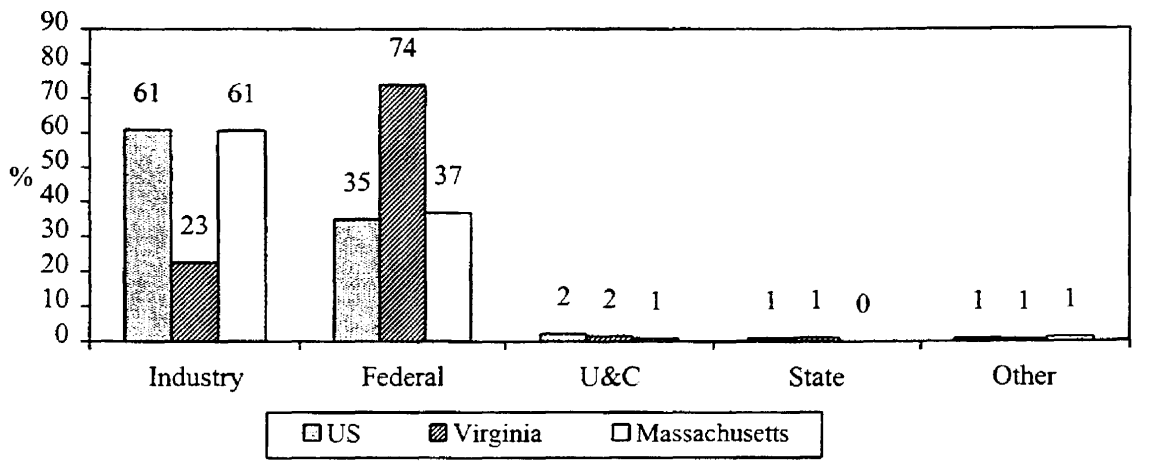


Figure V-2
Sources of R&D Funding, 1995



[3] State data for nonprofit performance using nonfederal funds are not available. NSF data on industry support of industry R&D includes all nonfederal sources (i.e. state and local government funds). "State" represents R&D funds from state and local governments reported by Universities & Colleges.

Figure V-3
Sources of Industrial R&D Funding, 1997

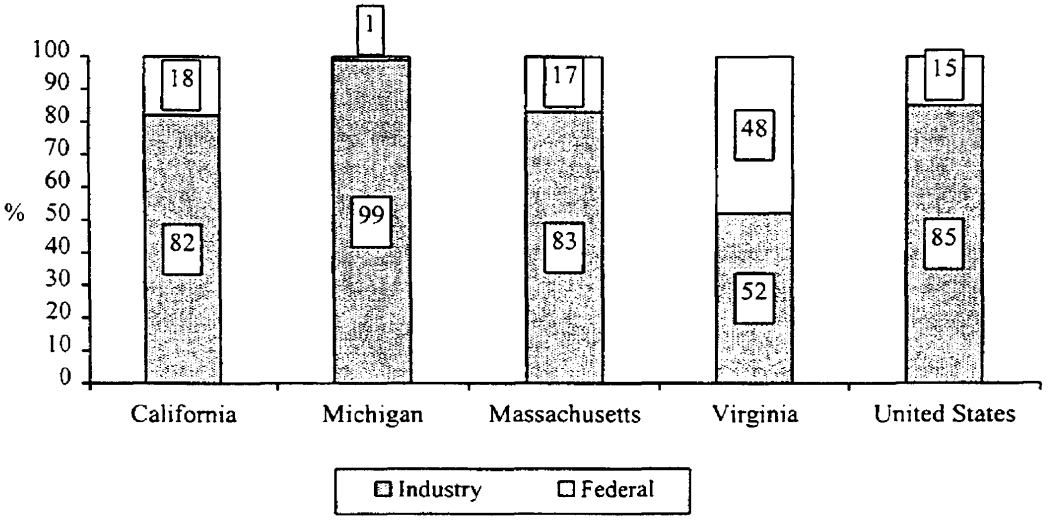
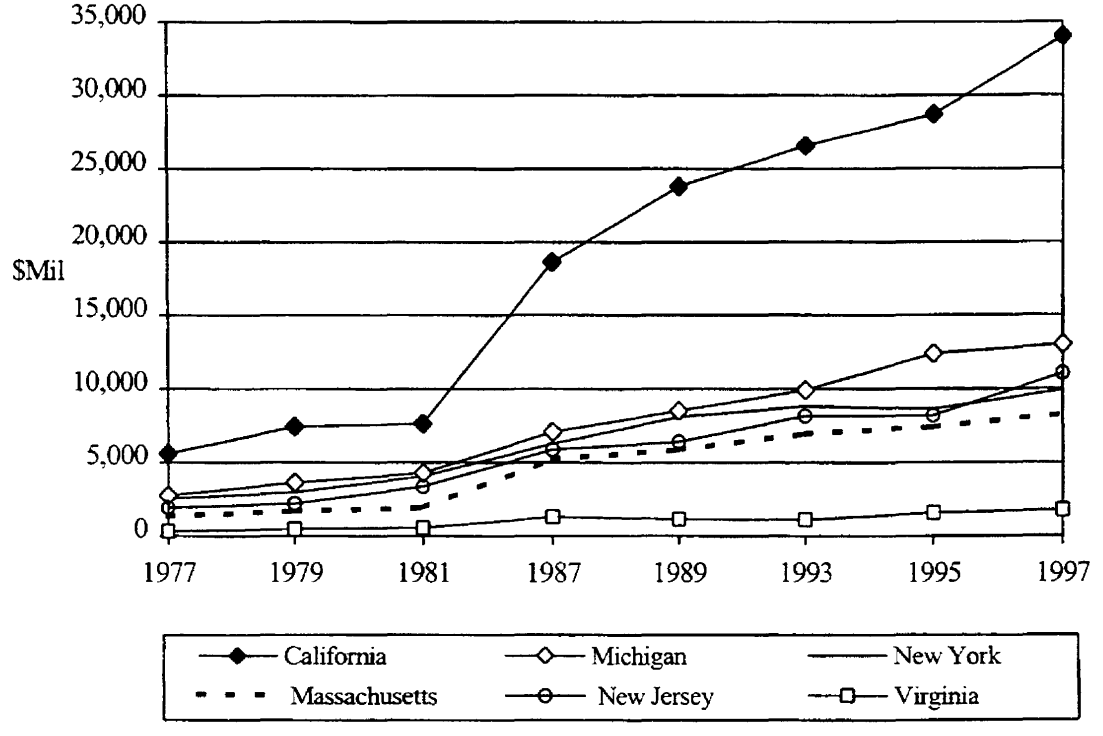


