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Revenue Research Report

HIGH TECHNOLOGY R&D TAX INCENTIVES STUDY

Tax Incentive Programs for Investment in Research and Development

Sales Tax Deferral/Exemption and B&O Tax Credit

State of Washington

Department of Revenue
William N. Rice, Acting Director

September 12, 2003

TO: The Honorable Dino Rossi, Chair
Senate Ways and Means Committee

The Honorable Jim McIntire, Acting Chair
House Finance Committee

FROM: William N. Rice, Acting Director
Department of Revenue

SUBJECT: HIGH TECHNOLOGY TAX INCENTIVES STUDY

This study is the final of the three analyses required by RCWs 82.04.4452(8) and 82.63.020. These statutes require the Department to analyze the results of the high technology tax incentives for research and development (R&D). Prior reports were submitted in 1997 and 2000.

In 1994, the Legislature established a business and occupation (B&O) tax credit and the retail sales/use tax deferral/exemption for investment in R&D or pilot scale manufacturing by high tech firms in the state. The purpose of the study is to evaluate these programs in terms of job creation, company growth, development of new products, geographic diversification of the state economy, growth of R&D investment, and the location of new firms in Washington.

To date, 1,311 firms have utilized the B&O tax credit resulting in tax savings of $204 million. There have been 393 approved projects eligible for the sales tax deferral/exemption program and the total tax exempted amounts to $324 million.

This study provides evidence that high tech firms are increasing their investment in R&D in response to Washington's high tech incentive programs. Washington's incentives provide more tax relief than most all states that are considered our strongest competitors for high technology firms. The sales and use tax deferral for R&D facilities improves Washington's comparative tax burden. However, tax relief from the B&O tax credit for R&D spending does not appear to materially improve Washington's comparative tax burden.

The report was prepared by the Research Division under the direction of Mary Welsh, Assistant Director. If you have any questions, please contact Mary at (360) 570-6076. Copies of the report are being distributed to each member of your committees, as well as staff. The Governor's office, the Department of Community, Trade and Economic Development and chairs of legislative economic development committees will also receive copies.

cc: The Honorable Gary Locke, Governor
The Honorable Tim Sheldon, Chair
Senate Economic Development Committee
The Honorable Velma Veloria, Chair
House Trade and Economic Development Committee

EXECUTIVE SUMMARY

This report is the third and final in a series of analyses of two tax incentives enacted in 1994, the high tech B&O tax credit and the high tech sales tax deferral. RCW 82.04.4452 provides a credit against state B&O tax for qualified expenditures in R&D. Chapter 82.63 RCW allows a deferral/exemption from retail sales and use tax for qualified investment in R&D facilities and machinery. Both incentives are restricted to firms in one of five designated "high technology" industries: advanced computing, advanced materials, biotechnology, electronic device technology, and environmental technology.

The Legislature, in adopting these programs, expressed the finding that the high technology sector is characterized by high-wage, high-skilled jobs and that these firms are vital to the state's economy. Further, it is acknowledged that such industries rely upon substantial R&D to develop new products, but that firms typically do not experience profitability during the product development phase of their operations. These tax incentives are intended to help offset the impact of state taxes for firms prior to actual manufacturing of new products.

Under present state law both incentives are scheduled to expire during 2004. The sales tax deferral/exemption terminates on July 1, 2004, while the B&O tax credit expires on December 31, 2004.

The analyses contained in this report focus principally on results directly related to the tax incentives and the high tech sector as a whole. A second part of the report (forthcoming) analyzes whether the tax incentives have caused an increase in jobs in the high tech industry. To the extent that a tax incentive is successful and is able to create new jobs, the income of those employees rises and their personal expenditures, in turn, stimulate secondary rounds of economic activity. Measuring these secondary impacts is beyond the scope of this study.

The statutes require an assessment of and report on these programs in the years 1997, 2000, and 2003. The Legislature directed the Department to measure the effects of each program on the following features of the state's economy:

(1) job creation,
(2) the number of jobs created for Washington residents,
(3) company growth,
(4) diversification of the state's economy,
(5) growth in R&D investment,
(6) introduction of new products,
(7) movement of firms or the consolidation of firms into the state, and
(8) other factors selected by the Department.

(1) JOB CREATION

Evidence of job creation in the high tech industry is mixed. Although R&D spending has increased in Washington relative to the nation, the state's share of high tech jobs has remained about the same over the last decade. Meanwhile, the state is losing manufacturing jobs along with the rest of the nation. Rural county high tech employment has declined somewhat for the three years for which county breakdowns are available, 1997, 1998, and 1999.

(2) THE NUMBER OF JOBS CREATED FOR WASHINGTON RESIDENTS

Firms taking the B&O tax credit report that 59 percent of their new employees are Washington residents.

(3) COMPANY GROWTH

Over the eight-year period of the incentives program, 1,311 firms have taken the B&O tax credit and 393 projects have been approved for the sales tax deferral. Participating high tech firms have grown 58 percent in total over seven years as measured by employment, increasing from 90,000 in 1995 to 142,000 in 2002.

(4) DIVERSIFICATION OF THE STATE'S ECONOMY

There is mixed evidence of diversification of the state's economy caused by the high tech incentives. One possible indicator of product diversification is growth in high tech patents. Patents for firms in Washington's high tech sectors have increased 180 percent since enactment of these incentives, rising from 370 in 1995 to 1,069 in 2001.

There is no clear evidence of growth in geographical diversity in the high tech sector. Rural county high tech employment has declined somewhat for the three years for which county breakdowns are available, 1997, 1998, and 1999.

(5) GROWTH IN R&D INVESTMENT

There is strong evidence of growth in R&D investment. R&D spending excluding capital investment has increased from $1.5 billion in 1995 to $6.8 billion in 2002 for firms taking B&O tax credits. Capital investment has increased from $266.7 million to $712.5 million from 1995 to 2002 for firms taking sales and use tax deferrals. All together, R&D investment in the state has tripled.

(6) INTRODUCTION OF NEW PRODUCTS

Growth in patents is used in the study as a measure of growth in the introduction of new products, although the relationship between the two is not perfect. Patents for firms in Washington's high tech sectors have increased 180 percent in the seven years after enactment of the incentives. This result is confirmed by a survey of B&O tax credit recipients in which 76 percent report that their R&D spending culminated in a new product.

(7) MOVEMENT OF FIRMS OR THE CONSOLIDATION OF FIRMS INTO THE STATE

Firms taking both incentives have responded variously to questions relating to movement and consolidation of their firms into the state.

- Thirty-nine percent of firms taking the B&O tax credit and 27 percent of the firms taking the sales and use tax deferral/exemption report that they are new businesses in Washington. However, very few of them report relocating to Washington because of the incentives.
- Ten percent of the firms taking the credit say they have built new facilities in the past five years.
- Forty-four percent of the firms taking the credit have expanded because of creating a new product or service.

Analysis comparing total tax burden of Washington and six competitor states shows that the sales and use tax deferral improves Washington's relative tax rankings. To the extent that taxation is a factor in firm location decisions, this result suggests that the deferral could encourage firms to remain in or move to Washington State. The B&O tax credit, however, has no impact on tax rankings.

(8) OTHER FINDINGS

Washington's incentive programs have high participation among high tech R&D firms. Over 75 percent of R&D expenditures in Washington (excluding capital investment) qualify for the B&O tax credit. Other information on participation:

- $204.0 million in B&O tax credit has been taken by 1,311 firms in an eight-year period through 2002.
- $323.9 million in sales tax deferrals have been approved for 393 projects in an eight-year period through 2002.
- Three of the five technologies--advanced computing, electronic device technology, and biotechnology--account for 89 percent of the B&O tax credits and nearly 100 percent of the sales and use tax deferrals.
- The average annual wage in Washington's high tech sector has increased from $65,000 in 1995 to $130,000 in 2001. Excluding computer software (SIC 737), average wages have

increased from $46,000 to $66,000 during the same time, an increase of 50 percent. Non-agricultural wages have grown 33 percent.

- Washington's high tech credit and deferral programs provide more tax relief on average than incentives of our six major competitors except California. Oregon and Nevada provide little or no relief, in most cases because of routinely low tax burdens on high tech firms.
- Washington's B&O tax credit provides more relief because it is calculated on the total amount of R&D spending. Most competitor states piggyback on the federal credit which is measured by an increment investment over an initial base.
- Washington firms may also make greater use of Washington's credit program because it is easier to use than the federal-based credit.

CHAPTER 1

DESCRIPTION AND ADMINISTRATION

In 1993 the Department of Revenue was asked to study high technology incentives, determine which technologies have the greatest potential for improving high wage R&D jobs, and make recommendations for targeted tax incentives with the goal of increasing the number of these types of jobs. This effort culminated in a report, "Incentives for High Technology," issued by the Research and Legislation and Policy Divisions of the Department on January 10, 1994.

In 1994 the Legislature created the B&O tax credit and sales and use tax deferral/exemption programs for R&D covered by this report. Both programs established tax incentives for five technologies. These five were based on a list of national critical technologies and recommendations from Washington industries.

HIGH TECHNOLOGY BUSINESS AND OCCUPATION TAX CREDIT

The 1994 Legislature established a B&O tax credit for qualified R&D expenditures other than for capital improvement purposes (RCW 82.04.4452). The program became effective on January 1, 1995, and, as of the date of this report, is scheduled to expire on December 31, 2004. An annual credit of up to $2 million is allowed for businesses that perform R&D in Washington in five specified high technology categories:

- Advanced computing
- Advanced materials
- Biotechnology
- Electronic device technology
- Environmental technology

Definitions of the above categories can be found in RCW 82.63.010. These definitions are as follows:

Statutory Definitions

(1) "Advanced computing" means technologies used in the designing and developing of computing hardware and software, including innovations in designing the full spectrum of hardware from hand-held calculators to super computers, and peripheral equipment.

(2) "Advanced materials" means materials with engineered properties created through the development of specialized processing and synthesis technology, including ceramics, high value-added metals, electronic materials, composites, polymers, and biomaterials.

(3) "Biotechnology" means the application of technologies, such as recombinant DNA techniques, biochemistry, molecular and cellular biology, genetics and genetic engineering,

cell fusion techniques, and new bioprocesses, using living organisms, or parts of organisms, to produce or modify products, to improve plants or animals, to develop microorganisms for specific uses, to identify targets for small molecule pharmaceutical development, or to transform biological systems into useful processes and products or to develop microorganisms for specific uses.

(4) "Electronic device technology" means technologies involving microelectronics; semiconductors; electronic equipment and instrumentation; radio frequency, microwave, and millimeter electronics; optical and optic-electrical devices; and data and digital communications and imaging devices.

(5) "Environmental technology" means assessment and prevention of threats or damage to human health or the environment, environmental cleanup, and the development of alternative energy sources.

The tax credit cannot exceed the amount of the B&O tax due for the same calendar year. The credit is required to be taken against taxes due for the calendar year in which the expenditures occur.

Any business claiming the credit is required to file an affidavit form prescribed by the Department of Revenue. The form includes the amount of credit claimed, an estimate of anticipated qualified R&D expenditures, an estimate of the taxable amount, the type of R&D being performed, and other information.

In order to qualify, a business must spend at least 0.92 percent (0.0092) of its taxable income (adjusted for the multiple activities credit) upon qualified R&D within Washington. The 0.92 percent threshold was determined as the estimated average percentage of R&D spending for all industries in the state.

The rate for calculating the credit is currently:

Nonprofit corporations/associations	0.484 percent (0.00484) of qualified expenses
Proprietary businesses	1.5 percent (0.015) of qualified expenses

(Initially, the tax credit rates were 0.515 percent for nonprofit corporations and 2.5 percent for proprietary businesses, but the rates were changed to the current levels in 1997.) These rates relate generally to the B&O tax rate for R&D activities.

HIGH TECHNOLOGY SALES AND USE TAX DEFERRAL

The high technology sales and use tax deferral program was enacted in 1994. The program became effective on January 1, 1995, and is codified in Chapter 82.63 RCW. As of the date of this report, the program is scheduled to expire on July 1, 2004.

Businesses operating in the following R&D technology categories may be eligible for both the sales and use tax deferral and the B&O tax credit:

- Advanced computing
- Advanced materials
- Biotechnology
- Electronic device technology
- Environmental technology

The detailed definitions of each of the five categories are the same as listed above under the discussion of the B&O tax credit.

Businesses are eligible for the sales/use tax deferral if they (1) start a new R&D or pilot scale manufacturing facility and acquire equipment; or (2) expand, renovate, or equip an existing facility anywhere in Washington. The deferral does not apply to the repair or replacement of high technology equipment. Firms using this program must apply for the deferral prior to starting construction or acquiring machinery and equipment.

The statute defines as pilot scale manufacturing "the design, construction, and testing of preproduction prototypes and models in the fields of biotechnology, advanced computing, electronic device technology, advanced materials, and environmental technology other than for commercial sale. As used in this subsection, 'commercial sale' excludes sales of prototypes or sales for market testing, if the total gross receipts from such sales of the product, service, or process do not exceed $1 million."

In 1995 the Legislature waived the repayment requirement for firms that continue to use the high tech facility for eight years. For each year that these use requirements are met, 12.5 percent of the deferred tax is waived, thus waiving all tax if the facility is in use for eight years.

ADMINISTRATION OF THE B&O TAX CREDIT

Requirements

Expenditures by qualified firms for R&D purposes are eligible for a credit against B&O tax liability incurred during the same year. Such expenditures must exceed 0.92 percent (0.0092) of the firm's taxable amount during that same year. Spending for R&D includes operating expenses, wages and benefits, supplies, and computer expenses directly incurred while conducting the R&D. For example, a business reports a taxable amount of $1 million on its Combined Excise Tax Return during a calendar year. This company must spend at least $9,200

($1,000,000 x 0.0092 = $9,200) on qualified R&D during that same calendar year to claim the credit.

Businesses may estimate their annual spending on R&D for the year and thus take the credit throughout the year. If a firm's spending does not reach the threshold, it is required to pay taxes equal to the credit taken throughout the year, with interest, to the Department of Revenue.

The rate by which the amount of credit is determined is tied to B&O tax rates. Nonprofit corporations and associations calculate the credit by applying the B&O rate for R&D income, per RCW 82.04.260(6); this rate is currently 0.484 percent. All other firms utilize a rate equivalent to the B&O tax rate for general services, per RCW 82.04.290(2); this rate is currently 1.5 percent. A person performing research under contract has the option of using the greater of either its qualified R&D expenditures or 80 percent of the amounts received as compensation for conducting the qualified R&D.

Example A: A for-profit business performs its own R&D and has R&D expenses of $10,000. To determine if the amount of expenses qualifies the business for a credit, the taxable income must be determined. To do this:

> Divide $10,000 by 0.92 percent ($10,000 / 0.0092 = $1,086,957). If the taxable amount is $1,086,957 or greater, the expenses qualify.

To determine the amount of credit:

> Multiply the expenses ($10,000) times the rate (1.5%). The amount of credit is determined to be $150 ($10,000 x 0.015 = $150).

To use the credit:

> If the business is a manufacturer, the B&O tax on the taxable amount is $5,261 ($1,086,957 x 0.00484 = $5,261). The credit of $150 should be subtracted from $5,261, leaving a B&O tax due of $5,111.

Example B: A for-profit business performs its own R&D. It has a gross taxable income of $2,000,000. To determine if the business is eligible for the credit:

> It must have expenses that total $18,400 ($2,000,000 x 0.0092 = $18,400). If the expenses are $18,400 or more, the credit may be used.

To calculate the amount of credit:

> Multiply the expenses ($18,400) times the rate (1.5%). The amount of credit is $276 ($18,400 x 0.015 = $276).

To use the credit:

> The manufacturing B&O tax on $2,000,000 is $9,680 ($2,000,000 x 0.00484 = $9,680). The credit of $276 should be subtracted from $9,680, leaving B&O tax due of $9,404.

Example C: A nonprofit business performs its own R&D. It has a gross taxable amount of $1,000,000 and $8,000 in expenses. To be eligible for the credit, this business must have $9,200 of expenses ($1,000,000 x 0.0092 = $9,200). In this example the firm would not qualify, and no credit can be used.

A person performing qualified R&D under contract for another may assign all or a portion of the credit to the person paying for the R&D. Both businesses must meet the eligibility requirements. Assigned credits may not exceed the smaller of the business and occupation tax of the research business or $2 million.

When a credit is used, a copy of the "Declaration - Research and Development Credit" must be attached to the Combined Excise Tax Return. The credit should be entered on page one of the Combined Excise Tax Return, under the TOTALS section. The amount of the credit should also be entered on page two of the Combined Excise Tax Return under the CREDITS section, credit ID number 810.

Application

No pre-approval from the Department of Revenue is required to use the credit.

The first time a business uses the high tech B&O tax credit it must complete an initial survey and mail it to the Department. In addition, each time the credit is used the business must complete the "Declaration - Research and Development Credit" and attach it to the Combined Excise Tax Return.

The forms may be requested by calling the Department of Revenue's Telephone Information Center at 1-800-647-7706 (TTY 1-800-451-7985) or they may be found on the Department's web site at http://dor.wa.gov.

ADMINISTRATION OF THE SALES/USE TAX DEFERRAL

Applications must be filed with the Department of Revenue before construction begins or before machinery or equipment is acquired, in order to be eligible for the sales/use tax deferral/ exemption. The investment project must be devoted to (1) R&D or (2) pilot scale manufacturing. The investment may consist of machinery and equipment, new structures, and/or expansion or renovations to increase floor space or production capacity. The machinery and equipment may be used property but must be new to the state or to the business.

- *Qualified buildings* means the construction of new structures, or the expansion or renovation of existing structures for the purpose of increasing floor space or production capacity used for pilot scale manufacturing or qualified R&D, including plant offices and other facilities that are an essential or an integral part of a structure used for pilot scale manufacturing or qualified R&D.

  If a building is used partly for pilot scale manufacturing or qualified research and partly for other purposes, only that portion of the building used for a qualifying purpose is eligible for the deferral.

- *Qualified machinery and equipment* means fixtures, equipment, and support facilities that are an integral and necessary part of a pilot scale manufacturing or qualified R&D operation. Included are computers, software, data processing equipment, laboratory equipment, instrumentation, and other devices used in the process of experimentation to develop a new or improved pilot model, plant process, product, formula, invention, or similar property.

  Qualified machinery and equipment must be used exclusively for pilot scale manufacturing or qualified R&D to qualify for the deferral. Unlike buildings, if machinery and equipment are used for both qualifying and nonqualifying purposes, the costs may not be apportioned. Sales or use tax may not be deferred on the purchase or use of machinery and equipment used for both qualifying and nonqualifying purposes.

Repayment of Deferred Taxes

Deferred taxes must be repaid if an investment project is used for purposes other than qualified R&D or pilot scale manufacturing during the calendar year for which the Department certifies the investment project as operationally complete or at any time during any of the succeeding seven calendar years.

Taxes are immediately due according to the prorated schedule shown below. Interest on the taxes, but not penalties, must be paid retroactively to the date tax was deferred.

Deferred taxes do not need to be repaid on particular items if the purchase or use of the item would have qualified for the machinery and equipment sales and use tax exemptions at the time of purchase or first use.

Year in Which Non-Qualifying Use Occurs	Percent of Deferred Taxes Due
1	100.0%
2	87.5%
3	75.0%
4	62.5%
5	50.0%
6	37.5%
7	25.0%
8	12.5%

Application

A project that has received any sales/use tax deferral under this or any other deferral program is not eligible for further deferral under this program. An R&D facility may get additional deferral certificates to upgrade to pilot scale manufacturing. Businesses may have more than one project that may qualify for deferral/exemptions under any of these programs.

An application may be requested by calling the Department of Revenue's Telephone Information Center at 1-800-647-7706 (TTY 1-800-451-7985) or via the Department's web site at http://dor.wa.gov.

