



## LEGISLATIVE BUDGET BOARD

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## MEMORANDUM

**TO:** Lt. Governor David Dewhurst                      Speaker Joe Straus  
Members of the Eighty-third Legislature

**FROM:** Ursula Parks

**DATE:** January 22, 2013

**SUBJECT:** Overview of Research and Development Tax Incentives

As required by the provisions of Sec. 171.215, Texas Tax Code, the Legislative Budget Board has conducted a study of the costs and benefits to the state of reenacting the tax credit for research and development activities available to Texas franchise tax filers prior to enactment of House Bill 3, Seventy-ninth Legislature, Third Called Session, 2006 that repealed the credit. The report also provides an overview of research and development incentives available in other states and at the federal level.

This report makes no recommendations regarding legislation on franchise tax credits that may be considered by the Eighty-third Legislature. It is intended as an informational resource only.

The LBB staff who developed and produced this report are Kevin Kavanaugh, Scott Dudley, Kenneth DiGravio and Kim Irby.

I hope you find this report useful, and we are prepared to answer any questions you might have.

cc: Blaine Brunson    Jesse Ancira  
John Opperman    Andrew Blifford  
Julia Rathgeber    Keith Yawn  
Sarah Hicks    Scott Dudley  
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# OVERVIEW OF RESEARCH AND DEVELOPMENT TAX INCENTIVES

## INTRODUCTION

Research and development (R&D) are activities that a company conducts with the intent of making a discovery that leads to the development of new or improved products or procedures. A company can experience future growth by developing new products or processes to improve and expand its operations and society generally benefits from the introduction of these new products. Federal and state governments often subsidize R&D directly through grants and other spending or indirectly through tax incentives. A federal tax credit for R&D spending in the U.S. was first enacted in 1981. Since then, most states—including Texas (although the Texas credit was subsequently repealed in 2007), have enacted their own tax incentives and use them to increase R&D spending in their state or as an economic development tool. Recently, the use of tax incentives by states to lure businesses to expand or relocate in their jurisdictions has increased. States typically justify the cost, in terms of foregone revenue to a state, by the infusion of jobs, economic activity, and additional tax revenue generated by a business taking advantage of the incentive, that otherwise may have taken place in another state.

This report provides an overview of the large number of R&D tax incentives available to businesses, both at the federal and state level, a history of these incentives in Texas, and an overview of past research on the costs and benefits of the incentives. Past research is mixed and much is still unknown regarding the efficacy of state R&D credits, nearly all of the studies discussed above cite lack of good state level data on R&D expenditures and credit claims as a barrier to obtaining more definitive results. Similarly, the unavailability of individual company-level data on R&D tax credit claims in Texas, both before, during, and after the credit was available, precludes a robust statistical and economic analysis of the formerly available Texas credit. Therefore, this report makes no recommendations on R&D tax policy in the state and is intended as an information resource only. This report provides a useful starting point and guide as the Eighty-third Legislature begins deliberations on the future of R&D tax incentives in Texas. It is organized into three sections: the first section provides background information on the federal R&D credit followed by a summary of incentives available in other states; the second section provides details of the repealed franchise tax credit in Texas; and the third section

presents an overview of several studies on the costs and benefits of using R&D incentives and summarizes various considerations that should be made with respect to designing state R&D incentives.

## BACKGROUND OF TAX INCENTIVES

Economists and public policy makers have long understood that certain actions by or transactions between consumers, businesses, and governments can oftentimes affect outside parties not directly involved in these actions. These effects, known as externalities or “spillovers,” can be either positive or negative, but in either case results in outcomes that are not socially optimal. In the case of negative externalities, a third party may be forced to bear some cost of a transaction it was not involved in and will receive no benefit from. Conversely, a positive externality may allow some party to receive some level of benefit from a transaction between other parties at no cost to them.

A common example of a positive externality is the knowledge, technological innovation, process improvements, or inventions that result from R&D activities by companies or individuals. Many in society will benefit from these various advancements even though they were not involved in their development. Therefore, a private company investing in R&D activities may generate social benefits above its profit generated by the investment. In general, a company will set its level of expenditure on R&D to maximize only expected future profit, resulting in a less than socially optimal level of R&D investment.

For this reason, policy makers have often sought to generate these external benefits by subsidizing R&D expenditures through various mechanisms. Patent law is the largest of these subsidies in the U.S., which grants companies a government imposed monopoly over their invention or knowledge for a limited period in exchange for some form of public disclosure sometime in the future. In addition, federal and state governments subsidize R&D directly through spending on institutions of higher education, where much of the country’s research is performed, or through grants from agencies such as the National Science Foundation or the Defense Advanced Research Projects Agency. Another popular tool has been the use of tax incentives, which are the subject of this report. A federal tax credit for R&D in the

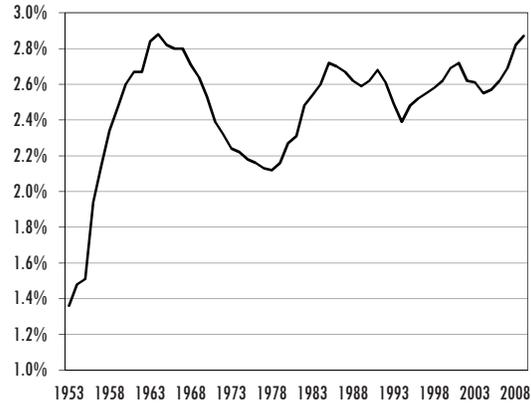
U.S. was first enacted in 1981. Since then most states, including Texas, have enacted their own tax incentives for R&D.