Figure V-4
Industrial R&D Trends



State Support for R&D

Between 1965 and 1995, total state R&D spending nationwide increased at an inflation-adjusted average annual rate of 3.3 percent, compared with the nationwide R&D spending growth of 2.5 percent per year.[4] Total state support for R&D and R&D facilities in 1995 was $3.009 billion, of which 87.4% was from state governments, 9.3% from the federal government and 3.3% from industry and non-government. The R&D was performed mainly by academic institutions (73.2%), state agencies (14.7%), and industry, non-profits, local governments, etc. (12.1%). Virginia's funding of R&D and R&D plants of $64.7 million in 1995 earned a ranking of 13th compared to Massachusetts' ranking of 27th. Most of Virginia's funding, $47 million (72.6%), went to universities and colleges. Virginia allocated 0.38% of its state budget to R&D and earned a ranking of 19th in terms of share of state spending—approximately proportional when compared to Virginia's population and GSP rankings. This compares to 4.61% of the federal budget and 0.12% of Massachusetts' state budget allocated to R&D.

Benefits and Liabilities of R&D Tax Credits

In the 1990s business spending on research and development has been rising at a strong pace but the share of expenditure devoted to basic research has been declining. In 1998, 73% of industrial R&D performed in the United States was devoted to development with 5% on basic and 29% on applied research.[5] This compares to 15% of total R&D spending on basic research, 23% on applied and 62% on development.

Companies are thought to under-invest in research mainly due to uncertainty about the investments and results, and the inability to capture all potential returns. Economists in general believe that a free market and a neutral tax system will direct resources to uses with the highest return. This does not apply, however, to investments that yield spillover benefits – gains to society that the company making the investment cannot capture. Studies[6] estimate that research can have extremely high spillover effects and the social returns to R&D investments far outweigh private returns. Thus, government support for R&D will help to induce companies to undertake research and society will benefit.

The federal government and more than one-third of the states currently offer tax credits to corporations to subsidize R&D. These tax credits have not been without controversy. A key issue is that tax credits reduce tax revenues. It is also a contention that tax incentives are not necessarily the best way for government to spur commercial innovation. Another contention is that direct government funding of basic and applied research would be more efficient and effective than providing companies with a tax credit for research they would undertake anyway.

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[4] Most of the data on 1995 state R&D support presented here are preliminary and derived from the report by the Battelle Memorial Institute and State Science & Technology Institute (1998).

[5] NSF

[6] Charles I. Jones and John C. Williams, Measuring the Social Return to R&D, Quarterly Journal of Economics, November 1998, pp. 1119-35.

Effectiveness of the Federal R&E Credit

Researchers[7] have generally concluded that the federal R&E credit stimulates additional spending in private sector R&D though its effectiveness is widely debated and the estimated magnitude differs substantially. In 1996 the General Accounting Office reviewed eight studies that examined the effectiveness of the federal R&E credit. Four studies estimated that R&D investments stimulated by the credit exceeded revenue loss (by a factor as high as two).[8] The other two studies suggested the gain in R&D investments was less than the revenue loss. Furthermore, spillover effects have not been estimated.

Companies that seek the federal R&E credit are typically large companies (71% are firms with more than $250 million in assets in 1992).[9] Some observers believe that smaller firms (including, in many cases, start-up operations) tend to be more innovative and prolific in their research and should be more specifically targeted for such credits. Small firms, for example, are attracting additional scientists and engineers at a rate over six times that of large firms.[10] The increasing popularity of the Small Business Innovation Research (SBIR) program among sponsoring federal agencies is cited as evidence of such performance on the part of smaller companies[11].