The Department of Revenue must approve or deny an application within 60 days. If denied, the business may appeal the decision to the Department's Appeals Division.

Businesses approved for a deferral program receive a Tax Deferral Certificate from the Department to present to their contractors and vendors. This certificate allows the contractors and vendors to sell to approved businesses without charging retail sales tax (the seller must keep a copy of the certificate in his records).

CHAPTER 2

PARTICIPATION IN THE HIGH TECHNOLOGY TAX INCENTIVE PROGRAMS

This chapter provides information on firms that have participated in the high technology tax incentive programs. High points in this chapter are:

- $204.0 million in B&O tax credit has been taken by 1,311 firms through 2002.
- $323.9 million in sales tax deferrals have been approved for 393 projects through 2002.
- Three of the five technology categories, advanced computing, electronic device technology, and biotechnology, account for 89 percent of the B&O tax credits and nearly 100 percent of the sales and use tax deferrals.
- Eighty-five percent of the credits and virtually all of the deferrals are taken by firms in urban counties, although there is an increase in the level of B&O tax credits taken by rural firms since 1995.
- High tech R&D firms qualify for four other major tax incentives amounting to $441.2 million in the last 12 years.
- Thirty-nine percent of firms taking the B&O tax credit and 27 percent of the firms taking the sales and use tax deferral/exemption report that they are new businesses in Washington. However, very few of them report relocating to Washington because of the incentives.
- Ten percent of the firms taking the credit say they have built new facilities in the past five years.
- Forty-four percent of the firms taking the credit have expanded because of creating a new product or service.

B&O TAX CREDIT FOR R&D BY QUALIFYING TECHNOLOGY

B&O tax credits have been taken by 1,311 firms to date with an average of about 600 firms taking the credit each year. This program has greater participation than the sales tax deferral program because not all high tech firms are embarking on capital expansions. From 1995 through 2002, about $204.0 million in tax credits have been taken. Three of the technology categories account for 85 percent of the credits that have been taken. Advanced computing firms represent 44 percent of the total, electronic device technology 30 percent, and biotechnology 15 percent. Firms in the environmental technology and advanced materials technology categories represent 11 percent of tax credits taken.

Chart 2.A
Percent of B&O Credit Received by Qualifying Technology
Calendar Years 1995-2002

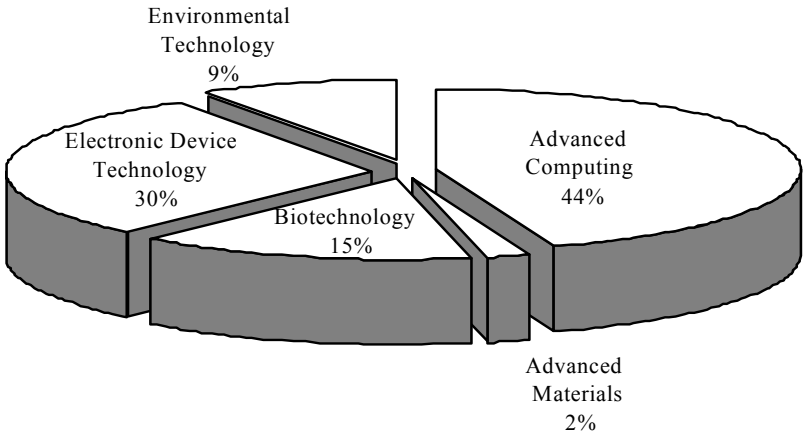


Table 2.1
B&O Credits for R&D by Qualifying Technology

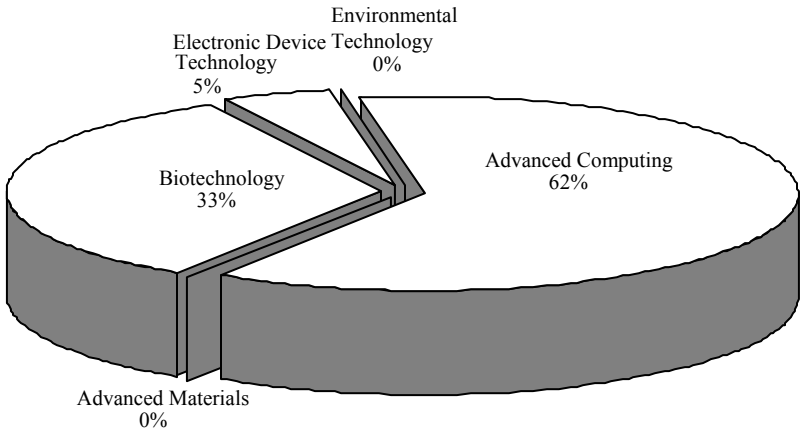
	Advanced Computing	Advanced Materials	Biotechnology	Electronic Device Technology	Environmental Technology	Total	Number of Firms
1995	$8,030,800	$382,100	$2,833,500	$5,750,700	$658,700	$17,655,800	426
1996	10,432,300	411,000	3,354,500	7,046,800	662,300	21,907,000	500
1997	12,132,900	608,800	4,278,500	8,483,500	2,760,400	28,264,200	567
1998	13,543,700	490,600	4,368,200	8,150,400	2,782,300	29,335,200	623
1999	12,623,300	426,600	4,159,600	7,063,000	2,236,200	26,508,700	628
2000	13,304,500	410,100	4,227,300	7,801,800	3,126,000	28,869,700	637
2001	11,397,300	379,100	3,684,100	8,334,800	3,406,800	27,202,000	599
2002	9,987,300	469,900	3,684,400	8,055,200	2,059,300	24,256,000	590
Total	$91,452,100	$3,578,200	$30,590,100	$60,686,100	$17,692,000	$203,998,600	
	Count of Firms By Qualifying Technology						
1995	263	16	38	117	42		
1996	308	21	45	145	43		
1997	355	29	48	168	49		
1998	392	30	57	174	60		
1999	395	28	66	173	60		
2000	391	32	71	175	56		
2001	365	29	71	160	54		
2002	348	30	68	163	54		

Note: Firms may engage in more than one qualifying technology.

SALES AND USE TAX DEFERRAL BY QUALIFYING TECHNOLOGY

The Department has approved 393 applications for the high tech sales and use tax deferral between 1995 and 2002. Project costs estimated by taxpayers on their applications are $3.9 billion to date. The amount of state and local sales/use tax deferred for these project costs is estimated at $323.9 million. Of the approved projects, 314 (40 percent) are complete, accounting for $163.5 million (50 percent) of the estimated deferred tax.

Chart 2.B
Percent of Approved Sales and Use Tax Deferral
by Qualifying Technology
Calendar Years 1995-2002



Almost all of the deferrals are designated for advanced computing (62 percent) and biotechnology facilities (33 percent). Electronic device technology firms are responsible for 5 percent of the deferral projects. The two other areas covered by the program, environmental technology and advanced materials, are represented by only a few projects. Multiple projects per firm are common, with an average of 1.6 projects per firm.

Table 2.2
Approved R&D Projects by Date of Application

Estimated Project Costs

Year	Advanced Computing	Advanced Materials	Biotechnology	Electronic Device	Environmental Technology	Total
1995	$208,938,057	$3,663,024	$33,774,381	$20,367,445	$3,039	$266,745,946
1996	162,565,742	0	157,026,278	18,819,118	0	338,411,138
1997	196,237,486	0	44,268,622	9,229,447	1,163,665	250,899,220
1998	207,009,534	0	28,321,397	13,205,120	0	248,536,051
1999	574,387,419	0	159,107,755	31,078,776	0	764,573,950
2000	308,017,371	0	388,061,382	73,239,036	4,588	769,322,377
2001	326,554,166	0	204,391,385	5,771,064	190,000	536,906,615
2002	469,963,580	0	229,948,986	12,465,000	120,000	712,497,566
Total	$2,453,673,355	$3,663,024	$1,244,900,186	$184,175,006	$1,481,292	$3,887,892,863

Estimated State and Local Sales Tax Deferred or Exempted

Year	Advanced Computing	Advanced Materials	Biotechnology	Electronic Device	Environmental Technology	Total
1995	$16,955,095	$148,874	$2,772,896	$1,558,391	$249	$21,435,505
1996	13,741,541	0	13,060,378	1,570,938	0	28,372,857
1997	16,799,264	0	3,709,660	757,732	100,079	21,366,735
1998	17,036,856	0	2,388,304	1,114,885	0	20,540,045
1999	47,372,440	0	13,381,825	2,606,347	0	63,360,612
2000	25,201,611	0	31,946,499	6,001,033	358	63,149,501
2001	27,217,809	0	17,108,476	485,248	16,150	44,827,684
2002	39,534,795	0	20,170,229	1,106,450	9,240	60,820,714
Total	$203,859,412	$148,874	$104,538,267	$15,201,024	$126,076	$323,873,653

Count of Projects (Excluding Certain Lessors)**

Year	Advanced Computing	Advanced Materials	Biotechnology	Electronic Device	Environmental Technology	Total
1995	22	1	12	6	1	42
1996	8	0	12	11	0	31
1997	22	0	13	2	2	39
1998	19	0	16	7	0	42
1999	28	0	21	11	0	60
2000	33	0	19	12	1	65
2001	18	0	36	9	2	65
2002	11	0	34	3	1	49
Total	161	1	163	61	7	393

**Project count excludes lessors when lessee has also applied for the deferral.

Note: From January through April 2003, an additional 11 projects have been approved with estimated deferred taxes of $5.0 million.

GEOGRAPHIC LOCATION OF PARTICIPANTS IN HIGH TECHNOLOGY TAX INCENTIVES

The data indicate firms located in rural counties are far less likely to engage in qualified high technology R&D spending. In 2002, B&O tax credits taken by high tech firms in rural counties amounted to less than 15 percent of the total credits. However, B&O tax credits taken in rural counties are increasing as a share of the statewide total over the life of the program. In 1995, rural firms received 8.4 percent of the total credits, and in 2002, rural firms received 14.5 percent of the total credits.

Investment in construction and machinery and equipment for R&D and pilot scale manufacturing appears to take place almost exclusively in the urban counties. The definition of a rural county is the same as for the rural tax incentive programs and the rural county 0.08 percent sales tax credit for infrastructure. A county is rural if its population density is less than 100 people per square mile. For the purposes of the following table, Clark, King, Kitsap, Pierce, Snohomish, Spokane and Thurston Counties are defined as nonrural or urban counties. Counties not listed on Tables 2.4, 2.5, and 2.6 do not have any firms receiving the credit or deferral.

Table 2.3

High Tech R&D Incentives by Location in Nonrural and Rural Counties

B&O Credit								
	1995	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Urban	$16,166,260	$20,357,231	$24,577,601	$25,486,737	$22,744,739	$24,406,937	$22,388,483	$20,762,306
Rural	1,489,566	1,549,786	3,686,555	3,848,464	3,763,957	4,462,811	4,813,522	3,493,664
Out of state/location unknown	2,226,291	3,175,974	3,948,989	4,220,418	2,515,284	3,117,063	2,458,603	2,276,729
Total	17,655,826	21,907,017	28,264,156	29,335,201	26,508,696	28,869,748	27,202,005	24,255,970
%Rural	8.4%	7.1%	13.0%	13.1%	14.2%	15.5%	17.7%	14.4%
%Urban	91.6%	92.9%	87.0%	86.9%	85.8%	84.5%	82.3%	85.6%

	Sales and Use Tax Deferral (Based on Estimated Project Costs)							
	1995	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Urban	$32,221,870	$32,895,903	$22,283,615	$20,154,346	$60,451,888	$62,310,784	$43,783,870	$60,271,927
Rural	166,291	9,000	60,040	0	96,823	10,172	0	0
Total	32,388,161	32,904,903	22,343,655	20,154,346	60,548,711	62,320,956	43,783,870	60,271,927
%Rural	0.5%	0.0%	0.3%	0.0%	0.2%	0.0%	0.0%	0.0%
%Urban	99.5%	100.0%	99.7%	100.0%	99.8%	100.0%	100.0%	100.0%

Note: A rural county is defined as having a population density of less than 100 people per square mile.

Table 2.4
B&O Tax Credits for High Technology R&D by County

COUNTY	1995	1996	1997	1998	1999	2000	2001	2002
Adams	D	D	$0	$0	$0	D	$0	$0
Asotin	D	D	D	D	D	D	D	D
Benton	1,119,956	1,090,783	3,160,357	3,308,880	3,264,459	3,948,833	4,248,944	2,899,998
Chelan	D	D	D	D	D	2,465	D	76,527
Clallam	0	0	D	D	D	D	0	0
Clark	597,903	753,105	1,000,552	842,541	687,770	693,939	642,427	611,844
Cowlitz	0	0	D	D	0	D	D	0
Grant	D	D	D	D	D	0	0	0
Grays Harbor	0	0	0	0	0	0	D	0
Island	19,452	20,214	26,805	14,787	12,107	12,751	D	D
Jefferson	D	D	D	D	D	D	3,381	D
King	10,858,614	13,734,267	15,890,858	16,525,185	16,155,599	17,169,734	16,010,399	15,022,919
Kitsap	115,480	203,579	215,147	216,407	159,664	205,480	128,301	114,461
Kittitas	D	D	D	D	D	D	D	D
Klickitat	D	D	D	D	8,985	D	D	22,481
Lewis	D	D	D	D	D	D	D	D
Mason	0	D	D	D	D	D	0	0
Okanogan	D	D	D	D	0	0	0	D
Pacific	0	0	0	0	0	D	D	5,802
Pend Oreille	0	0	0	0	0	0	0	D
Pierce	70,897	54,821	46,903	56,580	57,215	91,342	99,612	140,376
San Juan	D	D	D	D	D	D	D	D
Skagit	23,176	16,960	28,738	88,308	87,106	72,216	71,669	D
Skamania	0	0	0	0	0	0	D	D
Snohomish	1,849,170	1,898,432	2,806,675	3,052,560	2,758,752	2,624,171	2,530,534	2,168,304
Spokane	410,074	497,021	618,838	529,036	377,509	454,969	456,301	365,339
Stevens	0	0	0	D	0	0	0	0
Thurston	18,378	19,818	22,833	29,224	20,838	37,488	42,594	44,839
Walla Walla	D	D	D	D	D	D	D	D
Whatcom	85,051	92,791	107,503	87,415	73,119	75,142	79,676	78,943
Whitman	D	177,507	208,463	194,429	197,140	243,183	265,505	241,518
Yakima	0	D	D	39,911	D	D	59,932	D

Note: Counties not listed do not have any firms participating in the B&O tax credit for high technology R&D.
D = Data have been withheld to avoid disclosure of information in counties where less than three firms participated.

Table 2.5
Count of Firms Taking the B&O Tax Credit for High Technology R&D by County

COUNTY	1995	1996	1997	1998	1999	2000	2001	2002
Adams	D	D	0	0	0	D	0	0
Asotin	D	D	D	D	D	D	D	D
Benton	9	14	16	19	20	19	18	15
Chelan	D	D	D	D	D	4	D	3
Clallam	0	0	D	D	D	D	0	0
Clark	10	12	12	14	16	15	17	21
Cowlitz	0	0	D	D	0	D	D	0
Grant	D	D	D	D	D	0	0	0
Grays Harbor	0	0	0	0	0	0	D	0
Island	4	4	6	3	4	3	D	D
Jefferson	D	D	D	D	D	D	3	D
King	296	350	385	421	427	433	406	389
Kitsap	6	6	7	12	11	14	12	11
Kittitas	D	D	D	D	D	D	D	D
Klickitat	D	D	D	D	3	D	D	3
Lewis	D	D	D	D	D	D	D	D
Mason	0	D	D	D	D	D	0	0
Okanogan	D	D	D	D	0	0	0	D
Pacific	0	0	0	0	0	D	D	3
Pend Oreille	0	0	0	0	0	0	0	D
Pierce	4	7	6	9	10	11	12	14
San Juan	D	D	D	D	D	D	D	D
Skagit	4	3	4	4	4	5	3	D
Skamania	0	0	0	0	0	0	D	D
Snohomish	48	54	62	66	65	67	58	58
Spokane	13	13	22	20	21	18	21	17
Stevens	0	0	0	D	0	0	0	0
Thurston	4	6	7	7	4	6	5	9
Walla Walla	D	D	D	D	D	D	D	D
Whatcom	5	5	7	4	5	7	7	10
Whitman	D	4	4	5	6	6	6	6
Yakima	0	D	D	3	D	D	3	D

Note: Counties not listed do not have any firms participating in the B&O tax credit for high technology R&D.
D = Data have been withheld to avoid disclosure of information in counties where less than three firms participated.

Table 2.6
Deferred/Exempted Sales and Use Taxes for High Technology R&D Facilities by County

Deferrals Calculated from Original Estimated Project Costs

County	1995	1996	1997	1998	1999	2000	2001	2002	Project Count
Benton		$0	$0	$0	$64,253	$0	$0	$0	1
Clark	1,471,360	0	0	0	0	124,904	97,791	9,240	12
Grant	0	0	0	0	0	624	0	0	1
King	23,965,864	32,607,345	15,073,536	20,154,346	59,087,079	57,858,037	32,197,026	57,605,283	334
Kittitas	990	0	0	0	0	0	0	0	1
Klickitat		0	0	0	0	9,548	0	0	2
Mason	0	0	0	0	8,493	0	0	0	1
Pierce	5,846,000	0	7,173,600	0	0	0	16,150	0	6
San Juan	28,801	0	0	0	1,925	0	0	0	2
Snohomish	938,646	288,558	36,479	0	783,634	4,309,618	10,379,403	2,657,404	36
Spokane	0	0	0	0	581,175	18,225	1,093,500	0	4
Walla Walla	0	0	60,040	0	0	0	0	0	1
Whatcom	136,500	9,000	0	0	22,152	0	0	0	3

Notes: Counties not listed do not have any firms taking the sales and use tax deferral for high technology R&D facilities and pilot scale manufacturing. Amounts are unadjusted by audits.

PARTICIPATION IN MULTIPLE TAX INCENTIVES

Firms receiving the B&O tax credit and sales and use tax deferral for high tech R&D may also be eligible for other tax incentives such the manufacturing machinery and equipment exemption and the rural county incentives. Table 2.7 shows the result of matching firms taking the high tech incentives with their predecessors, successors, and affiliates for 12 years and the level of their participation in other major tax incentives. Deferral amounts are for completed projects only. High tech R&D firms received a total of $441.2 million in tax savings over the last 12 years.

Table 2.7
Qualifying High Tech R&D Firms' Participation in Six Tax Incentive Programs

	R&D B&O Credit	R&D Deferral	Machinery & Equipment Exemption	Rural Deferral	Rural Job Credit	New Manufacturer Deferral	Total Tax Savings
1990	$0	$0	$0	$0	$0	$120,957	$120,957
1991	0	0	0	28,210	0	29,640	57,850
1992	0	0	0	0	0	1,320,646	1,320,646
1993	0	0	0	29,790	1,751	24,223	55,763
1994	0	0	0	0	30,708	2,285,367	2,316,075
1995	17,655,800	212,557	2,697,360	31,903	12,150	390,640	21,000,411
1996	21,907,000	8,362,060	10,961,272	127,438	9,094	0	41,366,864
1997	28,264,200	3,363,203	18,234,241	556,328	79,948	0	50,497,920
1998	29,335,200	14,667,102	13,262,786	624,831	324,281	0	58,214,200
1999	26,508,700	13,873,437	15,769,458	576,796	547,186	0	57,275,576
2000	28,869,700	18,115,328	20,202,683	500,140	356,024	0	68,043,875
2001	27,202,000	33,013,967	15,454,150	614,648	127,047	0	76,411,812
2002	24,256,000	27,143,520	12,596,433	494,000	32,900	0	64,522,854
	$203,998,600	$118,751,175	$109,178,383	$3,584,084	$1,521,089	$4,171,472	$441,204,803

Note: Firms include high tech R&D incentive participants, their predecessors, successors, and affiliates.