In terms of company classifications, manufacturers as group accounted for 76% of R&E credit claims in 1992. Companies manufacturing computers and related equipment, electronic components, drugs and motor vehicles accounted for about 59% of the credits claimed by manufacturing companies.

Policy Issues

The federal R&E credit has not been without shortcomings. The lack of permanence of the federal R&E credit has challenged companies trying to plan for long-term projects. Another drawback is that a company's R&D spending must reach a threshold before it can take advantage of the credit. A company cannot claim the R&E credit if its research expenditure falls below its base amount.[12] The base period of 1984-88 used to calculate the base amount is outdated to reflect current market conditions. Since the credit is not refundable only firms with positive tax liabilities can take advantage of it. Due to the time value of money, the value of the allowable carry-forward credit may be worth less

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[7] General Accounting Office, Review of Studies of the Effectiveness of the Research Tax Credit, GAO-GGD-96-43, May 1996.

[8] The GAO concluded that recent studies were marred by flaws in data and methodology and therefore, it was unclear how responsive private sector research spending has been to the credit.

[9] Office of Technology Assessment, The Effectiveness of Research and Experimentation Tax Credits, Congress of the United States, September 1995, pp. 18-20.

[10] Innovation Development Institute, Small Business Innovation and Research Informational Package, 1999

[11] Rear Admiral P. G. Gaffney, II, USN, Chief of Naval Research, Address to Virginia SBIR Conference, September 22, 1999.

[12] A firm can claim a tax credit equal to 20% of the amount by which its qualified R&D expenditures exceed a base amount. This base amount equals a fixed-based percentage multiplied by the average gross income in the preceding four tax years. This amount must equal 50% or more of the firm's qualified research expenditure in a given tax year.

when used in the future. Another drawback is that the base amount does not account for changes to a company's research intensity (its spending on R&D relative to sales or pre-tax income) over time. This has effectively reduced the maximum effective credit to 6.5% for many start-ups and rendered many others ineligible.[13] Almost all of the firms (22% of the 900 firms studied) that could not take advantage of the credit were rendered ineligible because they experienced a higher sales growth than qualified research expenses since their base period. Thus even when firms are increasing their research spending, they may still not be eligible for the R&E credit.

Senate Bill 951 to amend the Internal Revenue Code of 1986 to establish a permanent tax incentive for research and development, and for other purposes, was introduced in 1999 for consideration by Congress. Among other amendments, this bill seeks to address the various shortcomings faced by start-ups and to eliminate the incremental requirement to the basic research credit.

State Incentives

Nearly all states try to encourage companies to conduct research.[14] Forty-five states impose a corporate income tax and allow research costs to be deducted as business expenses. Many provide exemptions or credits against sales or property tax for R&D investments. Only twenty-one states provide R&D tax credits with eighteen of them based on R&D spending. Two of the other states, Mississippi and Vermont, link their credits to R&D employment, while the third, New York, links its credit to purchases of R&D equipment.

The eighteen state R&D tax credits are nearly all incremental. Connecticut offers both an incremental and non-incremental credit while West Virginia allows a non-incremental credit. Each state's credit applies only to research conducted within the state. Most states use the same 1984-88 fixed base period as the federal credit. Five states use a rolling base period while Maine uses both a rolling and a fixed base period. The number of firms claiming the credit and the amount claimed vary widely, with the average amount ranging from $21,300 to $405,400.

The state credits usually adhere to the "qualified research expenses" specified by the federal credit. Connecticut and Kansas provide credits for any research spending allowed to be expensed by the federal tax code. West Virginia allows credit only to manufacturing companies or those that produce natural resource products or electric power. The West Virginia credit includes payments for land, structures and equipment. The North Carolina credit is limited to particular industrial sectors, primarily manufacturing and software companies.

[13] CRS Report 96-505 E, Research and experimentation tax credits: Who got how much? Evaluating possible changes, by William A. Cox

[14] The State Science and Technology Institute published a detailed list of state R&D tax incentives available in 1996.

States have substantially different marginal rates ranging from 4.3 to 20 percent. Three states have staggered rates with two of them, Minnesota and North Dakota, decreasing their rates by half once certain thresholds ($2 million and $1.5 million respectively) are reached. Connecticut is the exception with rates increasing from one to six percent as thresholds ($50 million, the next $50 million and then $100 million) are reached.

Table V-2
State Tax Credits for R&D Spending[15]

State	Took Effect	Base Period	Number of Firms	Credit ($Mil)	Credit pe Firm ($000)
California	1987	1984-88	1704	314	184.3
Massachusetts	1991	1984-88	817	62	75.9
Connecticut	1993	Preceding year	236	21	89.0
Connecticut	1993	NI	177	9	50.8
Pennsylvania	1997	4 preceding years	299	15	50.2
Minnesota	1987	1984-88	268	17	63.4
Wisconsin	1986	1984-88	170	12	70.6
New Jersey	1994	1984-88	150	19	126.7
Arizona	1994	1984-88	81	7	86.4
Oregon	1989	1984-88	80	8	100.0
Missouri	1994	3 preceding years	67	16	238.8
Kansas	1988	2 preceding years	47	1	21.3
Indiana	1989	1984-88	37	15	405.4
Maine	1996	3 preceding years	10	1	100.0
West Virginia	1986	NI	5-10	1-2	
North Dakota	1988	1984-88	<5		

Note: NI: Non-incremental
Source: Texas State Comptroller, Technology Business Council, state revenue departments, Federal Reserve Bank of Dallas, *Would a Research Tax Credit be a Good Investment for Texas*, Southwest Economy (March/April 1999).

Effectiveness of State Investment Credits

There have been virtually no studies on the effectiveness of state R&D credits. Since studies of federal R&E credits suggest R&D spending is sensitive to incentives, state credits may also stimulate R&D investments. However, at the state level credits may only induce companies to locate in one state or another and spillover benefits may not accrue in the chosen state. Many factors affect a company's decision on location and investments. Without spillover benefits in the form of additional innovation, there might

[15] Table does not reflect all details of each state's credit. The number of firms and credit amount generally refer to 1996 or 1997.

be insufficient rationale for a state R&D credit. The value of state R&D tax credits is relatively small compared to the typically large investments required for research. Each state's R&D credit amount is generally only about one percent or less of total R&D spending in the state. Industries claiming the state credits are similar to those claiming the federal credit with large companies receiving most of the credit.

Though state R&D tax credits may create additional jobs and income in industries performing R&D, tax credits may not be as effective as broad-based incentives for job creation. Although some states have recently adopted R&D tax credits and Texas is considering offering one, others are revamping their policies in the opposite direction. New Hampshire's R&D credit was allowed to expire while the Missouri legislature is considering suspending that state's R&D credit. Michigan remains the second highest ranking state for industrial R&D spending, yet does not offer an R&D tax credit. Presumably, the large automobile and other manufacturers in that state undertake extensive R&D nonetheless.

Critiques of the states' R&D tax credit programs frequently center on two attributes of many of these programs: incremental requirements for basic research credits and use of the relatively restrictive federal definition of qualified research expenses. Using a non-incremental approach to basic research credits would likely be viewed positively by Virginia's intended R&D tax incentive audience (see further discussion on this topic, below). Relaxing the federal definition of qualified expenses, however, would require separate accounting for state and federal tax returns—a likely disincentive to its use. Other criticisms of state programs include the advisability of targeting specific industries and the fact that, like federal programs, they tend to be used by large companies and not by smaller firms.

Amount Spent in Virginia Annually on Qualified Research Expenses

In Virginia R&D companies are exempt from the sales and use tax on tangible personal property purchased for use or consumption directly and exclusively in basic R&D in the experimental or laboratory sense. In a 1997 State Science and Technology Institute survey of states to approximate the annual costs of tax expenditure of R&D credits, Virginia's Department of Taxation then estimated $11.8 million.[16] Though accurate data on actual corporate R&D expenditure in Virginia is lacking, NSF surveys of R&D conducted within each state place Virginia 18th among states in the amount of R&D performed by industry. In a CIT study, 560 Virginian companies were identified as being involved in advanced technology R&D.[17]

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[16] State Science & Technology Institute, *State Research and Development Tax Incentives,* May 1997. This figure was derived by multiplying the total annual industrial expenditures on tangible personal property used directly in R&D estimated from federal and state data sources, by the effective Virginia sales and use tax rate.

[17] Virginia's Center for Innovative Technology, *An Assessment of Potential Emerging Technology Sectors in Virginia,* 1998

Tax Credits versus Grants

As discussed earlier, most studies demonstrate that government support for research is justified. However, the most efficient way to provide that support is not always clear because of the difficulties in measuring the economic returns to alternative policy measures. What is clear is that in a market economy, direct government funding is likely to be more efficient than tax incentives when the objective of the policy is to encourage basic research. Research that has very high spillover benefits but low private returns, such as basic research, tend to receive little investment even when there may be incentives. When the objective is to stimulate commercialization of R&D, then a tax incentive like the R&D tax credit has some advantages because it leaves decisions in the hands of the companies. Direct funding of commercial R&D risks fostering a misallocation of resources. In a 1995 study the Office of Technology Assessment concluded that indirect incentives should be coordinated with direct funding mechanisms because they perform very different functions.

Cap on Tax Credits or Grant Funding

Each state's R&D credit amount is generally about one percent or less of total R&D spending in the state. Of the eighteen states that provide R&D tax credits, only Missouri and Pennsylvania impose statewide limits on the amount of credit available, at $10 million and $15 million respectively. Credit is provided to claimants on a first-come, first-served basis. Pennsylvania's cap of $15 million represents 0.21% of total R&D performed in the state in 1995 while Missouri's cap is 0.4% of total R&D. By comparison, Virginia's preliminary approval of a cap of $5 million represents 0.12% of its total R&D in 1995.