DENIALS, CANCELLATIONS, AND REPAYMENT

As of April 2003, 404 projects have been approved and 314 have been completed. The Department denied 88 applications. The two most frequent reasons for denial were: (1) taxpayers did not provide enough information to determine whether they were performing qualified R&D and (2) taxpayers began construction or acquired machinery and equipment prior to the application date. The Department made multiple attempts to verify information before denying applications. Businesses cancelled 15 investment projects approved by the Department, most typically because of a financial decision made by the business.

Table 2.8
Status of R&D Sales and Use Tax Deferral Projects
Calendar Year 1995 - April 2003

Projects approved by the Department		**Projects denied by the Department**	
Completed projects	314	Lacked sufficient information	34
Incomplete projects	75	Project begun prior to application	32
Cancelled by taxpayer	15	Unqualified/Other	22
Total projects approved	404	**Total projects denied**	88

Note: Multiple projects per firm are common with an average of 1.6 projects per firm.

The Department conducts audits of deferred sales and use taxes once projects are operationally complete. Audits have been performed on 206 of the projects amounting to $80.4 million in deferred taxes, almost 25 percent of all deferrals. Thirty-eight projects were totally or partially disqualified in audit. Twenty-six projects were totally disqualified requiring taxpayers to pay all outstanding deferred taxes. The other 12 investment projects were partially disqualified because a portion of the projects were no longer being used in a qualified manner. In these instances, a portion of the deferred tax was repaid. The total amount repaid is $3.8 million.

Table 2.9 shows amounts of deferred sales and use taxes audited and remaining to be audited. Most of the audits have been conducted on projects with application dates in the earlier years of the incentive program. Recipients must notify the Department when projects are operationally complete. There are often several years between project application and completion.

Table 2.9
Audited and Unaudited Deferred Sales and Use Taxes

Application Date	**Audited Amount**	**Unaudited Amount**	**Total**	**Audited Percent**
1995	$21,316,605	$118,900	$21,435,505	99.4%
1996	21,137,954	7,234,903	28,372,857	74.5%
1997	12,890,542	8,476,193	21,366,735	60.3%
1998	3,456,758	17,083,287	20,540,045	16.8%
1999	15,029,522	48,331,090	63,360,612	23.7%
2000	3,348,618	59,800,883	63,149,501	5.3%
2001	3,143,395	41,684,289	44,827,684	7.0%
2002	55,645	60,765,069	60,820,714	0.1%
2003	0	4,986,573	4,986,573	0.0%
Total	$80,379,039	$248,481,187	$328,860,226	24.4%

MOVEMENT AND CONSOLIDATION OF FIRMS IN STATE/EMPLOYMENT OF WASHINGTON RESIDENTS

Taxpayers are asked to complete a survey when first using the high tech B&O tax credit or sales tax deferral programs. Since the programs' inception, surveys from 362 taxpayers using the B&O tax credit and 244 taxpayers using the sales tax deferral program have been received. The one-page survey asks the recipient whether the business is new in Washington and whether the business relocated to Washington as a result of the incentive programs. Of the credit program respondents, 39 percent indicate the business is new in Washington and none indicate a relocation as a result of the program. Of the deferral program survey respondents, 27 percent indicate the business is new in Washington and 3 percent indicate that they were relocating because of the deferral program.

Table 2.10
Reponses of High Tech Incentive Participants to Initial Survey

	B&O Credit	Sales & Use Tax Deferral
Is this a new business in Washington?	39%	27%
Are you relocating your business as a result of this program?	0%	3%
Number of participants responding to initial survey	362	244

Related questions were asked on a survey of credit participants conducted for the 2000 High Technology Study. Results are as follows:

Table 2.11

Responses to 2000 High Tech Credit Survey

	B&O Credit
Percent of FTEs that are WA residents	59%
Percent of firms building a new facility in prior five years	10%
Percent of firms creating a new product or services in prior five years as a result of R&D spending	76%
Percent of firms that expanded in WA State because of creating a new product or service	44%
Number of respondents to 2000 survey	330
Survey response rate	51.6%

CHAPTER 3

GROWTH AND DIVERSIFICATION

This chapter is devoted to measuring the growth of the high technology sector in Washington and diversification of the state's economy. While the previous chapter focuses on the participants in the two high tech incentive programs, this chapter addresses the growth of the high tech sector in Washington in general and makes comparisons to Washington and the U.S. economy.

The main points of this chapter are:

- Washington's share of national high tech R&D employment has remained stable in the last ten years.
- The average annual wage in Washington's high tech sector has increased from $65,000 in 1995 to $130,000 in 2001. Excluding computer software (SIC 737), average wages have increased from $46,000 to $66,000 during the same time.
- Rural county high tech employment has declined somewhat for the three years for which county breakdowns are available, 1997, 1998 and 1999.
- Manufacturing jobs have declined in Washington as they have in the rest of the nation.
- R&D spending by firms taking the B&O tax credit has increased as a percent of national R&D spending, from 0.8 percent in 1995 to 2.3 percent in 2002.
- Patents for firms in Washington's high tech sectors have increased 180 percent after enactment of the incentives. Almost half of the increase is attributable to the data processing/software patent class.

While the evidence falls short of proving that the state's incentives are the cause of this growth, it suggests that Washington's high tech tax incentives could have had an effect on growth of the high tech sector in this state.

EMPLOYMENT IN WASHINGTON'S HIGH TECHNOLOGY SECTOR

Washington's high tech sector employment achieved some modest growth in relation to national employment in the high tech sectors from 1990 to 2000. The high tech sector is difficult to identify by industry because high tech activities occur in a multitude of different industrial classifications. However, 12 industries include almost 60 percent of all participants. These categories are as follows:

- Chemical Manufacturing (SIC 2800)
- Computer Manufacturing (SIC 3570)
- Electronic Component Mfg (SIC 3600)
- Trans Equipment Mfg (SIC 3700)
- Instrument Manufacturing (SIC 3800)
- Wholesale Professional Equip (SIC 5040)
- Wholesale Electrical Equip (SIC 5060)
- Retail Electronics (SIC 5730)
- Computer Software (SIC 7370)
- Medical Laboratories (SIC 8070)
- Engineering Services (SIC 8710)
- Research Services (SIC 8730)

Employment in Washington's High Tech Sector Compared to U.S.

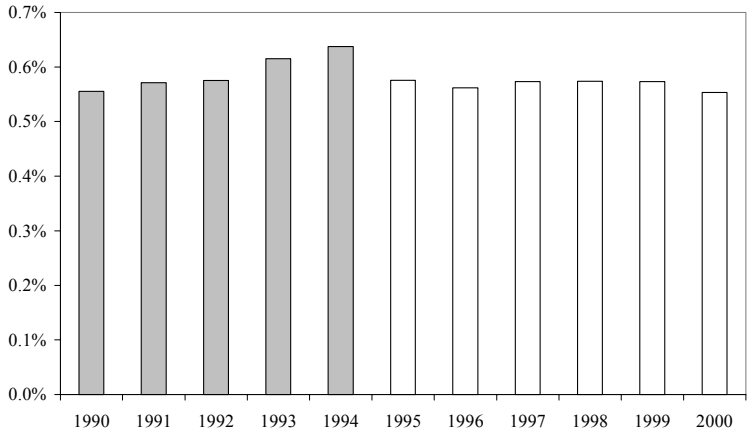
Washington's share of national high tech R&D employment has remained stable in the last decade for these 12 sectors combined. However, industry-by-industry results are mixed. Some industries gained a slight share, while most maintained their share or declined somewhat. Computer software and electronic component manufacturing have increased in share of U.S. employment. Computer manufacturing and engineering services have declined somewhat.

Table 3.1
Employment in WA and U.S. 12 High Tech Sectors

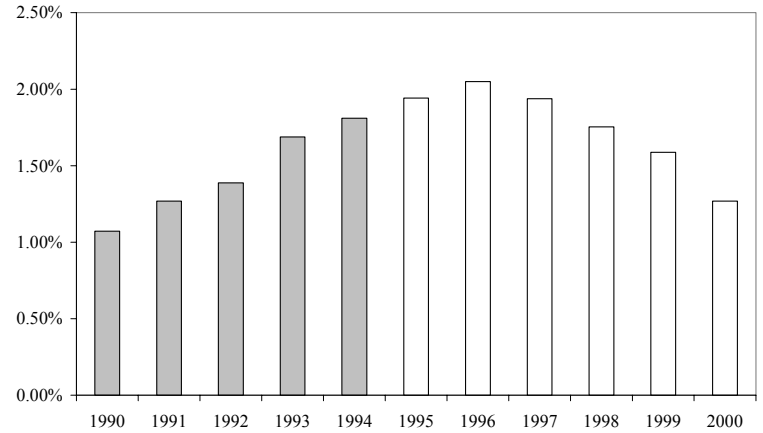
	WA Employment	U.S. Employment	WA Percent of U.S.
1991	252,650	11,088,290	2.3%
1992	254,358	10,986,691	2.3%
1993	252,088	11,005,539	2.3%
1994	258,962	11,163,743	2.3%
1995	256,867	11,577,155	2.2%
1996	271,118	11,987,602	2.3%
1997	296,269	12,498,642	2.4%
1998	313,871	13,034,915	2.4%
1999	308,685	13,311,194	2.3%
2000	313,501	13,743,358	2.3%

Charts 3.A
Washington High Tech Sector Employment as a Percent of U.S. High Tech Sector Employment

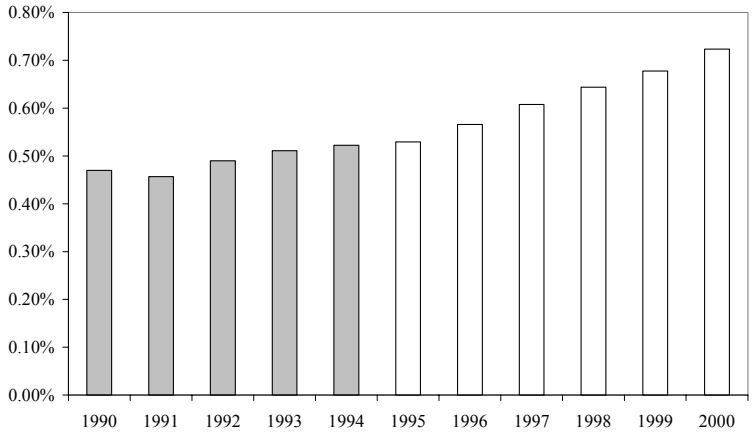
Chemical Manufacturing (SIC 2800)



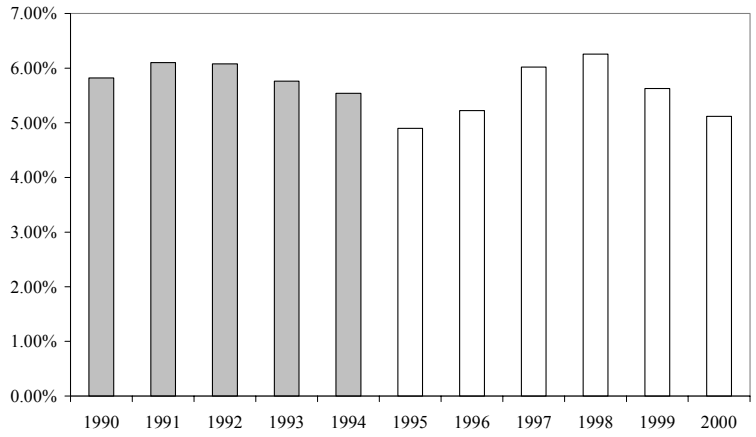
Computer Manufacturing (SIC 3570)



Electronic Component Manufacturing (SIC 3600)



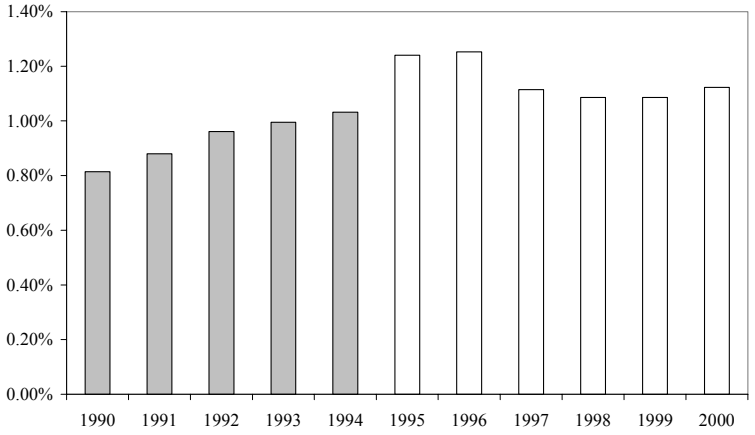
Transportation Equipment Manufacturing (SIC 3700)



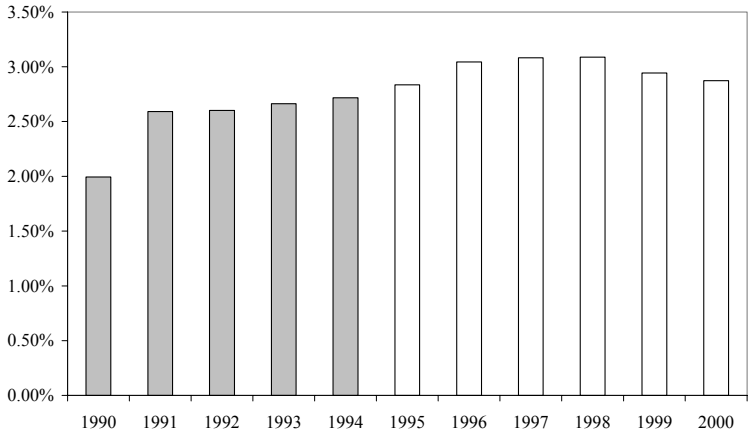
Before implementation of high tech incentives

After implementation of high tech incentives

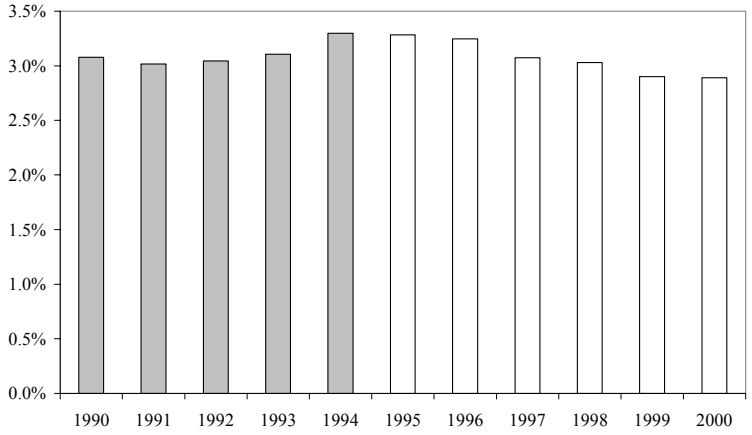
Instrument Manufacturing (SIC 3800)



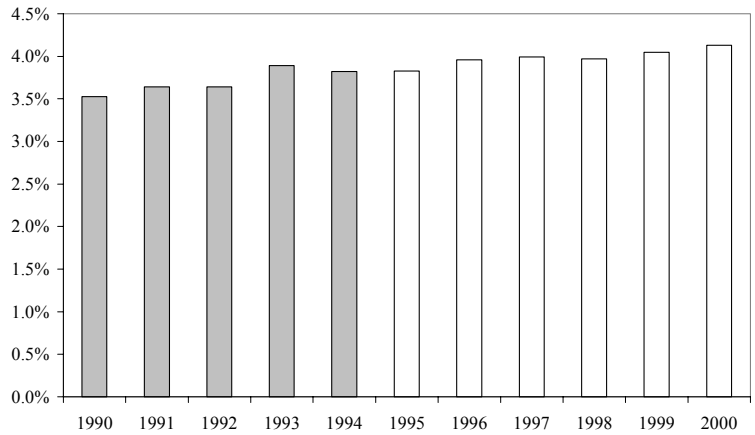
Wholesale Professional Equipment 5040



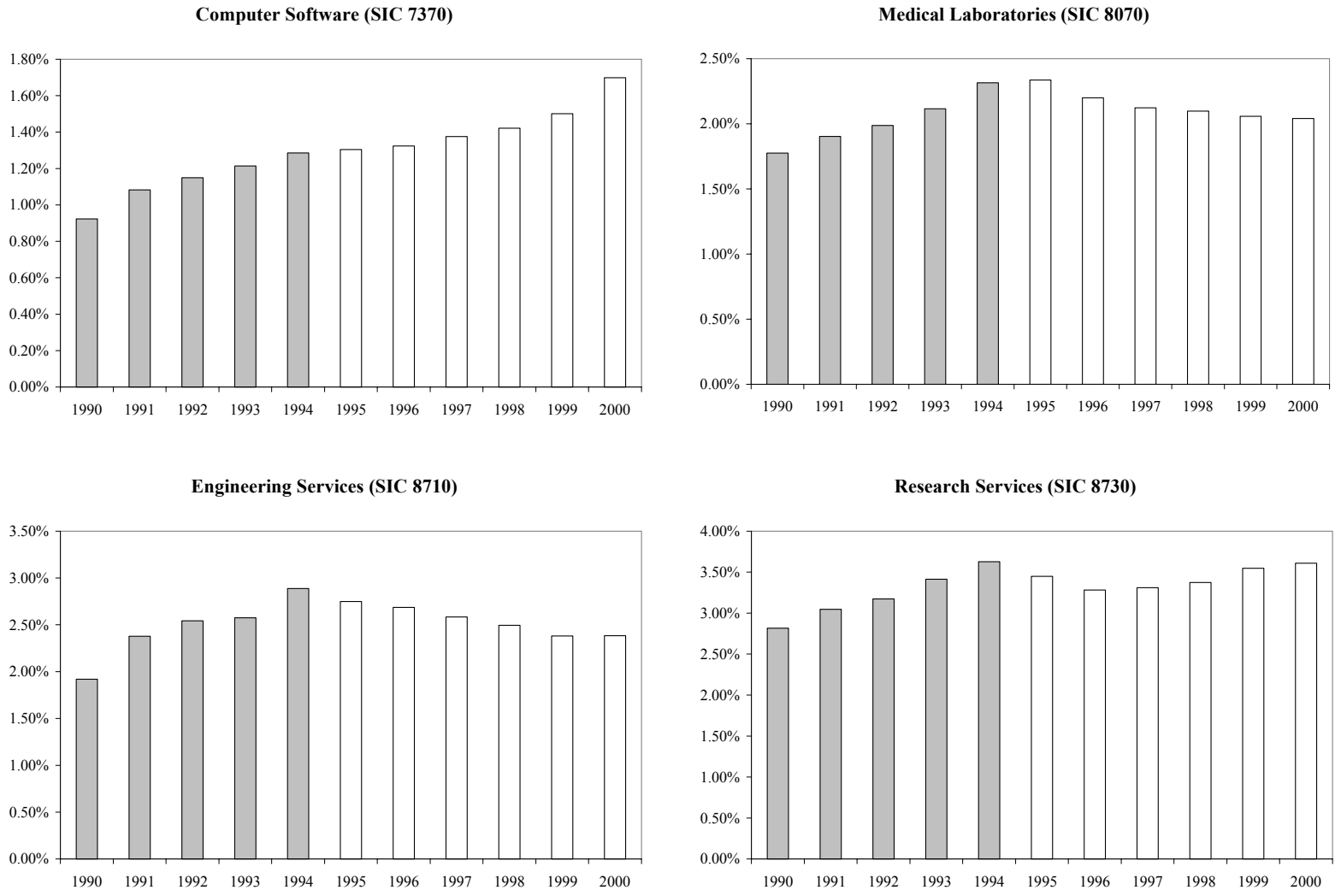
Wholesale Electrical Equip (SIC 5060)



Retail Electronics (SIC 5730)



Before implementation of high tech incentives After implementation of high tech incentives


Computer Software (SIC 7370)
1.80%
1.60%
1.40%
1.20%
1.00%
0.80%
0.60%
0.40%
0.20%
0.00%
1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000
Medical Laboratories (SIC 8070)
2.50%
2.00%
1.50%
1.00%
0.50%
0.00%
1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000
Engineering Services (SIC 8710)
3.50%
3.00%
2.50%
2.00%
1.50%
1.00%
0.50%
0.00%
1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000
Research Services (SIC 8730)
4.00%
3.50%
3.00%
2.50%
2.00%
1.50%
1.00%
0.50%
0.00%
1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000
Before implementation of high tech incentives
After implementation of high tech incentives

Average Wages for Firms Participating in High Tech Tax Incentives

Average wages for firms identified in the high tech sector have increased significantly from 1995 to 2001, the last year for which employment data are available. The average annual wage has increased from $65,000 in 1995 to $130,000 in 2001. Excluding computer software firms, average wages have increased from $46,000 to $66,000. The inclusion of software firms tends to inflate wages since stock options valued at the contemporary market rate are included.