Virginia's state support of $64.7 million for R&D and R&D plants in 1995 represented 0.38% of state spending. Nearly 73% of this support ($47 million) was grants and contracts for R&D awarded to universities and colleges. This compares to $21.8 million spent by Massachusetts, representing 0.12% of state spending, on R&D and R&D plants.

Should Incentives be Narrowly Focused?

Some economists oppose tax incentives or subsidies targeted at specific categories of investment believing that a free market and neutral tax system will direct resources to uses with the highest returns. An exception is made for investments that yield high spillover benefits.

Few states focus on specific industries. North Carolina limits its R&D tax credit to specific industrial sectors, primarily manufacturing and software firms. Oregon's R&D credit is available in the fields of advanced computing, advanced materials, biotechnology, electronic device technology, environmental technology or straw utilization.

In response to this study, Virginia's Biotech Research Park Authority has suggested a credit directed at small (less than 50 employees) firms in biotechnology, information technology, computer software and others.

Incremental versus Non-Incremental Credit

Many of the issues surrounding the federal R&E credit stems from the credit being incremental. An incremental credit provides higher marginal incentives with lower revenue losses to the state. However, each company's base amount is linked to its past research spending, which can be a poor estimate of the amount it would have spent currently without the credit. An incremental credit lacks the marginal incentive for companies with high base amounts and reduces the overall stimulus to invest in research. There is no rationale that research conducted on an expanding R&D budget is any more valuable than that conducted on a consistent or shrinking research budget. Research at companies with high base amounts may have large spillover benefits. An incremental credit distorts the allocation of research across companies. With a non-incremental credit, start-ups are less likely to be disadvantaged by high sales growth rates. Furthermore, administration of an incremental credit is more complex because the company and the tax authorities have to reconstruct the baseline R&D spending.

VI. STUDY OF FLORIDA'S TAX INCENTIVES

House Joint Resolution 700 requested that a study be made of Florida's program encouraging research and development (R&D) projects and promoting expansion or relocation of high-technology manufacturers in Florida. Study participants designated in the resolution were the Department of Taxation, the State Council of Higher Education for Virginia and the Virginia Economic Development Partnership. Specific Florida tax incentives to be studied included the following:

- Florida's exclusion from the property and payroll factors, in apportioning a corporation's non-Florida income, of those amounts certified to the Department of Revenue as dedicated to R&D projects between the corporation and any Florida university (Section 220.15, Florida Statutes); and
- Florida's sales and use tax exemptions for companies manufacturing technology-related products, specifically:

  -- Florida's sales and use tax exemption for machinery and equipment used in silicon wafer R&D operations (Section 212.08(5)(j), Florida Statutes); and
  -- Florida's sales and use tax exemption for companies manufacturing tangible personal property dedicated solely to R&D (Section 212.052, Florida Statutes).

Any review of the Florida tax code should be conducted in the context of that state's overall taxing structure. Florida, for example, has no personal income tax, and most of its revenues are generated through its sales and use tax.

Explanation of Apportionment Formula Applied to Multi-State Corporate Income in Calculating Corporate Income Tax Liability

States have the right to impose a tax on income derived from business activities conducted in the state by a multi-state corporation, provided that the corporation has a nexus with the state and the amount of income taxed has a reasonable relationship to the level of activity carried on in the state. As a result of this reasonable relationship approach to taxing the income of multi-state corporations, states require multi-state corporations to apportion their income within and without the state based upon a mathematical ratio (formula). Income is divided according to a three-factor formula based on property, payroll and sales of the corporate taxpayer. Each factor consists of amounts in the taxing state divided by amounts everywhere.

The theory behind the three-factor formula is that no one aspect of a corporation could reasonably measure where the corporation conducted its activities. Property is included on the theory that it is a legitimate measure of the presence of a corporation in a state. The payroll factor is generally deemed to be an indicator of the income-producing activity of a corporation within a state. Inclusion of sales or receipts from business

activities recognizes where the results of the corporation's production or activities culminate.

More recently, the traditional three-factor formula has come under some scrutiny. Under the new theory, the value of a product or service is determined by the interaction of supply and demand equally. The traditional three-factor formula emphasizes the supply side variables (property and payroll) while failing to grant enough weight to the demand side (sales). To balance the apportionment formula, many states (including Virginia) have changed their method of apportionment to include a double-weighted sales factor.

In general, the double-weighted sales factor reduces the tax liability of corporations whose property and payroll are on average greater than the sales factor. These corporations would generally be businesses with headquarters and major production facilities in the taxing state. Conversely, corporations whose sales ratio is the dominant factor, or those with few or no facilities in Virginia, will have an increase in taxable income apportioned to the taxing state.

At least 30 states (including Virginia) now have apportionment factors that weight the sales factor 50% or more. These states include some of Virginia's neighbors (Georgia, Kentucky, Maryland, North Carolina, South Carolina, Tennessee, Ohio and West Virginia). The trend has been driven by the theory of balancing the supply and demand sides of the formula and by the belief that reducing the payroll and property effects on the apportionment formula encourages corporations to locate within the state.