Table 3.2
Average Wages for Firms Participating in the High Tech R&D Tax Incentive Programs*

	1995	1996	1997	1998	1999	2000	2001
Chemical Manufacturing (SIC 2800)	$50,082	$53,755	$56,037	$56,356	$60,773	$83,789	$66,182
Computer Manufacturing (SIC 3570)	47,937	50,688	54,661	65,978	72,269	85,771	82,584
Electronic Component Mfg (SIC 3600)	33,473	35,616	35,718	38,038	43,418	46,373	46,696
Trans Equipment Mfg (SIC 3700)	43,041	44,716	47,603	50,008	53,229	57,993	59,880
Instrument Manufacturing (SIC 3800)	45,577	48,505	51,590	62,539	58,249	63,175	62,444
Wholesale Professional Equip (SIC 5040)	61,440	53,155	56,131	64,846	76,827	107,601	81,471
Wholesale Electrical Equip (SIC 5060)	30,007	34,690	39,066	42,115	55,650	61,446	58,226
Retail Electronics (SIC 5730)	49,524	52,199	54,226	62,407	69,091	77,077	68,884
Computer Software (SIC 7370)	109,385	147,829	195,836	273,963	360,956	264,029	203,044
Medical Laboratories (SIC 8070)	50,882	54,257	62,858	72,953	77,470	88,348	80,843
Engineering Services (SIC 8710)	43,995	44,949	48,966	52,282	53,966	56,346	58,780
Research Services (SIC 8730)	45,701	47,786	49,525	54,352	67,829	94,878	68,693
Average Wage All Participants	64,946	79,390	100,785	136,017	183,304	160,254	129,937
Average Wage Excluding Software (SIC 7370)	$45,551	$47,280	$50,101	$56,776	$63,451	$77,728	$66,474
Average Nonagricultural Wage Statewide	$27,886	$29,373	$30,612	$32,955	$35,843	$37,293	$36,941

*The calculation of average wage requires matching employment and wage data that is only available for actual incentive participants.

High Tech Sector Employment in Rural Counties

In the three years for which data are available from the Bureau of Labor Statistics, high tech employment in rural counties has declined from 7.9 percent of statewide high tech employment in 1997 to 5.6 percent in 1999.

Table 3.3
Employees in High Tech Sectors Located in Rural and Nonrural Counties

	1997	1998	1999	Total
Urban Counties	151,204	164,498	278,564	221,352
Rural Counties	13,021	15,078	16,550	16,233
Total	164,225	179,576	295,114	237,585
Rural Percent of Total	7.9%	8.4%	5.6%	6.8%

R&D Investment Spending

The amount of Washington high tech R&D spending for firms receiving high tech tax incentives is reported on the initial survey and declaration. This represents over 75 percent of all R&D spending in the state and is a proxy for growth in R&D investment. High tech R&D spending in Washington has more than tripled relative to national R&D public and private spending, increasing from 0.8 percent in 1995 to 2.3 percent in 2002. The R&D spending in Table 3.4 and Chart 3.B excludes capital spending but includes stock options, which qualify for the B&O credit.

Chart 3.B
WA R&D Spending as a Percent of U.S. Public and Private R&D Spending

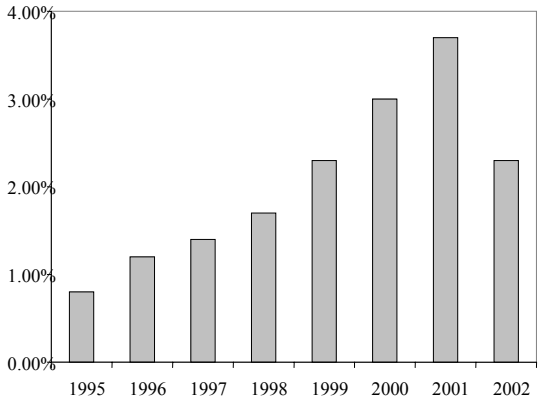


Table 3.4
High Tech R&D Spending by Firms Taking the B&O Credit as a Share of U.S. Spending

	Washington R&D Spending	Share of National R&D Spending (Public and Private)
1995	$1,478,941,000	0.8%
1996	2,387,157,500	1.2%
1997	3,048,773,100	1.4%
1998	3,724,318,700	1.7%
1999	5,563,025,300	2.3%
2000	7,994,269,400	3.0%
2001	10,300,619,900	3.7%
2002	6,811,048,800	2.3%

EMPLOYMENT IN WASHINGTON'S MANUFACTURING SECTOR

The Legislature expressed interest in the manufacturing sector as well as the high tech sector in enacting the high tech R&D tax incentives. RCW 82.63.005 states in part:

> The legislature further finds that stimulating growth of high technology businesses early in their development cycle, when they are turning ideas into marketable products, will build upon the state's established high technology base, creating additional R&D jobs and subsequent manufacturing facilities.

Washington's share of U.S. manufacturing employment has been cyclical over the last 30 years and declined since 1997, but the general trend is up from 1.3 percent in 1973 to the 1.8 percent forecasted in 2002. However, both the U.S. and Washington manufacturing employment is declining as a share of total employment.

Chart 3.C
Washington Manufacturing Employment as a Percent of U.S.

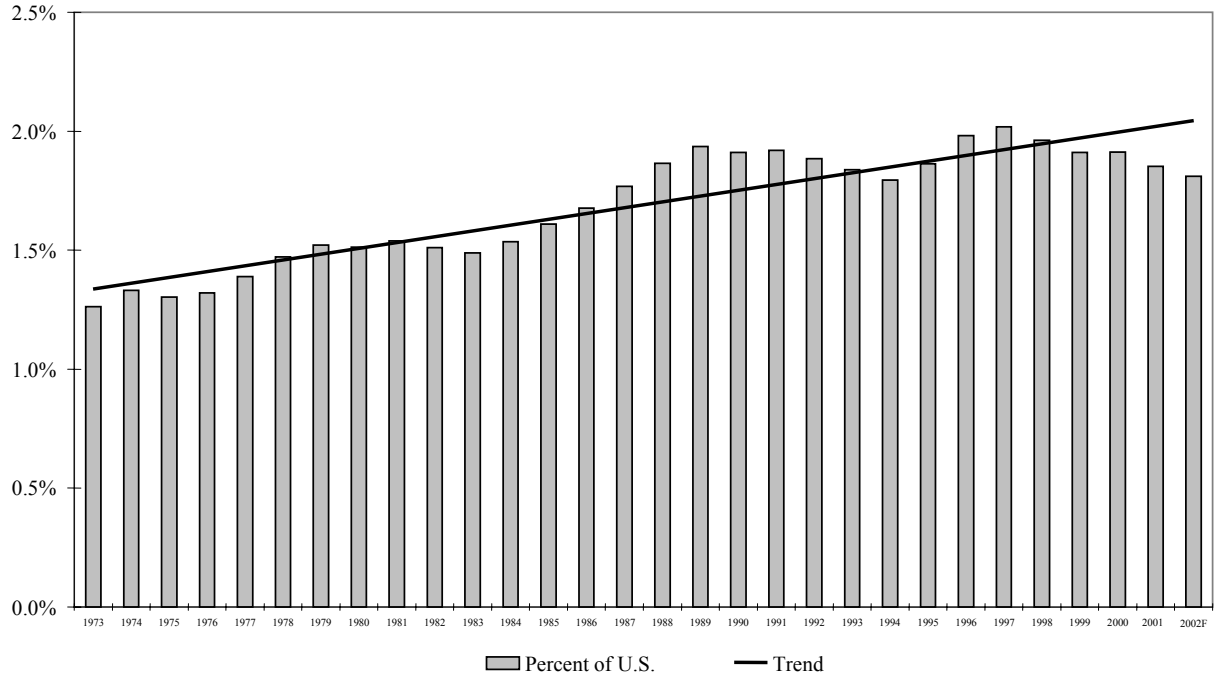
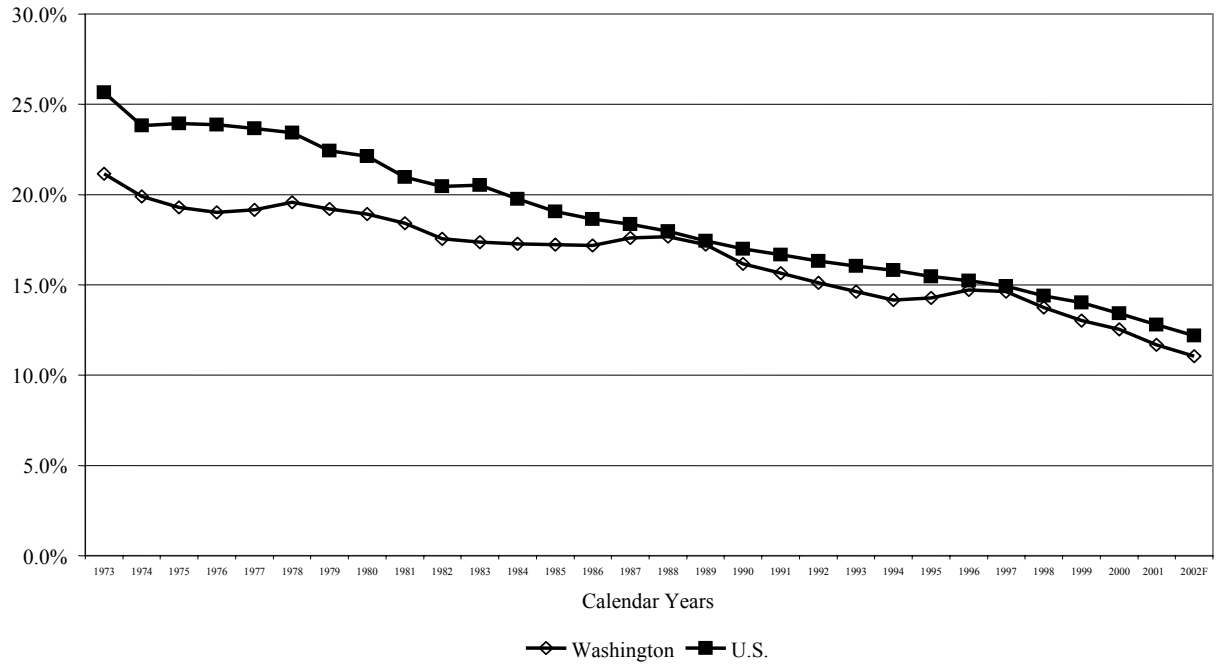


Chart 3.D
Manufacturing Employment as Percent of Total Employment



PATENTS GRANTED TO WASHINGTON FIRMS

Data on patents granted to Washington firms is presented as a measure of growth in product diversification and growth in R&D. Patents are not an exact measure of new research activity or new products, but the wealth of available patent data do allow comparisons of Washington and U.S. trends. It is reasonable to assume that a relative increase in R&D activity leads to more patents which is a step on the way to creating new products. Detailed patent data, available from the U.S. Patent Office, includes patents by year, by patent or industry class, and by location of patent holder.

High Technology Patents

The data presented concerns a narrow set of patents, those that are the most related to the five research activities specified in RCW 82.63.010, the high tech sales and use tax deferral. The U.S. Patent Office assigns each patent to one of 394 classes. The 55 classes that are most similar to the Washington high tech activities are listed at length in Appendix A along with Washington's rank relative to other states.

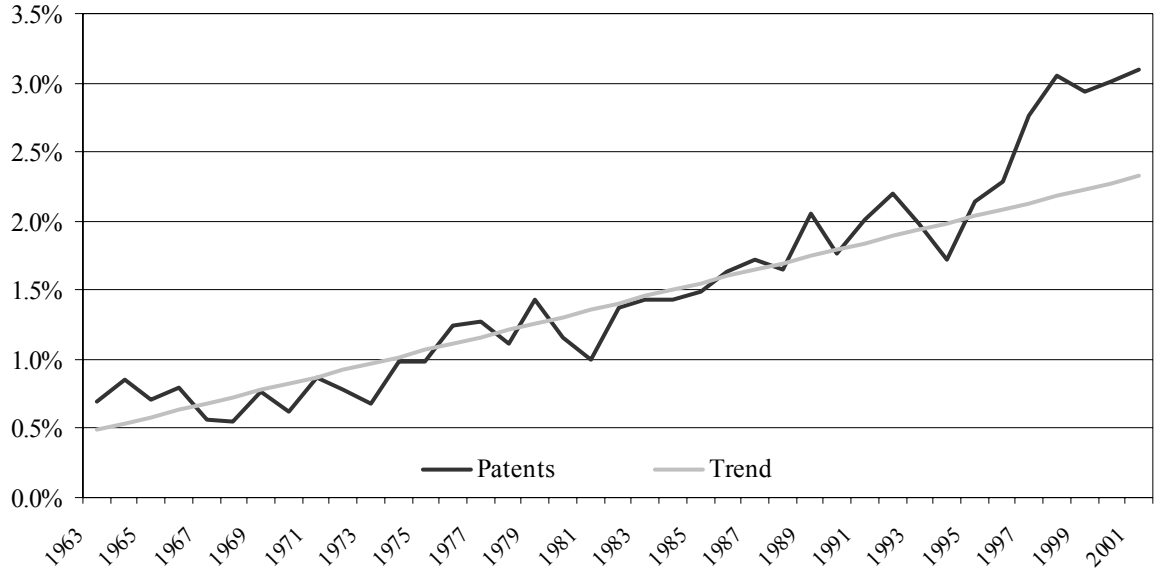
Table 3.5 shows annual high tech patents issued for both Washington and the U.S. at five-year intervals between 1965 and 1990, and every year thereafter. The state's share of high tech patents has grown considerably, rising more than threefold over the last 36 years, from well under 1 percent to over 3 percent of U.S. high tech patents.

Table 3.5
Patents in High Technology Industries: WA v. U.S.

	Number of Patents		WA
Year	WA	U.S.	% of U.S.
1965	54	7,684	0.7%
1970	57	9,097	0.6%
1975	103	10,410	1.0%
1980	97	8,333	1.2%
1985	132	8,884	1.5%
1990	219	12,453	1.8%
1991	276	13,703	2.0%
1992	317	14,408	2.2%
1993	306	15,409	2.0%
1994	287	16,658	1.7%
1995	370	17,334	2.1%
1996	453	19,855	2.3%
1997	605	21,910	2.8%
1998	916	30,076	3.0%
1999	921	31,336	2.9%
2000	960	31,880	3.0%
2001	1,069	34,568	3.1%

Chart 3.E plots the Washington high tech patent share of U.S. patents compared to the 30-year trend. This chart shows that Washington's share of U.S. high tech patents jumped noticeably after 1994 compared to the trend.

Chart 3.E
High Technology Industries: WA as a Percent of US



Although both the table and chart suggest that the high tech incentive programs have encouraged the growth in Washington high tech patents, the jump in Washington's share of high tech patents in the more recent years might be related to Washington's high concentration of data processing/software activity.

This industry class was responsible for almost half of the increase in Washington's share of patents since enactment of the incentives. The U.S. Patent Office has attributed growth in this area to a surge in electronic commerce and software development along with increasing global competitiveness. Some software developers appear to be patenting smaller components, such as lines of code, within their software programs.

CHAPTER 4

WASHINGTON COMPARATIVE TAXES

RCWs 82.04.4452(8) and 82.63.020 require that the Department shall study the effect of the high tech B&O tax credit and sales and use tax deferral on diversification of the state's economy, growth in R&D investment, and the movement of firms or consolidation of firms' operations into the state. The incentives have an effect on diversification and growth if they serve to make Washington more competitive.

The analysis shows that:

- Washington ranks towards the mid-range of six competitor states for total state and local taxes paid by high tech firms.
- The high tech B&O tax credit does not change Washington's position, when all major business taxes are considered.
- However, the sales and use tax deferral for new R&D facilities does improve the competitive position of Washington high tech firms, when all major business taxes are considered.
- Washington's high tech credit and deferral programs provide more tax relief on average than the other states' incentives considered here, except California. Oregon and Nevada provide little or no relief, in part because of routinely low tax burdens on high tech firms.
- Washington's B&O tax credit is easy to use, which could be a reason for its higher participation compared with other states' credits.

METHODOLOGY

A hypothetical firm analysis is used to measure the relative impact of the high tech R&D incentives on the competitive position of Washington firms. The R&D incentive programs are modeled as a component of the major state and local business taxes in the selected states in order to address the incremental impact of the R&D programs on Washington's overall tax competitiveness.

Competitor States and Their Tax Systems

Along with Washington, the states included in the analyses are:

- California
- Missouri
- Nevada
- North Carolina
- Oregon
- Texas

These six states have been identified by industry sources as potential sites for future facilities or the home of competitor firms, or by public officials as states that are soliciting industries and jobs that Washington would like to retain and attract.

The following major state and local business taxes are included:

- Washington B&O tax and corporate income and franchise taxes in other states,
- Sales and use taxes paid by business, and
- Property taxes paid on real and personal business property.

Hypothetical Firm Profiles

The study employs detailed firm profiles containing characteristics such as gross receipts, corporate income and profits, taxable purchases, and property holdings. The profiles were constructed with data from financial filings, the IRS, state tax return information, industry experts, and other sources.

There are five firm types analyzed in the study. Data on sales, R&D spending, and investment in new R&D facilities are described below for both the B&O tax credit analysis and the new facility deferral analysis:

Table 4.1
For the B&O Tax Credit: Hypothetical Firm Sales and R&D Spending

	Annual Sales ($Millions)	R&D Spending (Percent of Sales)	10 Yr. NPV Sales ($Millions)
• Small aircraft and parts manufacturer	$40	8%	$309
• Instruments and related equipment manufacturer	$24	8%	$172
• Semiconductor and related devices manufacturer	$353	3%	$2,538
• Biotechnology/pharmaceutical integrated manufacturer and wholesaler	$209	26%	$1,543
• Software originator	$10	3%	$73

The firms in the analyses are typical Washington firms, not the giants of their respective industries. The smallest in sales is the software originator with sales of $10 million annually. The small aircraft manufacturer with $40 million of annual sales matches that of a supplier rather than a seller. The largest firm is the manufacturer of semiconductor and related devices whose annual sales of $353 million classify it as a modest-sized facility in this industry.

R&D spending by the hypothetical firm reflects the levels of R&D spending by participants in Washington's high tech programs. R&D expenditures for the software firm and the semiconductor firm are approximately 3 percent of sales revenues, while the integrated biotech/pharmaceutical firm, at 26 percent, has the greatest R&D expenses relative to sales.

Table 4.2
For the New R&D Facility Deferral: Hypothetical Firm Investment and Sales

	Investment in New Facility ($Millions)	Annual Sales Attributed to the Facility ($ Millions)	10 Yr. NPV Sales Attributed to the Facility ($Millions)
• Small aircraft and parts manufacturer	$2.1	$3.9	$24.9
• Instruments and related equipment manufacturer	$1.3	$0.9	$5.4
• Semiconductor and related devices manufacturer	$8.8	$11.4	$68.8
• Biotechnology/pharmaceutical integrated manufacturer and wholesaler	$41.1	$44.9	$272.9
• Software originator	$0.2	$0.4	$2.5

The assumed investment in new R&D facilities for the five firm types range from $183,000 for the small software firm, to $41.1 million for the integrated biotech/pharmaceutical firm. A portion of firm revenues and taxes are attributed to these R&D facilities.

Total tax burden is estimated for the seven different state tax systems for each of the firms. Taxes are ranked by the total estimated ten-year net present value. Tax savings due to the incentives are determined by taking the difference between total tax burden with and without incentives for all states. Factors such as labor and other business costs, federal taxes, and regulatory structure are the same within each industry in order to study the effect of taxes alone.

In reality, a firm's actual tax payments vary considerably due to factors including the firm's form of ownership, its corporate structure, and the method of apportionment used. To hold these constant, the firms are modeled as independent entities or as parts of larger corporations that are considered on a stand-alone basis.

Firms are assumed to sell all products in-state. It is also assumed that firms take full advantage of the available credits and exemptions, such as Washington's manufacturers' sales and use tax exemption. All firms are assumed to be located in areas where high tech businesses typically desire to locate; therefore, firms are not shown as taking advantage of programs for distressed areas, enterprise zones, or rural areas. All firms are assumed to be profitable. The details for the states' programs, the location of the firms, taxes, and assumptions are found in Appendix B.

SEVEN STATE COMPARISONS

Relative Tax Burdens

The hypothetical firm analysis has two parts which answer two separate questions. The first part of the analysis examines the effectiveness of Washington State's B&O tax credit and sales and use tax deferral in improving the competitive position of Washington high tech firms. In this part of the analysis the hypothetical firms are taxed under current law for each of the six comparative states and Washington State. The ten-year net present value tax burden is compared and the states are ranked according to their total tax burdens. Washington's ranking is compared both with and without its tax incentives.

Relative Tax Relief

The second part of the hypothetical firm analysis compares the high tech incentive programs in each of the seven states to determine which type of high tech incentive program offers the greatest tax relief.

Separate Analyses for the Credit and Deferral

For both parts, the analysis compares the B&O tax credit and sales and use tax deferral programs separately. Washington's B&O tax credit for R&D spending compares with credits granted by other states against their corporate income and franchise taxes. However, the sales and use tax deferral for R&D facilities is found only in Washington. Washington's sales and use tax deferral compares more closely to other state incentives targeting investment in new facilities in general.

Part 1: Change in Washington's Relative Tax Burden Caused by the High Tech Incentives

Effect of the B&O Tax Credit on Tax Rankings

The first two columns of Table 4.3 show Washington's total tax burden without the B&O tax credit compared to current-law tax burden in the other six states. The second two columns show Washington's relative tax burden with the B&O tax credit.

Washington's rank is approximately in the middle for most of the hypothetical firms, generally ranking 3rd, 4th, or 5th out of 7 (where 1 is the lowest tax burden and 7 is the highest). The introduction of the high tech credit changes the rank of only one of the hypothetical firms, as instruments and equipment improves from 4th to 2nd. The Washington biotech/pharmaceutical firm, however, moves into a virtual tie with the California firm.

Table 4.3
Washington With and Without B&O Credit
Net Present Value: 10 Years of Expected Taxes in $Millions/Rank: 1=lowest tax burden, 7=highest tax burden

		No WA B&O Credit		WA B&O Credit	
		$Millions	Rank	$Millions	Rank
Small Aircraft and Parts	Nevada	$2.199	1	$2.199	1
	Oregon	2.373	2	2.373	2
	California	3.551	3	3.551	3
	North Carolina	3.741	4	3.741	4
	Washington	**4.356**	**5**	**3.979**	**5**
	Texas	4.741	6	4.741	6
	Missouri	4.800	7	4.800	7
Instruments and Equipment	Nevada	$1.345	1	$1.345	1
	Oregon	3.610	2	3.610	3
	California	3.655	3	3.655	4
	Washington	**3.658**	**4**	**3.449**	**2**
	North Carolina	4.585	5	4.585	5
	Texas	6.112	6	6.112	6
	Missouri	6.474	7	6.474	7
Semiconductor and Related Devices	Nevada	$15.852	1	$15.852	1
	Oregon	30.085	2	30.085	2
	Washington	**38.800**	**3**	**37.684**	**3**
	California	40.753	4	40.753	4
	North Carolina	40.766	5	40.766	5
	Texas	51.788	6	51.788	6
	Missouri	54.018	7	54.018	7
Integrated Biotech Pharmaceutical	Nevada	$16.758	1	$16.758	1
	Oregon	27.823	2	27.823	2
	California	31.594	3	31.594	3
	Washington	**37.782**	**4**	**31.793**	**4**
	North Carolina	43.126	5	43.126	5
	Texas	52.584	6	52.584	6
	Missouri	54.011	7	54.011	7
Small Software Originator	Nevada	$0.299	1	$0.299	1
	Oregon	0.604	2	0.604	2
	North Carolina	0.780	3	0.780	3
	California	1.086	4	1.086	4
	Washington	**1.158**	**5**	**1.123**	**5**
	Texas	1.290	6	1.290	6
	Missouri	1.293	7	1.293	7

Table 4.4 summarizes Washington's ranking for the hypothetical firms in the five industries.

Table 4.4
Washington's High Tech Tax Burden Rank
WA With and Without R&D Credit

Washington Firms	WA Without Credit	WA With Credit
Small aircraft and parts	5	5
Instruments and equipment	4	2
Semiconductor and related	3	3
Biotech/pharmaceutical	4	4
Small software originators	5	5

Effect of the Sales and Use Tax Deferral on Tax Rankings

The first two columns of Table 4.5 show Washington's tax burden without the sales and use tax deferral. The second two columns of the table show Washington's relative tax burden incorporating its sales and use tax deferral.

In these scenarios, Washington's tax burden ranks in the middle of the seven states without the deferral program. However, the deferral improves the rankings for most of the firms. Table 4.6 summarizes Washington's ranking for the hypothetical firms building R&D facilities in the five industries.

Table 4.5
Washington With and Without Sales Tax Deferral

Net Present Value: 10 Years of Expected Taxes in $Millions/Rank: 1=lowest tax burden, 7=highest tax burden

		No WA Sales Tax Deferral		WA Sales Tax Deferral	
		$Millions	Rank	$Millions	Rank
Small Aircraft and Parts	Oregon	$0.217	1	$0.217	1
	Nevada	0.246	2	0.246	2
	California	0.342	3	0.342	4
	North Carolina	0.385	4	0.385	5
	Washington	**0.457**	**5**	**0.299**	**3**
	Missouri	0.492	6	0.492	6
	Texas	0.493	7	0.493	7
Instruments and Equipment	Nevada	$0.067	1	$0.067	1
	Oregon	0.116	2	0.116	3
	California	0.128	3	0.128	4
	Washington	**0.150**	**4**	**0.112**	**2**
	North Carolina	0.169	5	0.169	5
	Texas	0.223	6	0.223	6
	Missouri	0.231	7	0.231	7
Semiconductor and Related Devices	Nevada	$0.568	1	$0.568	1
	Oregon	0.741	2	0.741	2
	California	1.160	3	1.160	4
	North Carolina	1.211	4	1.211	5
	Washington	**1.259**	**5**	**0.897**	**3**
	Missouri	1.568	6	1.568	6
	Texas	1.605	7	1.605	7
Integrated Biotech Pharmaceutical	Nevada	$3.628	1	$3.628	1
	Oregon	4.741	2	4.741	2
	California	6.812	3	6.812	4
	Washington	**7.523**	**4**	**4.928**	**3**
	North Carolina	7.818	5	7.818	5
	Texas	9.977	6	9.977	6
	Missouri	10.112	7	10.112	7
Small Software Originator	Nevada	$0.011	1	$0.011	1
	Oregon	0.020	2	0.020	2
	North Carolina	0.026	3	0.026	4
	California	0.043	4	0.043	5
	Missouri	0.044	5	0.044	6
	Washington	**0.047**	**6**	**0.025**	**3**
	Texas	0.059	7	0.059	7

Table 4.6
Washington Total Tax Rank
WA With and Without the Sales Tax Deferral/Exemption on New R&D Facilities
(other states have general incentives for new facilities)

	WA Without Sales Tax Deferral	WA With Sales Tax Deferral
Small aircraft and parts	5	3
Instruments and equipment	4	2
Semiconductor and related	5	3
Biotech/pharmaceutical	4	3
Small software originators	6	3

Part 2: Comparison of High Tech R&D Programs in Seven States

This section compares the high tech incentives available in the seven comparison states. Detailed information about each state's incentive programs is in Appendix B.

WA B&O Tax Credit and Similar Programs in other States

R&D credit programs in the selected states are similar in that a percentage of qualified R&D spending can be taken as a credit against the B&O tax, corporate income tax, or franchise taxes levied on businesses. The programs differ in the type of activity that qualifies, the ability to carry credits forward, the allowable credit limit, and the amount of the credit. A major difference is that the other states grant credits on incremental R&D spending over an initial base, often following the complex federal procedure. Washington's credit is much easier for businesses to apply. It is calculated by taking a percentage times all qualifying spending, though at a lower rate than other states. Note that Nevada does not have an R&D credit program nor does it have a comprehensive business tax based on income or sales.

WA Sales and Use Tax Deferral for New R&D Facilities and General Incentives for New Facilities in Other States

The sales and use tax deferral/exemption is not taken on a continuing basis like the R&D credits, but only when a firm invests in a new or expanded R&D facility or acquires eligible equipment. Washington's sales and use tax deferral/exemption is unique among the states in the study, but the modeling effort had to assume that firms governed by other states' laws would take advantage of all incentives for new investment in general. New investment incentives in other states are included if they are generally available when new facilities are brought on line.

Other exemptions and tax treatments apply whether the facility is new or existing; these include machinery and equipment exemptions, inventory exemptions, and special property tax treatment.

High tech R&D firms are assumed to locate in areas that attract similar investment, not in areas with high unemployment, in enterprise zones, or in other areas targeted for special relief. It is also assumed that all firm types will meet the criteria necessary to convert Washington's and other states' deferrals into exemptions.

Comparison of Tax Savings from High Tech Incentives

Tax Savings from Programs Similar to the B&O Credit

Table 4.7 presents the tax savings of tax incentives similar to the B&O credit in all seven states. The savings are presented both in terms of ten-year net present value dollars and as a percentage of total ten-year net present value taxes and sales.

In terms of the incremental impact, Washington's R&D credit program generally provides a greater dollar savings to the firms than the other credit programs modeled, except for California (and Texas in the case of software). The reason for this is that Washington's credit is taken for the full amount of R&D expenditures, rather than just the addition over an initial base; this tends to outweigh the higher credit rates allowed in the other states.

Another advantage to the Washington R&D credit is its relative simplicity, since there is no need to determine a base level of research spending. R&D credit programs in other states are known for their difficulty of use, particularly those piggybacking on the federal program. There is anecdotal evidence that it is extremely difficult for small firms to qualify for most state R&D credit programs.

Tax Savings from Programs Similar to the Sales and Use Tax Deferral

Table 4.8 presents the tax savings of tax incentives similar to Washington's sales and use tax deferral in all seven states. The savings are presented both in terms of ten-year net present value dollars and as percentages of total ten-year net present value taxes and sales.

The Washington sales and use tax deferral/exemption for new facilities also provides a greater tax savings than the general incentives for new facilities found in other states with the exception of California. Keep in mind that this analysis assumes that high tech firms locate in high tech areas, not in enterprise zones or distressed areas. As a percent of total tax burden, Washington’s tax savings rank second three times and first twice.

Table 4.7
Washington's B&O Tax Credit Compared with Credits in Other States
Net Present Value: 10 Years of Expected Taxes in $Millions/Rank: 1=highest tax relief, 7=lowest tax relief

		Tax Savings $Millions	Savings as a Percent of Total Tax Burden	Rank
Small Aircraft and Parts	California	$0.549	15.46%	1
	Washington	**0.377**	**9.47%**	**2**
	North Carolina	0.207	5.53%	3
	Oregon	0.114	4.80%	4
	Missouri	0.228	4.75%	5
	Texas	0.163	3.44%	6
	Nevada	-	-	7
Instruments and Equipment	California	$0.299	8.18%	1
	Washington	**0.209**	**6.06%**	**2**
	North Carolina	0.114	2.49%	3
	Texas	0.083	1.36%	4
	Missouri	0.079	1.22%	5
	Oregon	0.033	0.91%	6
	Nevada	-	-	7
Semiconductor and Related Devices	California	$1.341	3.29%	1
	Washington	**1.116**	**2.96%**	**2**
	North Carolina	0.524	1.29%	3
	Missouri	0.465	0.86%	4
	Texas	0.373	0.72%	5
	Nevada	-	-	6
	Oregon	-	-	6
Integrated Biotech Pharmaceutical	California	$9.944	31.47%	1
	Washington	**5.989**	**18.84%**	**2**
	Oregon	2.467	8.87%	3
	North Carolina	3.783	8.77%	4
	Missouri	3.323	6.15%	5
	Texas	2.770	5.27%	6
	Nevada	-	-	7
Small Software Originator	Texas	$0.199	15.43%	1
	California	0.042	3.87%	2
	Washington	**0.035**	**3.12%**	**3**
	North Carolina	0.016	2.05%	4
	Missouri	0.017	1.31%	5
	Nevada	-	-	6
	Oregon	-	-	6

Table 4.8
WA Sales Tax Deferral Compared with Incentives for New Facilities in Other States
Net Present Value: 10 Years of Expected Taxes in $Millions/Rank: 1=highest tax relief, 7=lowest tax relief

		Tax Savings $Millions	Savings as a Percent of New R&D Facility Taxes	Rank
Small Aircraft and Parts	**Washington**	**$0.158**	**52.84%**	**1**
	California	0.132	38.60%	2
	North Carolina	0.007	1.82%	3
	Nevada	0.001	0.41%	4
	Missouri	0.001	0.20%	5
	Oregon	-	-	6
	Texas	-	-	6
Instruments and Equipment	California	$0.096	75.00%	1
	Washington	**0.039**	**34.82%**	**2**
	North Carolina	0.006	3.55%	3
	Missouri	0.000	0.00%	4
	Nevada	-	-	5
	Oregon	-	-	5
	Texas	-	-	5
Semiconductor and Related Devices	**Washington**	**$0.362**	**40.36%**	**1**
	California	0.466	40.17%	2
	North Carolina	0.022	1.82%	3
	Nevada	0.007	1.23%	4
	Missouri	0.001	0.06%	5
	Oregon	-	-	6
	Texas	-	-	6
Integrated Biotech Pharmaceutical	California	$3.767	55.30%	1
	Washington	**2.596**	**52.68%**	**2**
	North Carolina	0.589	7.53%	3
	Nevada	0.063	1.74%	4
	Missouri	0.006	0.06%	5
	Oregon	-	-	6
	Texas	-	-	6
Small Software Originator	Nevada	$0.010	90.91%	1
	Washington	**0.022**	**88.00%**	**2**
	North Carolina	0.001	3.85%	3
	Missouri	0.000	0.00%	4
	Oregon	-	-	5
	California	-	-	5
	Texas	-	-	5

Note that the "0.000" is a small tax savings, where "-" denotes no change in tax payments.

Table 4.9
Tax Savings as a Percent of Firm Sales
Net Present Value: 10 Years of Expected Taxes Divided by Sales

Washington Firm	Tax Savings R&D Credit	Tax Savings R&D Facility*
Small Aircraft and Parts Firm	0.12%	0.63%
Instruments and Equipment	0.12%	0.72%
Semiconductor & Related	0.04%	0.53%
Biotech/Pharmaceutical	0.39%	0.95%
Small Software Originators	0.05%	0.90%

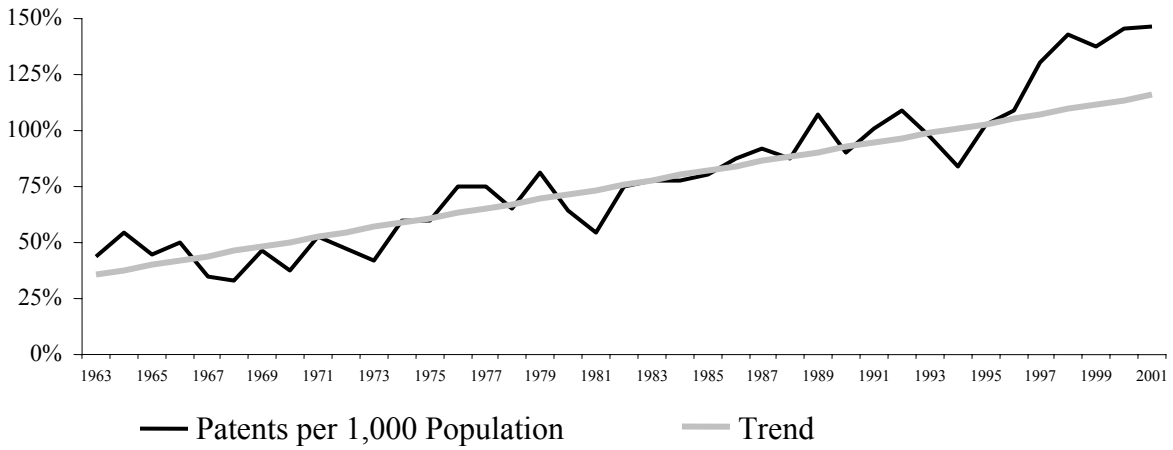
*The tax savings for the sales tax deferral/exemption for R&D facilities is divided by the sales that are attributed to that R&D facility.

APPENDIX A

PATENTS

The increase in Washington's share of patents does not take into account Washington's more rapid population growth. Chart A.A represents the state's patents per capita as a share of U.S. patents per capita. In the 1960s, Washington's share of per capita patents was about half the national average. In the late 1990s, Washington's share rose to about 150 percent of the national average, well above a 30-year time trend.

Chart A.A
High Technology Industries
WA as a Percent of U.S. Patents per 1,000 Population



High Tech Patents: Washington's Ranking Relative to Other States

Table A.1 ranks Washington against 49 states (excluding New Hampshire) and the District of Columbia in terms of high tech patents issued per state resident. The ranks are for the seven years prior to enactment of Washington's high tech incentives (1988-1994) and seven years after (1995-2001). The 55 high tech patent classes are those that are similar to the statutory definition of technologies that qualify for Washington's high tech incentives.

Washington is ranked 1 in a high tech patent class if it has the most patents per resident of the other states and D.C. Washington's total score relative to other states improved considerably after the high tech programs were implemented.