Related Virginia Law in Effect

Virginia allows as a subtraction from income of corporations amounts expended for qualified research expenses or basic research expenses, eligible for deduction, but which were not deducted, on account of the provisions of Section 280 (C) (c) of the Internal Revenue Code (Section 58.1-402 C.14, *Code of Virginia*).

Virginia exempts from its sales and use taxes " tangible personal property purchased for use or consumption directly and exclusively in basic research or research and development in the experimental or laboratory sense" (Section 58.1-609.3.5, *Code of Virginia*).

The 1999 Session of the General Assembly approved an R&D investment credit for a five-year period January 1, 2001 through December 31, 2006. The credit is limited to the lesser of fifteen percent of expenditures on eligible R&D activity during a taxable year or $ 100,000 (H. 1667; Section 58.1-439.11, *Code of Virginia*). This credit legislation requires reenactment in the 2000 Session of the General Assembly before it will become effective. (HB 1667 also directed the broad study of R&D investment incentives included in this document.)

Similar- Ohio Law in Effect

Ohio allows qualified research cost exclusions from its property and payroll apportionment factors in the calculation of a corporation's income tax liability (Section 5733.05(B), Ohio Revised Code. These R&D cost exclusions are not restricted to university/private corporation agreements, unlike that segment of Florida's R&D tax incentive program created solely for Florida's universities.

Ohio exempts R&D " machinery, equipment and other tangible personal property" from its sales and use taxes (Sections 5739.01.C (8), 5741.02C(2), Ohio Revised Code).

Southeastern States Other than Florida

Virginia's neighboring states in the Southeast region have not yet embraced the Florida corporate income tax and high-tech sales and use tax incentives under study. Ohio is currently the only other state in which corporate income tax R&D incentive legislation similar to the Florida statute has been found.

Fiscal Impact and Administrative Reviews of Florida's Tax Incentives

Exclusion from Corporate Income Apportionment Formula for Property and Payroll Dedicated to Sponsored Research with Florida Universities--Effective July 1, 1998, multi-state corporations engaged in approved sponsored research projects with any of Florida's graduate degree-granting public or private universities are eligible for a limited income tax incentive. Specifically, firms may exclude the value of all property and payroll, which is dedicated exclusively to such research, from the formula used to allocate the firm's taxable income to Florida. Qualifying research projects are those defined in contracts between the university and the firm. Contracts between a corporation and a member institution of the state university system must be certified by Florida's Board of Regents; contracts between a corporation and one of Florida's private universities must be certified by the university's president.

Florida's state universities have long had the authority to establish divisions of sponsored research for the purpose of entering into research contracts with outside institutions, employing research staff, and soliciting grants. It is through this existing structure (at least for public universities) that research contracts leading to taxpayer benefits will originate.

According to Dr. Carl Blackwell, Vice Chancellor for Administration and Finance, Florida Board of Regents, sponsored research need not be limited to any particular field in order to gain the approval of the Board of Regents, but must not be inconsistent with the mission of Florida's university system.

The Florida Department of Revenue's Technical Section has indicated that, as of mid-October, 1999, no qualifying sponsored research contracts had been signed, At the present time, then, no private firm has realized a tax savings under the program. The program is still quite new, but the Department of Revenue has received some inquiries

and expressions of interest from taxpayers. Although no tax credits have yet been awarded, the Department of Revenue previously forecast that the program would reduce state general revenues by $2.8 million in both FY 1999 and FY 2000 (Florida's corporate income tax rate is 5.5% of apportioned taxable income, and property and payroll factors are each assigned a 25% weight in the state's corporate income apportionment formula).

Florida's Sales and Use Tax Exemption for Industrial Machinery and Equipment and Equipment Used in Silicon Technology Production and Research--Effective July 1,1998, corporations certified as silicon technology manufacturers, as well as entities that conduct silicon technology research are allowed an exemption from Florida's sales and use tax for the value of machinery and equipment used in their manufacturing or research operations. This exemption, enacted by the 1998 session of the Florida legislature, replaces a similar sales tax relief program approved by the 1997 session of the legislature. It also should be noted that this particular incentive program was designed as part of a complex arrangement that brought a major silicon chip manufacturer to Florida.

At their option, firms that are eligible for the exemption may direct that the value of the exemption be transferred to one of Florida's state universities or community colleges for research or educational services.

Florida's Office of Tourism, Trade and Economic Development, in consultation with Enterprise Florida, Inc. (a semi-public agency that serves as Florida's primary economic development organization) must certify that firms are eligible for the tax exemption. Once certified, the Governor's Office must approve the request; eligible technology firms then receive exemption permits from the Department of Revenue.

Although representatives of Enterprise Florida have characterized the tax exemption as extremely effective, they declined, for taxpayer confidentiality reasons, to provide specific information on the value of the exemption to qualified firms. The Department of Revenue commented that to date only two sales tax exemption permits have been issued by that agency. It appears that the firms involved are currently the principal elements in Florida's silicon technology industry. Prior to the passage of the 1997 sales tax relief legislation the Department of Revenue estimated that the legislation would result in an annual loss of sales tax revenue of $2.2 million.