Table A.1
Washington Ranked by the Number of Patents Per Resident
Compared to 49 States and the District of Columbia
Rank: 1=highest rank, 50=lowest rank

Patent Class		Washington Rank 1988-1994	Washington Rank 1995-2001
244	Aeronautics	1	1
345	Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display	12	1
707	DP: Database and File Management, Data Structures, Or Document Processing	11	1
717	DP: Software Development, Installation, and Management (Data Processing)	15	1
376	Induced Nuclear Reactions: Processes, Systems, and Elements	7	2
607	Surgery: Light, Thermal, and Electrical Application	3	2
530	Chemistry: Natural Resins or Derivatives; Peptides or Proteins; Lignins or Reaction Products	2	3
704	DP: Speech Signal Processing, Linguistics, Language Translation, and Audio Compression	15	3
709	Multiple Computer or Process Coordinating (Electrical Computers and Digital Processing)	11	3
128	Surgery (includes Class 600)	10	4
382	Image Analysis	16	4
117	Single-Crystal, Oriented-Crystal, and Epitaxy Growth Processes; Non-Coating Apparatus	28	5
347	Incremental Printing of Symbolic Information	9	5
435	Chemistry: Molecular Biology and Microbiology	8	5
353	Optics: Image Projectors	13	7
455	Telecommunications	13	8
701	DP: Vehicles, Navigation, and Relative Location (Data Processing)	2	8
703	DP: Structural Design, Modeling, Simulation, and Emulation (Data Processing)	12	9
705	DP: Financial, Business Practice, Management, or Cost/Price Determination (Data Processing)	25	9
73	Measuring and Testing	6	10
331	Oscillators	6	10
341	Coded Data Generation or Conversion	10	11
588	Hazardous or Toxic Waste Destruction or Containment	12	11
342	Communications: Directive Radio Wave Systems and Devices (e.g., Radar, Radio Navigation)	12	13
436	Chemistry: Analytical and Immunological Testing	12	13
505	Superconductor Technology: Apparatus, Material, Process	28	13
711	Memory (Electrical Computers and Digital Processing Systems)	14	13
370	Multiplex Communications	31	14
399	Electrophotography	19	14
438	Semiconductor Device Manufacturing: Process	16	15
706	DP: Artificial Intelligence (Data Processing)	31	15
367	Communications, Electrical: Acoustic Wave Systems and Devices	14	16
424	Drug, Bio-Affecting and Body Treating Compositions (includes Class 514)	19	16
604	Surgery (Medicators and Receptors)	19	16
716	DP: Design and Analysis of Circuit or Semiconductor Mask (Data Processing)	10	16
340	Communications: Electrical	6	17
356	Optics: Measuring and Testing	16	17
379	Telephonic Communications	16	17

359	Optics: Systems (Including Communication) and Elements	17	18
360	Dynamic Magnetic Information Storage or Retrieval	16	18
423	Chemistry of Inorganic Compounds	35	18
700	DP: Generic Control Systems or Specific Applications (Data Processing)	25	18
501	Compositions: Ceramic	36	19
257	Active Solid-State Devices (e.g., Transistors, Solid-State Diodes)	25	20
326	Electronic Digital Logic Circuitry	14	20
368	Horology: Time Measuring Systems or Devices	17	20
218	High-Voltage Switches with Arc Preventing or Extinguishing Devices	18	21
385	Optical Waveguides	15	21
702	DP: Measuring, Calibrating, or Testing (Data Processing)	4	21
369	Dynamic Information Storage or Retrieval	23	22
532	Organic Compounds (includes Classes 532-570)	36	22
494	Imperforate Bowl: Centrifugal Separators	17	26
204	Chemistry: Electrical and Wave Energy	26	30
429	Chemistry: Electrical Current Producing Apparatus, Product, and Process	31	30
378	X-Ray or Gamma Ray Systems or Devices	27	31
Sum of Ranks		892	723

Source: U.S. Patent Office

APPENDIX B

STATE TAXES AND INCENTIVES

STATE TAX DETAIL

This section describes the state tax rates, procedures, and incentive programs used to estimate the ten-year net present value of state taxes. Only tax policy was modeled, not expenditure policies (i.e. grants and loans). The data are the most current available, as of August 25, 2003. Firm location is also described since sales and property tax rates, as well as the kinds of programs available, depend on location.

Note that an effective corporate income tax rate reflects deductions that businesses take which are not related to the programs modeled. Effective property tax rates show the dollars paid in taxes as a percent of a property's market value.

WASHINGTON

Firm location: Metropolitan King County, within the regional transit district, but outside Seattle.

Total sales tax rate: 8.8%.

Total property tax rate: King County average of $11.17 per $1,000 which is an effective property tax rate of 1.117%.

B&O rate: 0.484% or 0.00484 of sales.

High tech R&D sales and use tax deferral/exemption: As described in this report.

Other incentives: As with similar sales tax exemptions in other states, all firms in all comparisons and scenarios are assumed to take the sales/use tax manufacturing machinery and equipment exemption. The M&E exemption is therefore reflected in the state rankings but does not change with the different scenarios.

High tech R&D credit taken against the B&O tax: As described in this report.

A note concerning Washington's R&D credit: The credit is much easier to understand, and the forms are easier to fill out, than the other states' incremental approaches, often piggybacking on the complex federal program (as explained below). There is anecdotal evidence, and some data, indicating that firms, particularly small firms, are less likely to take R&D credits in some other states because of the difficulty in qualifying and in obtaining help with the programs.

NORTH CAROLINA

Firm location: Vicinity of the Raleigh-Durham-Chapel Hill research triangle, Durham, Wake, or Orange Counties.

Total sales tax rate: 6.5%.

Total property tax rate: Effective rate of 1.27% of market value, an unweighted average of rates in the area (the low rate is 1.0276% and high 1.637%).

Corporate income tax rate: 6.9%. Net taxable income is the same as on federal tax forms, so effective corporate income tax rates are calculated using IRS deductions data by industry. Effective rates for pharmaceuticals, 6.4%; semiconductor, 5.1%; instruments, 5.6%; aircraft, 5.1%; software, 4.9%.

Franchise Tax: 0.15% of whichever yields the highest: 1) capital stock, surplus, and undivided profits, apportioned to the state; 2) investments in N.C. tangible property; or 3) 55% of the appraised tangible property plus intangible property in the state. The last definition is measurable and is included in the analysis (only the real property, however, not intangible property).

R&D Tax Credit: 25% of state apportioned share of federal alternative incremental research credit. This is a variable credit for R&D spending over a base amount where 2.65% is granted on R&D spending between 1% and 1.5% of gross sales, 3.2% on spending between 1.5% and 2% of sales, and 3.75% on spending over 2% of sales (nothing on R&D spending less than 1% of sales). The credits can be carried forward.

Incentives for new investment: A 7% credit for investment over $1 million, credit taken in seven equal installments; a $500 per employee job creation credit; and an assumed $250 per employee worker training credit (the amount depends on job training expenditures, excluding on-the-job training). All three use the thresholds for tier 5, the least distressed counties, such as Durham, Wake, and Orange Counties. All credits are taken against the income and/or franchise taxes. Other incentives apply only to the most distressed counties (tiers 1 and 2)--areas where high tech firms tend not to locate--and are not modeled.

CALIFORNIA

Firm location: Santa Clara County (Silicon Valley).

Total sales tax rate: 8.25%.

Total property tax rate: A county average effective rate of 1.10% of market value.

Corporate income and franchise tax rate(s): 8.84% (income and franchise are essentially the same tax for different business forms). Effective corporate income tax rates are 6.6% for manufacturers, 7.5% for others (software).

R&D tax credit: Based on state apportioned share of federal alternative incremental research credit. This is a variable credit for R&D spending over a base amount where 1.49% is granted on R&D spending between 1% and 1.5% of gross sales, 1.98% on spending between

1.5% and 2% of sales, and 2.48% on spending over 2% of sales (nothing on R&D spending less than 1% of sales). The credits can be carried forward.

Incentives for new investment: Manufacturer's investment credit (MIC), a 6% credit for a new or renovated manufacturing facility; however, this overlaps with the machinery and equipment exemption. Other incentives target economic development areas.

OREGON

Firm location: Multnomah County, outside of Portland.

Sales tax rate: No sales tax in Oregon.

Total property tax rate: Countywide average of $13.35 per $1,000 which is an effective property tax rate of 1.335%.

Corporate income tax rate: 6.6%. Effective rate of 4.6% for manufacturers and 6.6% for other firms (software).

Credits for qualified research activities: These activities are the same five technology categories used by Washington (Washington uses the Oregon definitions); no other state uses this approach. The study used the calculation methodology which takes 5% of an increase in qualified research expenses that exceed 10% of Oregon sales; there is a maximum credit of $500,000 and research activities are limited to Oregon. The credits can be carried forward.

Incentives for new investment: Oregon's incentives are generally for enterprise zones and rural enterprise zones. The program that is not limited to enterprise zones is the strategic investment program, SIP. Enrollment in SIP requires approval of local governments and often carries job and other requirements. SIP caps assessed values at $100 million, though there's a community service fee equal to 25% of the abated property tax. In practice, however, firms need to have much larger assessed valuations to reap any benefits because property enrolled in SIP depreciates at 3% annually, while high tech machinery and equipment normally depreciate much more quickly.

Note that Oregon does not levy property taxes on construction in progress; that was modeled as standard assessment practice in all comparisons and scenarios in Chapter 4.

NEVADA

Location: Las Vegas area, Clark County.

Total sales tax rate: 7.25%.

Total property tax rate: The Clark County rate is listed as 3.0321%, but property is assessed at 35% of market value; thus, the effective rate is 1.06% of market value.

State business tax rate: $25 per full-time equivalent employee.

R&D credit: Nevada has nothing similar to the other six states' credits for R&D expenses.

General incentives for new investment: It is assumed that the partial sales tax abatement for new and retained jobs is taken by all firms in all R&D credit comparisons and scenarios, and that it is taken in the new R&D facility scenarios with incentives, but not in the new R&D facility scenarios when incentives are not taken. The corresponding sales tax deferral, on the little remaining sales taxes, is not modeled since the taxes need to be repaid somewhere between one and five years, well within the ten-year period modeled (though this could reduce NPV somewhat). The state business tax abatement requires at least 75 employees and so affects the semiconductor and biotech firms only, but the partial abatement of the $25 per head business tax makes little overall difference. Note that business must meet qualifying criteria and must be consistent with Nevada goals for economic development and diversification in order to participate in Nevada incentives.

TEXAS

Location: Austin area: Travis County.

Total sales tax rate: 8.25%.

Total property tax rate: Average effective rate in Travis County is 2.20% of market value.

Franchise tax rate: 4.25%. The effective rate is assumed to be the same.

R&D tax credit: Based on state apportioned share of federal alternative incremental research credit. This is a variable credit for R&D spending over a base amount where 0.41% is granted on R&D spending between 1% and 1.5% of gross sales, 0.55% on spending between 1.5% and 2% of sales, and 0.69% on spending over 2% of sales (nothing on R&D spending less than 1% of sales). The credit can reduce franchise tax liability by no more than 50%. The credits can be carried forward.

Incentives for new investment: Texas incentives are restricted to strategic investment areas where unemployment is higher than average; reinvestment zones, which are deteriorating areas; also to enterprise zones and to empowerment zones; therefore, they are not applicable to the high tech scenario modeled here.

MISSOURI

Location: West or Northwest St. Louis County (Lambert Airport/beltway area) or Southeast St. Charles County.

Total sales taxes: 7.025%, an unweighted average of rates in the area (low of 6.075% and high of 7.616%).

Total property tax rate: Effective rate used, 2.38% of market value. Rates are stated in terms of dollars per $100 of value with commercial property assessed at 32% of market value and personal property assessed at 33.3%. Rates are totaled for a typical city, sewer, county, fire, and school district in the desirable area, plus the state rate. The rate used is a conservative estimate; it is somewhat less than the 2.77% to 2.97% effective rates reported in suburban Kansas City, Missouri.

Corporate income tax rate: 6.25%. Effective tax rate is 5.2% for a firm with $1 million in sales, according to the Kansas City Area Development Council; this is used for all firms in the study.

Franchise tax: Missouri is the only other state in the study, other than North Carolina, that levies a franchise tax in addition to the income tax. The rate is 0.05% of par value of outstanding stock and surplus in excess of $200,000 representing Missouri property. There was no way to measure this, however, and the impact would have been too small to affect the state rankings.

R&D credit: Credit equals 6.5% of excess of qualified R&D expenses over the three preceding years' average R&D spending.

Incentives for new investment: Tax credits of up to $100 per new employee.

FIRM PROFILES AND DETAILED STATE TAXES

Firm Profiles

Calculation of state tax payments requires an operating description of each of the five firms analyzed. The primary assumptions describing the firms are presented in the five firm profiles found in Tables B.1 through B.5.

Detailed State Taxes

Chapter 4 describes the results of total tax comparisons for Washington and six other states. Tables B.6 through B.15 contain detailed data concerning the R&D credit comparison. Tables B.6 through B.10 have estimated annual taxes for each of the three major tax sources when firms take no R&D credits in any of the seven states. Tables B.11 through B.15 have the same data for firms taking the available credits.

Table B.1
Small Aircraft and Parts, SIC 372

Firm Profile (in $ millions unless otherwise specified)		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Gross Revenues		$25.6	$33.8	$50.8	$38.1	$40.0	$42.3	$45.6	$49.2
Profit (percent of sales, before all corporate income taxes)		6.3%	5.2%	6.8%	8.9%	9.4%	10.1%	8.0%	8.9%
Number of Employees (each, full time)		86.0	120.0	164.0	108.0	107.0	106.0	124.0	122.0
Payroll		$5.5	$7.8	$11.0	$7.4	$7.5	$7.7	$9.2	$9.4
Assessed Value of Property		$14.4	$13.9	$13.6	$13.4	$13.2	$13.1	$13.0	$12.9
Capitalized Expenditures:	% of sales (yr. 5)								
Additional structures	0.4%	$0.1	$0.1	$0.1	$0.2	$0.2	$0.2	$0.2	$0.2
Additional machinery and equipment	1.8%	$0.5	$0.6	$0.7	$0.7	$0.7	$0.8	$0.8	$0.8
Operating Expenditures:									
Taxable materials purchased (WA definition)	5.8%	$1.5	$2.0	$3.0	$2.2	$2.3	$2.5	$2.7	$2.9
Nontaxable materials purchased	52.7%	$13.4	$17.8	$26.8	$20.1	$21.1	$22.3	$24.0	$25.9
Leased building and equipment	0.0%	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Repairs	0.8%	$0.2	$0.3	$0.4	$0.3	$0.3	$0.3	$0.4	$0.4
Interest expenses	1.5%	$0.4	$0.7	$0.7	$0.6	$0.6	$0.6	$0.9	$1.4
Depreciation & amortization	4.0%	$2.8	$2.9	$3.0	$1.6	$1.6	$1.7	$1.7	$1.8
Subtotal		$18.3	$23.6	$33.8	$24.7	$25.9	$27.4	$29.7	$32.3
Other Income/Expense NEC	6.9%	$0.2	$0.6	$2.6	$2.5	$2.8	$3.0	$3.1	$3.2
Total Operating Expenditures		$18.5	$24.2	$36.4	$27.2	$28.7	$30.3	$32.8	$35.5
R&D (salaries, equipment, etc.)	8.1%	2.1	2.8	4.1	3.1	3.3	3.4	3.7	4.0

Table B.2
Instruments and Related Equipment, SIC 38

Firm Profile (in $ millions unless otherwise specified)		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Gross Revenues		$16.8	$20.6	$23.0	$22.8	$23.9	$25.1	$25.2	$25.2
Profit (percent of sales, before all corporate income taxes)		8.8%	8.9%	9.3%	9.3%	9.4%	9.5%	9.4%	9.2%
Number of Employees (each, full time)		58.0	69.0	74.0	71.0	71.0	72.0	72.0	72.0
Payroll (with benefits)		$5.0	$6.1	$6.8	$6.6	$6.8	$7.1	$7.3	$7.4
Assessed Value of Property		$25.5	$26.3	$27.0	$27.8	$28.9	$30.0	$31.0	$32.0
Capitalized Expenditures:	% of sales (yr. 5)								
Additional structures	0.8%	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2
Additional machinery and equipment	16.3%	$3.1	$3.3	$3.2	$3.5	$3.9	$4.1	$4.1	$4.1
Operating Expenditures:									
Taxable materials purchased (WA definition)	3.6%	$0.6	$0.8	$0.8	$0.8	$0.9	$0.9	$0.9	$0.9
Nontaxable materials purchased	32.1%	$5.6	$6.8	$7.5	$7.4	$7.7	$8.0	$7.9	$7.8
Leased building and equipment	0.8%	$0.1	$0.1	$0.2	$0.2	$0.2	$0.2	$0.2	$0.2
Repairs	0.6%	$0.1	$0.2	$0.2	$0.1	$0.1	$0.1	$0.1	$0.1
Interest expenses	0.3%	$0.0	$0.0	$0.0	$0.1	$0.1	$0.1	$0.1	$0.2
Depreciation & amortization	2.9%	$0.5	$0.6	$0.6	$0.6	$0.7	$0.7	$0.8	$0.8
Subtotal		$7.0	$8.5	$9.3	$9.2	$9.6	$10.0	$10.0	$10.0
Other Income/Expense NEC	22.0%	$3.2	$4.1	$4.8	$4.8	$5.2	$5.7	$5.6	$5.5
Total Operating Expenditures		$10.3	$12.6	$14.1	$14.1	$14.8	$15.7	$15.6	$15.5
R&D (salaries, equipment, etc.)	6.5%	1.0	1.3	1.5	1.5	1.5	1.6	1.7	1.7

Table B.3
Semiconductor Manufacturer, SIC 3674

Firm Profile (in $ millions unless otherwise specified)		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Gross Revenues		$303.9	$313.9	$345.5	$349.0	$352.5	$356.0	$359.6	$363.2
Profit (percent of sales, before all corporate income taxes)		8.4%	9.9%	10.4%	10.9%	10.7%	10.7%	10.9%	11.0%
Number of Employees (each, full time)		468.3	487.6	495.4	497.9	500.4	502.9	505.4	507.9
Payroll		$34.2	$36.5	$38.0	$39.2	$40.4	$41.6	$42.8	$44.1
Assessed Value of Property		$206.0	$191.6	$179.6	$169.2	$160.4	$154.6	$149.3	$144.2
Capitalized Expenditures:	% of sales (yr. 5)								
Additional structures	0.2%	$0.1	$0.2	$0.3	$0.3	$0.6	$0.7	$0.7	$0.7
Additional machinery and equipment	1.7%	$5.3	$4.6	$5.3	$5.6	$5.8	$7.9	$7.8	$7.7
Operating Expenditures:									
Taxable materials purchased (WA definition)	5.3%	$16.0	$16.5	$18.0	$18.0	$18.5	$18.7	$18.9	$19.1
Nontaxable materials purchased	30.1%	$90.6	$94.6	$107.5	$107.5	$106.2	$107.3	$108.4	$109.4
Leased building and equipment	0.0%	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Repairs	0.3%	$0.3	$0.8	$0.9	$0.9	$0.9	$1.0	$1.0	$1.0
Interest expenses	4.8%	$14.3	$15.0	$15.5	$15.5	$16.9	$17.1	$17.2	$17.4
Depreciation & amortization	8.2%	$36.9	$38.0	$39.0	$36.8	$28.8	$7.5	$8.0	$8.6
		$158.2	$165.0	$180.9	$178.7	$171.4	$151.5	$153.5	$155.5
Other Income/Expense NEC	29.2%	$86.1	$81.4	$90.7	$93.1	$103.0	$124.8	$124.2	$123.6
Total Operating Expenditures		$244.3	$246.4	$271.6	$271.8	$274.4	$276.3	$277.7	$279.1
R&D (salaries, equipment, etc.)	2.0%	5.8	6.1	7.0	7.0	6.9	7.0	7.0	7.1

Table B.4

Biotech; an integrated firm that manufactures and wholesales pharmaceuticals

Firm Profile (in $ millions unless otherwise specified)		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Gross Revenues		$159.7	$180.2	$189.2	$198.7	$208.6	$219.0	$230.0	$241.5
Profit (percent of sales, before all corporate income taxes)		11.6%	14.5%	15.8%	15.8%	15.8%	15.8%	15.8%	15.8%
Number of Employees (each, full time)		303.0	306.0	309.1	312.2	315.3	318.5	321.6	324.9
Payroll		$19.7	$20.4	$21.1	$21.9	$22.7	$23.5	$24.3	$25.1
Assessed Value of Property		$138.9	$155.4	$171.1	$186.3	$201.0	$215.3	$229.1	$243.9
Capitalized Expenditures:	% of sales (yr. 5)								
Additional structures	2.3%	$3.9	$4.3	$4.4	$4.6	$4.7	$4.8	$5.0	$5.1
Additional machinery and equipment	15.0%	$15.0	$27.9	$29.0	$30.2	$31.3	$32.5	$33.6	$34.8
Operating Expenditures:									
Taxable materials purchased (WA definition)	8.0%	$12.8	$14.4	$15.1	$15.9	$16.7	$17.5	$18.4	$19.3
Nontaxable materials purchased	8.0%	$12.8	$14.4	$15.1	$15.9	$16.7	$17.5	$18.4	$19.3
Leased building and equipment	1.2%	$1.7	$2.1	$2.4	$2.4	$2.5	$2.6	$2.7	$2.9
Repairs	0.6%	$0.7	$0.8	$0.9	$1.1	$1.2	$1.4	$1.6	$1.8
Interest expenses	2.2%	$4.9	$4.0	$4.2	$4.4	$4.6	$4.9	$5.1	$5.4
Depreciation & amortization	13.8%	$28.0	$31.2	$37.1	$32.8	$28.7	$33.4	$37.1	$41.3
		$60.9	$67.1	$74.9	$72.4	$70.4	$77.3	$83.4	$89.9
Other Income/Expense NEC	39.6%	$60.6	$66.6	$63.3	$73.0	$82.6	$83.7	$86.0	$88.4
Total Operating Expenditures		$121.5	$133.6	$138.2	$145.4	$153.0	$161.0	$169.4	$178.2
R&D (salaries, equipment, etc.)	1.4%	2.2	2.5	2.6	2.7	2.8	3.0	3.1	3.3

Table B.5

Small Software Firm; an originator of software products

Firm Profile (in $ millions unless otherwise specified)		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Gross Revenues		$5.7	$7.1	$8.1	$9.3	$10.2	$11.0	$11.7	$12.4
Profit (percent of sales, before all corporate income taxes)		7.8%	7.9%	7.9%	8.0%	8.0%	8.1%	8.1%	8.1%
Number of Employees (each, full time)		26.3	32.6	36.3	40.3	43.1	45.2	46.6	48.0
Payroll		$2.4	$3.1	$3.6	$4.1	$4.5	$4.9	$5.2	$5.5
Assessed Value of Property		$3.1	$3.2	$3.4	$3.5	$3.7	$3.8	$4.0	$4.2
Capitalized Expenditures:	% of sales (yr. 5)								
Additional structures	0.0%	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0
Additional machinery and equipment	6.3%	$0.7	$0.6	$0.6	$0.6	$0.6	$0.7	$0.7	$0.7
Operating Expenditures:									
Taxable materials purchased (WA definition)	1.7%	$0.1	$0.1	$0.1	$0.2	$0.2	$0.2	$0.2	$0.2
Nontaxable materials purchased	1.7%	$0.1	$0.1	$0.1	$0.2	$0.2	$0.2	$0.2	$0.2
Leased building and equipment	3.2%	$0.2	$0.2	$0.3	$0.3	$0.3	$0.4	$0.4	$0.4
Repairs	0.0%	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.1	$0.1
Interest expenses	1.1%	$0.6	$0.5	$0.2	$0.1	$0.1	$0.1	$0.1	$0.1
Depreciation & amortization	7.0%	$0.7	$0.8	$0.9	$0.8	$0.7	$0.6	$0.6	$0.6
		$1.6	$1.7	$1.7	$1.5	$1.5	$1.6	$1.6	$1.7
Other Income/Expense NEC	33.1%	$1.2	$1.7	$2.2	$2.9	$3.4	$3.7	$3.9	$4.2
Total Operating Expenditures		$2.8	$3.4	$3.9	$4.4	$4.9	$5.2	$5.6	$5.9
R&D (salaries, equipment, etc.)	3.2%	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4

Table B.6
Small Aircraft and Parts Firm, SIC 372/Estimated Ten-Year Taxes Without R&D Credits

(in $ millions)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	**10 Yr NPV**
Washington State Taxes											
B&O Tax	$0.12	$0.16	$0.25	$0.18	$0.19	$0.20	$0.22	$0.24	$0.25	$0.27	**$1.50**
Sales Tax	0.15	0.19	0.28	0.22	0.23	0.24	0.26	0.27	0.29	0.31	**1.74**
Property Tax	0.17	0.16	0.16	0.15	0.15	0.15	0.15	0.14	0.14	0.14	**1.12**
Total	0.44	0.51	0.68	0.55	0.57	0.59	0.62	0.65	0.69	0.72	**4.36**
North Carolina Taxes											
Corp. Income & Franchise Taxes	$0.09	$0.10	$0.18	$0.18	$0.20	$0.22	$0.19	$0.19	$0.20	$0.20	**$1.24**
Sales Tax	0.11	0.14	0.21	0.16	0.17	0.18	0.19	0.21	0.22	0.23	**1.31**
Property Tax	0.21	0.20	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	**1.40**
Total	0.41	0.44	0.58	0.53	0.56	0.59	0.57	0.58	0.59	0.61	**3.95**
California Taxes											
Corporate Income Tax	$0.09	$0.09	$0.20	$0.20	$0.23	$0.26	$0.21	$0.22	$0.22	$0.23	**$1.38**
Sales Tax	0.12	0.16	0.25	0.19	0.20	0.21	0.22	0.24	0.25	0.27	**1.51**
Property Tax	0.18	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.15	0.15	**1.21**
Total	0.39	0.43	0.61	0.55	0.58	0.62	0.60	0.61	0.63	0.65	**4.10**
Oregon Taxes											
Corporate Income Tax	$0.06	$0.07	$0.15	$0.15	$0.16	$0.19	$0.16	$0.16	$0.17	$0.17	**$1.02**
Property Tax	0.22	0.21	0.20	0.20	0.20	0.19	0.19	0.19	0.19	0.18	**1.47**
Total	0.28	0.28	0.35	0.35	0.36	0.38	0.35	0.35	0.35	0.35	**2.49**
Nevada Taxes											
Business Tax	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.02**
Sales Tax	0.13	0.17	0.24	0.19	0.20	0.21	0.22	0.24	0.25	0.27	**1.51**
Property Tax	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	**0.66**
Total	0.23	0.26	0.34	0.28	0.29	0.30	0.31	0.33	0.34	0.36	**2.20**
Texas Taxes											
Franchise Tax	$0.03	$0.06	$0.13	$0.13	$0.15	$0.17	$0.14	$0.14	$0.14	$0.15	**$0.87**
Sales Tax	0.14	0.18	0.26	0.20	0.21	0.22	0.24	0.25	0.27	0.29	**1.61**
Property Tax	0.36	0.35	0.34	0.33	0.32	0.32	0.32	0.31	0.31	0.30	**2.42**
Total	0.53	0.58	0.72	0.66	0.68	0.71	0.69	0.71	0.72	0.74	**4.90**
Missouri Taxes											
Corporate Income Tax	$0.04	$0.06	$0.15	$0.15	$0.17	$0.19	$0.16	$0.16	$0.17	$0.17	**$1.01**
Sales Tax	0.12	0.15	0.23	0.17	0.18	0.19	0.21	0.22	0.24	0.25	**1.41**
Property Tax	0.39	0.38	0.36	0.36	0.35	0.35	0.34	0.34	0.33	0.33	**2.61**
Total	0.55	0.59	0.74	0.68	0.70	0.73	0.71	0.72	0.74	0.75	**5.03**

Table B.7
Instruments and Related Equipment, SIC 38/Estimated Ten-Year Taxes Without R&D Credits

(in $ millions)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	**10 Yr NPV**
Washington State Taxes											
B&O Tax	$0.08	$0.10	$0.11	$0.11	$0.12	$0.12	$0.12	$0.13	$0.13	$0.13	**$0.83**
Sales Tax	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	**0.50**
Property Tax	0.28	0.28	0.29	0.30	0.31	0.32	0.34	0.35	0.36	0.38	**2.32**
Total	0.41	0.45	0.47	0.48	0.50	0.52	0.53	0.55	0.57	0.59	**3.66**
North Carolina Taxes											
Corp. Income & Franchise Taxes	$0.10	$0.12	$0.14	$0.14	$0.14	$0.15	$0.15	$0.16	$0.16	$0.17	**$1.03**
Sales Tax	0.08	0.09	0.10	0.10	0.11	0.11	0.11	0.11	0.12	0.12	**0.77**
Property Tax	0.34	0.36	0.37	0.38	0.39	0.40	0.42	0.44	0.45	0.47	**2.90**
Total	0.53	0.57	0.60	0.61	0.64	0.67	0.68	0.71	0.73	0.76	**4.70**
California Taxes											
Corporate Income Tax	$0.07	$0.10	$0.11	$0.11	$0.12	$0.13	$0.13	$0.13	$0.14	$0.14	**$0.85**
Sales Tax	0.06	0.07	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	**0.59**
Property Tax	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.38	0.39	0.41	**2.52**
Total	0.43	0.48	0.51	0.52	0.54	0.57	0.58	0.60	0.62	0.64	**3.95**
Oregon Taxes											
Corporate Income Tax	$0.05	$0.07	$0.08	$0.08	$0.09	$0.09	$0.09	$0.09	$0.10	$0.10	**$0.59**
Property Tax	0.36	0.37	0.39	0.40	0.41	0.42	0.44	0.46	0.47	0.49	**3.05**
Total	0.41	0.44	0.47	0.47	0.49	0.51	0.53	0.55	0.57	0.59	**3.64**
Nevada Taxes											
Business Tax	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.01**
Sales Tax	0.07	0.08	0.09	0.08	0.08	0.09	0.09	0.09	0.09	0.09	**0.61**
Property Tax	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.09	**0.72**
Total	0.17	0.18	0.19	0.18	0.18	0.19	0.18	0.18	0.19	0.19	**1.34**
Texas Taxes											
Franchise Tax	$0.04	$0.05	$0.06	$0.06	$0.07	$0.07	$0.07	$0.07	$0.07	$0.08	**$0.46**
Sales Tax	0.07	0.09	0.10	0.09	0.10	0.10	0.10	0.10	0.11	0.11	**0.70**
Property Tax	0.60	0.62	0.64	0.65	0.67	0.70	0.73	0.76	0.78	0.81	**5.04**
Total	0.71	0.75	0.80	0.81	0.84	0.87	0.90	0.93	0.96	1.00	**6.19**
Missouri Taxes											
Corporate Income Tax	$0.04	$0.06	$0.07	$0.07	$0.08	$0.08	$0.08	$0.08	$0.08	$0.09	**$0.51**
Sales Tax	0.06	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	**0.60**
Property Tax	0.65	0.67	0.69	0.71	0.73	0.76	0.78	0.81	0.85	0.88	**5.43**
Total	0.75	0.80	0.84	0.85	0.89	0.92	0.95	0.98	1.02	1.06	**6.55**

Table B.8
Semiconductor Manufacturer, SIC 3674/Estimated Ten-Year Taxes Without R&D Credits

(in $ millions)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	**10 Yr NPV**
Washington State Taxes											
B&O Tax	$1.47	$1.52	$1.67	$1.69	$1.71	$1.72	$1.74	$1.76	$1.78	$1.79	**$12.28**
Sales Tax	1.41	1.48	1.61	1.61	1.69	1.71	1.73	1.77	1.82	1.86	**12.13**
Property Tax	2.47	2.30	2.14	2.01	1.89	1.79	1.73	1.65	1.57	1.50	**14.39**
Total	5.36	5.30	5.43	5.31	5.28	5.23	5.20	5.18	5.16	5.15	**38.80**
North Carolina Taxes											
Corp. Income & Franchise Taxes	$1.22	$1.70	$1.94	$2.03	$2.00	$2.01	$2.05	$2.06	$2.07	$2.08	**$13.87**
Sales Tax	1.11	1.14	1.25	1.25	1.30	1.34	1.35	1.39	1.42	1.46	**9.44**
Property Tax	3.09	2.87	2.67	2.51	2.36	2.24	2.16	2.06	1.96	1.87	**17.98**
Total	5.42	5.72	5.86	5.79	5.67	5.59	5.56	5.51	5.46	5.41	**41.29**
California Taxes											
Corporate Income Tax	$1.11	$1.79	$2.12	$2.27	$2.26	$2.29	$2.35	$2.38	$2.41	$2.44	**$15.36**
Sales Tax	1.33	1.37	1.50	1.50	1.54	1.56	1.58	1.60	1.63	1.66	**11.12**
Property Tax	2.68	2.50	2.32	2.18	2.05	1.94	1.87	1.79	1.70	1.62	**15.61**
Total	5.13	5.65	5.94	5.94	5.85	5.79	5.80	5.77	5.74	5.72	**42.09**
Oregon Taxes											
Corporate Income Tax	$0.94	$1.29	$1.52	$1.63	$1.62	$1.65	$1.69	$1.72	$1.74	$1.76	**$11.19**
Property Tax	3.25	3.02	2.81	2.63	2.48	2.35	2.27	2.16	2.06	1.97	**18.89**
Total	4.19	4.31	4.34	4.26	4.10	4.00	3.96	3.88	3.80	3.73	**30.09**
Nevada Taxes											
Business Tax	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	**$0.09**
Sales Tax	1.19	1.26	1.38	1.38	1.43	1.45	1.47	1.50	1.53	1.57	**10.29**
Property Tax	0.83	0.80	0.78	0.76	0.74	0.72	0.71	0.69	0.68	0.66	**5.47**
Total	2.03	2.07	2.17	2.14	2.18	2.19	2.19	2.20	2.22	2.24	**15.85**
Texas Taxes											
Franchise Tax	$0.36	$1.11	$1.34	$1.45	$1.44	$1.47	$1.52	$1.54	$1.57	$1.59	**$9.50**
Sales Tax	1.35	1.40	1.53	1.53	1.59	1.62	1.63	1.67	1.71	1.75	**11.46**
Property Tax	5.36	4.99	4.64	4.35	4.10	3.89	3.74	3.57	3.40	3.25	**31.20**
Total	7.07	7.49	7.51	7.33	7.13	6.97	6.89	6.78	6.68	6.58	**52.16**
Missouri Taxes											
Corporate Income Tax	$0.45	$1.27	$1.54	$1.67	$1.66	$1.70	$1.75	$1.78	$1.81	$1.84	**$10.98**
Sales Tax	1.15	1.20	1.31	1.31	1.37	1.39	1.40	1.44	1.47	1.50	**9.85**
Property Tax	5.79	5.38	5.01	4.69	4.42	4.19	4.04	3.85	3.67	3.50	**33.66**
Total	7.39	7.85	7.86	7.67	7.45	7.28	7.19	7.07	6.95	6.84	**54.48**

Table B.9

Biotech; an integrated firm that manufactures and wholesales pharmaceuticals/Estimated Ten-Year Taxes Without R&D Credits

(in $ millions)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	**10 Yr NPV**
Washington State Taxes											
B&O Tax	$0.77	$0.87	$0.92	$0.96	$1.01	$1.06	$1.11	$1.17	$1.23	$1.30	**$7.47**
Sales Tax	1.53	1.75	1.83	1.91	2.00	2.10	2.20	2.30	2.42	2.54	**14.78**
Property Tax	1.50	1.55	1.74	1.91	2.08	2.25	2.40	2.61	2.84	3.08	**15.54**
Total	3.80	4.17	4.48	4.79	5.09	5.40	5.71	6.09	6.49	6.91	**37.78**
North Carolina Taxes											
Corp. Income & Franchise Taxes	$1.17	$1.68	$1.92	$2.03	$2.13	$2.24	$2.36	$2.49	$2.63	$2.77	**$15.22**
Sales Tax	1.21	1.47	1.54	1.60	1.68	1.75	1.83	1.92	2.01	2.10	**12.27**
Property Tax	1.87	1.94	2.17	2.39	2.60	2.81	3.00	3.26	3.54	3.85	**19.42**
Total	4.24	5.08	5.63	6.02	6.41	6.80	7.20	7.67	8.18	8.72	**46.91**
California Taxes											
Corporate Income Tax	$0.93	$1.53	$1.76	$1.84	$1.93	$2.02	$2.12	$2.22	$2.33	$2.45	**$13.59**
Sales Tax	1.13	1.30	1.37	1.43	1.50	1.58	1.65	1.74	1.83	1.93	**11.09**
Property Tax	1.62	1.68	1.88	2.07	2.26	2.44	2.61	2.83	3.08	3.34	**16.86**
Total	3.69	4.51	5.01	5.34	5.69	6.03	6.38	6.80	7.24	7.72	**41.54**
Oregon Taxes											
Corporate Income Tax	$0.76	$1.11	$1.27	$1.33	$1.39	$1.46	$1.53	$1.60	$1.68	$1.77	**$9.89**
Property Tax	1.97	2.04	2.28	2.51	2.73	2.95	3.16	3.43	3.72	4.04	**20.40**
Total	2.73	3.15	3.55	3.84	4.12	4.40	4.68	5.03	5.41	5.81	**30.29**
Nevada Taxes											
Business Tax	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	**$0.06**
Sales Tax	1.24	1.40	1.47	1.54	1.62	1.70	1.78	1.88	1.98	2.08	**11.97**
Property Tax	0.55	0.57	0.59	0.62	0.64	0.66	0.69	0.71	0.74	0.77	**4.73**
Total	1.80	1.98	2.07	2.17	2.26	2.37	2.48	2.60	2.72	2.85	**16.76**
Texas Taxes											
Franchise Tax	$0.30	$0.95	$1.10	$1.15	$1.20	$1.25	$1.31	$1.37	$1.44	$1.51	**$8.17**
Sales Tax	1.40	1.59	1.67	1.75	1.83	1.91	2.01	2.10	2.21	2.32	**13.50**
Property Tax	3.25	3.36	3.76	4.14	4.51	4.87	5.21	5.66	6.15	6.68	**33.69**
Total	4.95	5.91	6.54	7.04	7.54	8.03	8.53	9.14	9.79	10.50	**55.35**
Missouri Taxes											
Corporate Income Tax	$0.38	$1.10	$1.27	$1.32	$1.38	$1.44	$1.51	$1.58	$1.65	$1.73	**$9.43**
Sales Tax	1.19	1.36	1.43	1.49	1.57	1.64	1.72	1.81	1.90	1.99	**11.56**
Property Tax	3.50	3.63	4.06	4.47	4.87	5.25	5.62	6.11	6.63	7.20	**36.34**
Total	5.07	6.09	6.76	7.29	7.81	8.33	8.85	9.49	10.18	10.92	**57.33**

Table B.10
Small Software Firm; an originator of software products/Estimated Ten-Year Taxes Without R&D Credits