APPENDIX A

CHAPTER 450

An Act to amend the Code of Virginia by adding in Article 13 of Chapter 3 of Title 58.1 a section numbered 58.1-439.11, relating to a research and development investment tax credit; study.

[H 1667]

Approved March 26, 1999

Be it enacted by the General Assembly of Virginia:

1. That the Code of Virginia is amended by adding in Article 13 of Chapter 3 of Title 58.1 a section numbered 58.1-439.11 as follows:

§ 58.1-439.11. Research and development investment tax credit.

A. For taxable years beginning on and after January 1, 2001, but before January 1, 2006, a taxpayer shall be allowed a credit against the taxes imposed by Articles 2 (§ 58.1-320 et seq.), 6 (§ 58.1-360 et seq.), and 10 (§ 58.1-400 et seq.) of Chapter 3 of this title as set forth in this section. The amount of credit earned pursuant to this section shall be equal to fifteen percent of the amount spent by a taxpayer on an eligible research and development activity during the taxable year.

B. For purposes of this section, the amount of any credit attributable to a partnership, electing small business corporation (S corporation), or limited liability company shall be allocated to the individual partners, shareholders, or members, respectively, in proportion to their ownership or interest in such business entities.

C. "Eligible research and development activity" means qualified research expenses as defined in § 41 of the Internal Revenue Code of 1986, 26 U.S.C. § 41, when such expenses are incurred by a taxpayer for activity occurring in the Commonwealth.

D. A taxpayer shall be eligible to claim the credit for the taxable year in which the eligible research and development activity occurred. No taxpayer shall be eligible to claim a credit of more than $100,000 per year. The amount of credit allowed shall not exceed the tax imposed for the taxable year. Any credit not usable for the taxable year the credit is allowed may be, to the extent usable, carried over for the next ten succeeding taxable years. No credit shall be carried back to a preceding taxable year. If a taxpayer that is subject to the tax limitation imposed pursuant to this subsection is allowed another credit pursuant to any other section of this Code, or has a credit carryover from a preceding taxable year, such taxpayer shall be considered to have first utilized any credit allowed which does not have a carryover provision, and then any credit which is carried forward from a preceding taxable year, prior to the utilization of any credit allowed pursuant to this section. In no event shall more than five million dollars in credits be allowed for any taxable year. If applications for credits under this section exceed five million dollars for a taxable year, they shall be allocated by the Department among eligible taxpayers in the manner provided by regulations promulgated by the Department pursuant to subsection E.

E. The Tax Commissioner shall promulgate regulations, in accordance with the Administrative Process Act (§ 9-6.14:1 et seq.), that establish procedures (i) for applying for the credit provided by this section, (ii) for allocating the available amount of tax credits among taxpayers if the amount applied for exceeds five million dollars for a taxable year, and (iii) relating to the computation and carryover of the credit provided under this section.

F. Any taxpayer that receives tax credits pursuant to § 58.1-439.1; receives grants for manufacturing wafers pursuant to §§ 59.1-284.13, 59.1-284.14 or § 59.1-284.15; receives grants for manufacturing solar panels pursuant to § 45.1-392; or is deemed a qualified shipbuilder pursuant to the third enactment clause of Chapter 790 of the 1998 Acts of Assembly shall not be eligible to receive credits pursuant to this section.

2. *§ 1. That the Secretary of Technology and Secretary of Commerce and Trade are directed to conduct a study of tax incentives for research and development investments in the Commonwealth. The study shall specifically address the respective benefits and costs of an investment tax credit for amounts spent in Virginia on qualified research expenses as defined in § 41 of the Internal Revenue Code of 1986. The study shall also address legal and fiscal policy issues relating to incentives for such investments, including, but not limited to, the (i) effectiveness of investment incentives offered by other states for research and development investments; (ii) amount spent in Virginia annually on qualified research expenses; (iii) relative benefits and liabilities of an incentive program that provides an income tax credit compared to a grant program; and (iv) appropriate amount of a cap on tax credits or grant funding that would provide a meaningful incentive to induce materially greater amounts of research and development investments in Virginia. The Secretaries shall work with the Innovative Technology Authority, the Virginia Biotechnology Research Park Authority, and the Commonwealth's public colleges and universities to determine whether incentives should be focused more narrowly on specific categories of qualified research expenses, and if so shall develop guidelines establishing eligibility criteria for such incentives. The Secretaries shall confer with the Department of Taxation (i) in developing recommendations for methods of allocating tax credits or other incentives among taxpayers whose applications exceed a maximum amount of such credits or incentives and (ii) regarding how a state tax credit or other incentive program would compound the existing federal income tax credit for research and development expenses. The Secretaries shall conduct the study required by this act in conjunction with their study and development of a coordinated research and development policy for the Commonwealth pursuant to Senate Joint Resolution No. 502 of the 1999 Session of the General Assembly. All agencies of the Commonwealth shall provide assistance to the Secretaries or their designees in the conduct of this study, upon request. The Secretaries shall complete their work in time to submit their findings and recommendations to the Governor and the Chairmen of the Senate Committee on Finance and the House Committee on Finance by September 1, 1999.*

3. That the provisions of the first enactment of this act shall not become effective unless reenacted by the 2000 Session of the General Assembly.