(in $ millions)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	**10 Yr NPV**
Washington State Taxes											
B&O Tax	$0.03	$0.03	$0.04	$0.04	$0.05	$0.05	$0.06	$0.06	$0.07	$0.07	**$0.36**
Sales Tax	0.05	0.05	0.06	0.06	0.06	0.07	0.08	0.09	0.10	0.10	**0.51**
Property Tax	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	**0.29**
Total	0.11	0.12	0.13	0.14	0.15	0.17	0.18	0.19	0.21	0.23	**1.16**
North Carolina Taxes											
Corp. Income & Franchise Taxes	$0.00	$0.02	$0.05	$0.05	$0.05	$0.05	$0.05	$0.05	$0.05	$0.05	**$0.28**
Sales Tax	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	**0.16**
Property Tax	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	**0.36**
Total	0.05	0.08	0.11	0.11	0.12	0.12	0.13	0.13	0.14	0.14	**0.80**
California Taxes											
Corporate Income Tax	$0.00	$0.00	$0.04	$0.05	$0.05	$0.06	$0.06	$0.07	$0.07	$0.08	**$0.32**
Sales Tax	0.05	0.05	0.05	0.06	0.06	0.07	0.08	0.08	0.09	0.10	**0.49**
Property Tax	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	**0.31**
Total	0.09	0.09	0.13	0.15	0.16	0.17	0.18	0.20	0.22	0.24	**1.13**
Oregon Taxes											
Corporate Income Tax	$0.00	$0.01	$0.03	$0.03	$0.04	$0.04	$0.04	$0.04	$0.05	$0.05	**$0.22**
Property Tax	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	**0.38**
Total	0.04	0.05	0.07	0.08	0.09	0.09	0.10	0.10	0.11	0.12	**0.60**
Nevada Taxes											
Business Tax	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.01**
Sales Tax	0.02	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.06	0.07	**0.29**
Property Tax	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Total	0.02	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.07	**0.30**
Texas Taxes											
Franchise Tax	$0.00	$0.00	$0.01	$0.04	$0.07	$0.08	$0.08	$0.08	$0.09	$0.09	**$0.36**
Sales Tax	0.05	0.05	0.06	0.06	0.06	0.07	0.08	0.08	0.09	0.10	**0.50**
Property Tax	0.07	0.07	0.08	0.08	0.09	0.09	0.09	0.10	0.10	0.11	**0.63**
Total	0.12	0.13	0.15	0.18	0.22	0.24	0.25	0.26	0.28	0.30	**1.49**
Missouri Taxes											
Corporate Income Tax	$0.00	$0.00	$0.03	$0.03	$0.03	$0.04	$0.04	$0.04	$0.05	$0.05	**$0.21**
Sales Tax	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.07	0.08	0.09	**0.42**
Property Tax	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.11	0.12	**0.68**
Total	0.12	0.12	0.16	0.17	0.18	0.19	0.21	0.22	0.24	0.26	**1.31**

Table B.11
Small Aircraft and Parts Firm, SIC 372/Estimated Ten-Year Taxes With R&D Credits

(in $ millions)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	**10 Yr NPV**
Washington State Taxes											
B&O Tax	$0.09	$0.12	$0.18	$0.14	$0.14	$0.15	$0.16	$0.18	$0.19	$0.20	**$1.12**
Sales Tax	0.15	0.19	0.28	0.22	0.23	0.24	0.26	0.27	0.29	0.31	**1.74**
Property Tax	0.17	0.16	0.16	0.15	0.15	0.15	0.15	0.14	0.14	0.14	**1.12**
Total	0.41	0.47	0.62	0.51	0.52	0.54	0.57	0.59	0.62	0.65	**3.98**
North Carolina Taxes											
Corp. Income & Franchise Taxes	$0.07	$0.07	$0.14	$0.15	$0.17	$0.19	$0.16	$0.16	$0.16	$0.16	**$1.03**
Sales Tax	0.11	0.14	0.21	0.16	0.17	0.18	0.19	0.21	0.22	0.23	**1.31**
Property Tax	0.21	0.20	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.18	**1.40**
Total	0.39	0.42	0.55	0.51	0.53	0.56	0.54	0.55	0.56	0.57	**3.74**
California Taxes											
Corporate Income Tax	$0.03	$0.03	$0.10	$0.14	$0.16	$0.18	$0.14	$0.14	$0.14	$0.14	**$0.83**
Sales Tax	0.12	0.16	0.25	0.19	0.20	0.21	0.22	0.24	0.25	0.27	**1.51**
Property Tax	0.18	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.15	0.15	**1.21**
Total	0.34	0.37	0.52	0.49	0.51	0.55	0.52	0.53	0.54	0.56	**3.55**
Oregon Taxes											
Corporate Income Tax	$0.03	$0.03	$0.09	$0.15	$0.16	$0.19	$0.16	$0.16	$0.17	$0.17	**$0.91**
Property Tax	0.22	0.21	0.20	0.20	0.20	0.19	0.19	0.19	0.19	0.18	**1.47**
Total	0.25	0.24	0.29	0.35	0.36	0.38	0.35	0.35	0.35	0.35	**2.37**
Nevada Taxes											
Business Tax	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.02**
Sales Tax	0.13	0.17	0.24	0.19	0.20	0.21	0.22	0.24	0.25	0.27	**1.51**
Property Tax	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.08	0.08	0.08	**0.66**
Total	0.23	0.26	0.34	0.28	0.29	0.30	0.31	0.33	0.34	0.36	**2.20**
Texas Taxes											
Franchise Tax	$0.01	$0.04	$0.10	$0.11	$0.13	$0.15	$0.12	$0.12	$0.12	$0.12	**$0.70**
Sales Tax	0.14	0.18	0.26	0.20	0.21	0.22	0.24	0.25	0.27	0.29	**1.61**
Property Tax	0.36	0.35	0.34	0.33	0.32	0.32	0.32	0.31	0.31	0.30	**2.42**
Total	0.51	0.56	0.70	0.64	0.66	0.69	0.67	0.69	0.70	0.72	**4.74**
Missouri Taxes											
Corporate Income Tax	$0.00	$0.00	$0.07	$0.15	$0.17	$0.18	$0.14	$0.14	$0.14	$0.14	**$0.78**
Sales Tax	0.12	0.15	0.23	0.17	0.18	0.19	0.21	0.22	0.24	0.25	**1.41**
Property Tax	0.39	0.38	0.36	0.36	0.35	0.35	0.34	0.34	0.33	0.33	**2.61**
Total	0.51	0.53	0.66	0.68	0.70	0.72	0.69	0.70	0.71	0.72	**4.80**

Table B.12
Instruments and Related Equipment, SIC 38/Estimated Ten-Year Taxes With R&D Credits

(in $ millions)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	**10 Yr NPV**
Washington State Taxes											
B&O Tax	$0.06	$0.08	$0.08	$0.08	$0.09	$0.09	$0.09	$0.09	$0.10	$0.10	**$0.62**
Sales Tax	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.07	0.08	0.08	**0.50**
Property Tax	0.28	0.28	0.29	0.30	0.31	0.32	0.34	0.35	0.36	0.38	**2.32**
Total	0.39	0.42	0.45	0.45	0.47	0.49	0.50	0.52	0.53	0.55	**3.45**
North Carolina Taxes											
Corp. Income & Franchise Taxes	$0.09	$0.10	$0.12	$0.12	$0.13	$0.14	$0.13	$0.14	$0.15	$0.15	**$0.91**
Sales Tax	0.08	0.09	0.10	0.10	0.11	0.11	0.11	0.11	0.12	0.12	**0.77**
Property Tax	0.34	0.36	0.37	0.38	0.39	0.40	0.42	0.44	0.45	0.47	**2.90**
Total	0.52	0.55	0.59	0.60	0.62	0.65	0.66	0.69	0.72	0.74	**4.58**
California Taxes											
Corporate Income Tax	$0.04	$0.06	$0.07	$0.07	$0.08	$0.09	$0.08	$0.09	$0.09	$0.09	**$0.55**
Sales Tax	0.06	0.07	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	**0.59**
Property Tax	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.38	0.39	0.41	**2.52**
Total	0.40	0.44	0.47	0.48	0.50	0.52	0.53	0.55	0.57	0.59	**3.65**
Oregon Taxes											
Corporate Income Tax	$0.04	$0.05	$0.07	$0.08	$0.09	$0.09	$0.09	$0.09	$0.10	$0.10	**$0.56**
Property Tax	0.36	0.37	0.39	0.40	0.41	0.42	0.44	0.46	0.47	0.49	**3.05**
Total	0.40	0.42	0.46	0.47	0.49	0.51	0.53	0.55	0.57	0.59	**3.61**
Nevada Taxes											
Business Tax	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.01**
Sales Tax	0.07	0.08	0.09	0.08	0.08	0.09	0.09	0.09	0.09	0.09	**0.61**
Property Tax	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09	0.09	**0.72**
Total	0.17	0.18	0.19	0.18	0.18	0.19	0.18	0.18	0.19	0.19	**1.34**
Texas Taxes											
Franchise Tax	$0.03	$0.04	$0.05	$0.05	$0.06	$0.06	$0.06	$0.06	$0.06	$0.06	**$0.38**
Sales Tax	0.07	0.09	0.10	0.09	0.10	0.10	0.10	0.10	0.11	0.11	**0.70**
Property Tax	0.60	0.62	0.64	0.65	0.67	0.70	0.73	0.76	0.78	0.81	**5.04**
Total	0.70	0.74	0.78	0.80	0.83	0.86	0.88	0.92	0.95	0.99	**6.11**
Missouri Taxes											
Corporate Income Tax	$0.01	$0.04	$0.05	$0.06	$0.07	$0.07	$0.07	$0.08	$0.08	$0.09	**$0.44**
Sales Tax	0.06	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	**0.60**
Property Tax	0.65	0.67	0.69	0.71	0.73	0.76	0.78	0.81	0.85	0.88	**5.43**
Total	0.71	0.78	0.82	0.85	0.88	0.92	0.95	0.98	1.02	1.06	**6.47**

Table B.13
Semiconductor Manufacturer, SIC 3674/Estimated Ten-Year Taxes With R&D Credits

(in $ millions)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	**10 Yr NPV**
Washington State Taxes											
B&O Tax	$1.34	$1.38	$1.51	$1.53	$1.55	$1.57	$1.58	$1.60	$1.62	$1.64	**$11.17**
Sales Tax	1.41	1.48	1.61	1.61	1.69	1.71	1.73	1.77	1.82	1.86	**12.13**
Property Tax	2.47	2.30	2.14	2.01	1.89	1.79	1.73	1.65	1.57	1.50	**14.39**
North Carolina Taxes											
Corp. Income & Franchise Taxes	$1.08	$1.64	$1.87	$1.97	$1.94	$1.96	$2.00	$2.01	$2.02	$2.02	**$13.35**
Sales Tax	1.11	1.14	1.25	1.25	1.30	1.34	1.35	1.39	1.42	1.46	**9.44**
Property Tax	3.09	2.87	2.67	2.51	2.36	2.24	2.16	2.06	1.96	1.87	**17.98**
Total	5.28	5.65	5.79	5.72	5.61	5.53	5.50	5.45	5.40	5.36	**40.77**
California Taxes											
Corporate Income Tax	$0.75	$1.61	$1.94	$2.11	$2.11	$2.14	$2.20	$2.24	$2.27	$2.31	**$14.02**
Sales Tax	1.33	1.37	1.50	1.50	1.54	1.56	1.58	1.60	1.63	1.66	**11.12**
Property Tax	2.68	2.50	2.32	2.18	2.05	1.94	1.87	1.79	1.70	1.62	**15.61**
Total	4.76	5.48	5.76	5.78	5.70	5.64	5.65	5.63	5.61	5.59	**40.75**
Oregon Taxes											
Corporate Income Tax	$0.94	$1.29	$1.52	$1.63	$1.62	$1.65	$1.69	$1.72	$1.74	$1.76	**$11.19**
Property Tax	3.25	3.02	2.81	2.63	2.48	2.35	2.27	2.16	2.06	1.97	**18.89**
Total	4.19	4.31	4.34	4.26	4.10	4.00	3.96	3.88	3.80	3.73	**30.09**
Nevada Taxes											
Business Tax	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	**$0.09**
Sales Tax	1.19	1.26	1.38	1.38	1.43	1.45	1.47	1.50	1.53	1.57	**10.29**
Property Tax	0.83	0.80	0.78	0.76	0.74	0.72	0.71	0.69	0.68	0.66	**5.47**
Total	2.03	2.07	2.17	2.14	2.18	2.19	2.19	2.20	2.22	2.24	**15.85**
Texas Taxes											
Franchise Tax	$0.26	$1.06	$1.29	$1.40	$1.40	$1.43	$1.48	$1.50	$1.53	$1.55	**$9.13**
Sales Tax	1.35	1.40	1.53	1.53	1.59	1.62	1.63	1.67	1.71	1.75	**11.46**
Property Tax	5.36	4.99	4.64	4.35	4.10	3.89	3.74	3.57	3.40	3.25	**31.20**
Total	6.97	7.44	7.46	7.28	7.09	6.93	6.85	6.74	6.64	6.55	**51.79**
Missouri Taxes											
Corporate Income Tax	$0.06	$1.23	$1.47	$1.64	$1.66	$1.70	$1.74	$1.78	$1.82	$1.86	**$10.51**
Sales Tax	1.15	1.20	1.31	1.31	1.37	1.39	1.40	1.44	1.47	1.50	**9.85**
Property Tax	5.79	5.38	5.01	4.69	4.42	4.19	4.04	3.85	3.67	3.50	**33.66**
Total	7.00	7.82	7.79	7.64	7.45	7.28	7.19	7.07	6.96	6.86	**54.02**

Table B.14
Biotech; an integrated firm that manufactures and wholesales pharmaceuticals/Estimated Ten-Year Taxes With R&D Credits

(in $ millions)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	**10 Yr NPV**
Washington State Taxes											
B&O Tax	$0.16	$0.17	$0.18	$0.19	$0.20	$0.21	$0.22	$0.23	$0.24	$0.26	**$1.48**
Sales Tax	1.53	1.75	1.83	1.91	2.00	2.10	2.20	2.30	2.42	2.54	**14.78**
Property Tax	1.50	1.55	1.74	1.91	2.08	2.25	2.40	2.61	2.84	3.08	**15.54**
Total	3.19	3.47	3.75	4.01	4.28	4.55	4.82	5.15	5.50	5.87	**31.79**
North Carolina Taxes											
Corp. Income & Franchise Taxes	$0.60	$1.25	$1.48	$1.56	$1.65	$1.73	$1.82	$1.93	$2.04	$2.15	**$11.44**
Sales Tax	1.21	1.47	1.54	1.60	1.68	1.75	1.83	1.92	2.01	2.10	**12.27**
Property Tax	1.87	1.94	2.17	2.39	2.60	2.81	3.00	3.26	3.54	3.85	**19.42**
Total	3.68	4.65	5.18	5.55	5.92	6.29	6.66	7.11	7.59	8.10	**43.13**
California Taxes											
Corporate Income Tax	$0.00	$0.00	$0.42	$0.62	$0.65	$0.67	$0.71	$0.74	$0.77	$0.81	**$3.65**
Sales Tax	1.13	1.30	1.37	1.43	1.50	1.58	1.65	1.74	1.83	1.93	**11.09**
Property Tax	1.62	1.68	1.88	2.07	2.26	2.44	2.61	2.83	3.08	3.34	**16.86**
Total	2.75	2.98	3.67	4.12	4.41	4.69	4.97	5.31	5.68	6.08	**31.59**
Oregon Taxes											
Corporate Income Tax	$0.02	$0.73	$0.97	$1.06	$1.13	$1.20	$1.27	$1.35	$1.44	$1.54	**$7.42**
Property Tax	1.97	2.04	2.28	2.51	2.73	2.95	3.16	3.43	3.72	4.04	**20.40**
Total	1.99	2.76	3.25	3.57	3.86	4.15	4.43	4.78	5.16	5.58	**27.82**
Nevada Taxes											
Business Tax	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	$0.01	**$0.06**
Sales Tax	1.24	1.40	1.47	1.54	1.62	1.70	1.78	1.88	1.98	2.08	**11.97**
Property Tax	0.55	0.57	0.59	0.62	0.64	0.66	0.69	0.71	0.74	0.77	**4.73**
Total	1.80	1.98	2.07	2.17	2.26	2.37	2.48	2.60	2.72	2.85	**16.76**
Texas Taxes											
Franchise Tax	$0.00	$0.53	$0.77	$0.81	$0.84	$0.88	$0.92	$0.96	$1.00	$1.05	**$5.40**
Sales Tax	1.40	1.59	1.67	1.75	1.83	1.91	2.01	2.10	2.21	2.32	**13.50**
Property Tax	3.25	3.36	3.76	4.14	4.51	4.87	5.21	5.66	6.15	6.68	**33.69**
Total	4.64	5.48	6.21	6.70	7.18	7.66	8.14	8.73	9.36	10.04	**52.58**
Missouri Taxes											
Corporate Income Tax	-$1.40	$0.41	$1.05	$1.16	$1.21	$1.27	$1.33	$1.39	$1.45	$1.52	**$6.11**
Sales Tax	1.19	1.36	1.43	1.49	1.57	1.64	1.72	1.81	1.90	1.99	**11.56**
Property Tax	3.50	3.63	4.06	4.47	4.87	5.25	5.62	6.11	6.63	7.20	**36.34**
Total	3.29	5.40	6.54	7.13	7.65	8.16	8.67	9.30	9.98	10.71	**54.01**

Table B.15

Small Software Firm; an originator of software products/Estimated Ten-Year Taxes With R&D Credits

(in $ millions)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	**10 Yr NPV**
Washington State Taxes											
B&O Tax	$0.02	$0.03	$0.04	$0.04	$0.04	$0.05	$0.05	$0.06	$0.06	$0.07	**$0.32**
Sales Tax	0.05	0.05	0.06	0.06	0.06	0.07	0.08	0.09	0.10	0.10	**0.51**
Property Tax	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	**0.29**
Total	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.19	0.20	0.22	**1.12**
North Carolina Taxes											
Corp. Income & Franchise Taxes	$0.00	$0.02	$0.03	$0.04	$0.04	$0.04	$0.05	$0.05	$0.06	$0.06	**$0.26**
Sales Tax	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.03	**0.16**
Property Tax	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	**0.36**
Total	0.05	0.07	0.09	0.10	0.11	0.12	0.12	0.13	0.14	0.15	**0.78**
California Taxes											
Corporate Income Tax	$0.00	$0.00	$0.02	$0.04	$0.05	$0.05	$0.06	$0.06	$0.07	$0.07	**$0.28**
Sales Tax	0.05	0.05	0.05	0.06	0.06	0.07	0.08	0.08	0.09	0.10	**0.49**
Property Tax	0.03	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	**0.31**
Total	0.09	0.09	0.11	0.14	0.15	0.17	0.18	0.19	0.21	0.23	**1.09**
Oregon Taxes											
Corporate Income Tax	$0.00	$0.01	$0.03	$0.03	$0.04	$0.04	$0.04	$0.04	$0.05	$0.05	**$0.22**
Property Tax	0.04	0.04	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	**0.38**
Total	0.04	0.05	0.07	0.08	0.09	0.09	0.10	0.10	0.11	0.12	**0.60**
Nevada Taxes											
Business Tax	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.01**
Sales Tax	0.02	0.03	0.03	0.03	0.03	0.04	0.05	0.05	0.06	0.07	**0.29**
Property Tax	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Total	0.02	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.07	**0.30**
Texas Taxes											
Franchise Tax	$0.00	$0.00	$0.01	$0.03	$0.03	$0.03	$0.03	$0.04	$0.04	$0.04	**$0.16**
Sales Tax	0.05	0.05	0.06	0.06	0.06	0.07	0.08	0.08	0.09	0.10	**0.50**
Property Tax	0.07	0.07	0.08	0.08	0.09	0.09	0.09	0.10	0.10	0.11	**0.63**
Total	0.12	0.13	0.14	0.17	0.18	0.19	0.20	0.22	0.23	0.25	**1.29**
Missouri Taxes											
Corporate Income Tax	$0.00	$0.00	$0.01	$0.03	$0.03	$0.04	$0.04	$0.04	$0.05	$0.05	**$0.20**
Sales Tax	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.07	0.08	0.09	**0.42**
Property Tax	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.11	0.12	**0.68**
Total	0.12	0.12	0.14	0.17	0.18	0.19	0.20	0.22	0.24	0.26	**1.29**