APPENDIX B

HOUSE JOINT RESOLUTION NO. 700

Requesting the Department of Taxation, with the assistance of the State Council of Higher Education for Virginia and the Virginia Economic Development Partnership, to study Florida's program which encourages private corporations to participate with Florida public and private universities in research and development projects by providing tax incentives.

Agreed to by the House of Delegates, February 23, 1999
Agreed to by the Senate, February 18, 1999

WHEREAS, the 1998 Florida legislature passed legislation intended to encourage private corporations to participate in research and development projects with Florida public and private universities; and

WHEREAS, the encouragement offered by the legislation to the corporations was in the form of tax incentives; and

WHEREAS, such incentives include adjustments to the apportionment formula which is used in calculating state corporate income tax liability; and

WHEREAS, one adjustment allows for the exclusion from the property factor of property certified to the Department of Revenue as dedicated solely to research and development activities performed pursuant to sponsored research through certain Florida public and private universities; and

WHEREAS, another adjustment allows for exclusion from the payroll factor of compensation paid to employees certified as dedicated exclusively to sponsored research activities; and

WHEREAS, the research and development activities undertaken by the corporations and universities must be certified by Florida's Board of Regents; and

WHEREAS, the Florida legislature passed legislation in 1997 which provided favorable sales tax treatment to companies manufacturing technology-related products; and

WHEREAS, these incentives are also considered economic development tools which encourage new companies to move into Florida and existing companies to remain and expand; now, therefore, be it

RESOLVED by the House of Delegates, the Senate concurring, That the Department of Taxation, with the assistance of the State Council of Higher Education for Virginia and the Virginia Economic Development Partnership, be requested to study the tax incentives recently enacted by the State of Florida which encourage private corporations to participate with Florida universities in research and development projects by providing tax incentives.

In conducting the study, the Department shall examine Florida's tax incentives which allow for adjustments to be made to the payroll and property factors of the apportionment formula when corporations are calculating their state income tax liability. The Department shall also study the sales tax preferences given to companies which manufacture certain technology-related products. Finally, the Department shall review the administrative procedures involved in implementing and carrying out the program.

The Department shall complete its work in time to submit its findings and recommendations to the Governor and the 2000 Session of the General Assembly as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents.

COMMONWEALTH of VIRGINIA

Office of the Governor

James S. Gilmore, III
Governor

Donald W. Upson
Secretary of Technology

August 24, 1999

MEMORANDUM

TO: The Honorable John H. Chichester
The Honorable Stanley C. Walker
The Honorable Emily Couric
The Honorable Kenneth R. Plum
The Honorable Harry R. Purkey
The Honorable Paul C. Harris
The Honorable Richard C. Cranwell
The Honorable Harry J. Parrish

FROM: Donald W. Upson

SUBJECT: Combined Report on SJR 502 (1999), Study on Coordinated R&D Policy;
HJR 700 (1999) Study on Florida R&D Tax Incentives; and
HB 1667 (1999), Study on Tax Incentives for R&D

I would like to report to each of you, as either chief patrons of the above-referenced legislation, or as chairs of legislative committees or commissions to which study reports are to be submitted, on the Administration's approach to fulfilling the study requirements of these bills.

Under the guidance of the Secretaries of Technology, Education, Finance, and Commerce and Trade, a workgroup of staff from relevant state agencies has been meeting to coordinate efforts on conducting these three studies. At the most recent session, representatives from the Department of Taxation, the Virginia Economic Development Partnership, the State Council on Higher Education in Virginia, the Department of Technology Planning, and my office discussed methods for ensuring that the contents of three separate—but related—reports could best be portrayed in a useful, coherent fashion.

The group determined that a single joint report, addressing the requirements of all three studies in a comprehensive manner, would be of the most utility to both the Administration and General Assembly. With the agreement of the involved Secretaries, the workgroup is proceeding to develop such an all-inclusive report, to be submitted to the Governor and 2000 General Assembly as provided for in the Division of Legislative Automated Systems' document processing guidelines.

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HB 1667 called for a report to the chairs of the Senate and House Finance Committees by September 1, and we will shortly provide those chairs with a written progress report on the comprehensive study. We will also request a presentation on the combined study to the Joint Commission on Technology and Science in the November/December timeframe.

We believe that this coordinated approach will enable us to make the most effective use of the resources devoted to the respective studies, as well as resulting in a more effective and usable end product. Should you have any questions about this approach, please contact my Assistant Secretary, Fred Williamson at (804) 786-9579.

C: The Honorable Wilbert Bryant
The Honorable Barry E. DuVal
The Honorable Ronald L. Tillett
Diane Horvath, Director, JCOTS
Howard T. Macrae, Jr., Assistant Tax Commissioner
John Sternlicht, Virginia Economic Development Partnership