In addition to the spillover benefits, states use R&D incentives as an economic development tool. The use of tax incentives in the competition amongst states over business location decisions has expanded dramatically in recent years. The cost, in terms of foregone revenue to a state, is often justified by the infusion of jobs, economic activity, and additional tax revenue generated by a company taking advantage of the incentive, that otherwise may have taken place in another state. Measuring the costs and benefits associated with R&D tax incentives is an important, but often difficult, task for policy makers.

**FEDERAL R&D TAX INCENTIVES**

The federal R&D tax credit (specifically the *Credit for Increasing Research Activities*) was first introduced in the Economic Recovery Tax Act of 1981 and codified in the Internal Revenue Code, Section 41, with the intended goal of increasing R&D spending in the U.S. closer to an economically and socially optimal level. At the time, R&D spending, relative to the size of the economy, had been steadily declining for two decades, as shown in **Figure 1**. The temporary credit was initially set to expire in 1985, but has since been extended or reenacted by Congress 15 times. Since 1981, the credit has been continuously active except for the periods from July 1, 1995 to June 30, 1996. Most recently, the credit expired on December 31, 2011 and the availability of the credit was unknown for all of 2012 as Congress negotiated a deal to avert automatic tax increases and spending cuts set for the beginning of 2013. On January

**FIGURE 1  
RATIO OF U.S. R&D SPENDING TO GDP, CALENDAR YEARS  
1953 TO 2009**



SOURCE: National Science Foundation.

1, 2013, Congress passed H.R. 8, commonly known as the “fiscal cliff” bill, which retroactively made the credit available in 2012 and extended the credit through the end of 2013.

In 2009, total U.S. spending for R&D, including both public and private, was \$400.5 billion, or 2.87 percent of the Gross Domestic Product (GDP), up from 2.31 percent when the credit was first enacted in 1981. According to the Internal Revenue Service, corporations claimed \$7.8 billion in R&D tax credits for 2009, making it one of the largest tax credits available in the federal corporate income tax system. **Figure 2** shows a history of the number and amount of claims for the past two decades. **Figure 3** shows the percentage of credits claimed by the North American Industry Classification System (NAICS) sector, with the Manufacturing sector

**FIGURE 2  
SUBCHAPTER C CORPORATIONS CLAIMING A CREDIT FOR INCREASING RESEARCH ACTIVITIES, TAX YEARS 1990 TO 2009**

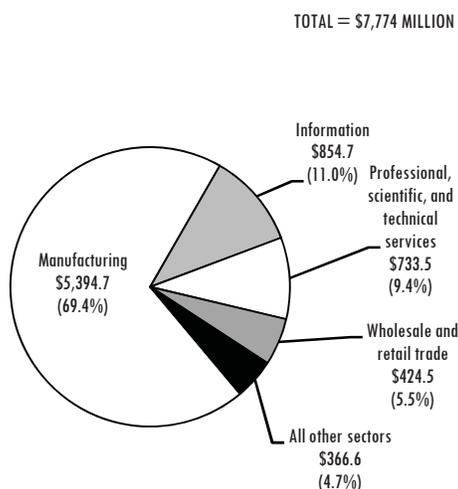
TAX YEAR	NUMBER OF CREDIT CLAIMANTS	PERCENTAGE CHANGE	CREDITS CLAIMED (MILLIONS)	PERCENTAGE CHANGE
1990	8,699		\$1,547	
1991	9,001	3.5%	\$1,585	2.4%
1992	7,750	(13.9%)	\$1,515	(4.4%)
1993	9,933	28.2%	\$1,857	22.5%
1994	9,150	(7.9%)	\$2,423	30.5%
1995	7,877	(13.9%)	\$1,422	(41.3%)
1996	9,709	23.3%	\$2,134	50.1%
1997	10,668	9.9%	\$4,398	106.1%
1998	9,849	(7.7%)	\$5,208	18.4%
1999	10,020	1.7%	\$5,281	1.4%

**FIGURE 2 (CONTINUED)**  
**SUBCHAPTER C CORPORATIONS CLAIMING A CREDIT FOR INCREASING RESEARCH ACTIVITIES, TAX YEARS 1990 TO 2009**

TAX YEAR	NUMBER OF CREDIT CLAIMANTS	PERCENTAGE CHANGE	CREDITS CLAIMED (MILLIONS)	PERCENTAGE CHANGE
2000	10,495	4.7%	\$7,079	34.0%
2001	10,389	(1.0%)	\$6,356	(10.2%)
2002	10,254	(1.3%)	\$5,656	(11.0%)
2003	10,369	1.1%	\$5,488	(3.0%)
2004	10,244	(1.2%)	\$5,554	1.2%
2005	11,290	10.2%	\$6,363	14.6%
2006	10,788	(4.4%)	\$7,311	14.9%
2007	12,548	16.3%	\$8,260	13.0%
2008	12,736	1.5%	\$8,303	0.5%
2009	12,359	(3.0%)	\$7,774	(6.4%)

NOTE: Includes returns of active corporations, other than Forms 1120S, 1120-REIT, and 1120-RIC. The credit was inactive for the second half of 1995 and the first half of 1996. When reinstated in 1996, the Alternative Incremental calculation was added, leading to a large increase in 1996 and 1997.  
 SOURCE: Internal Revenue Service.

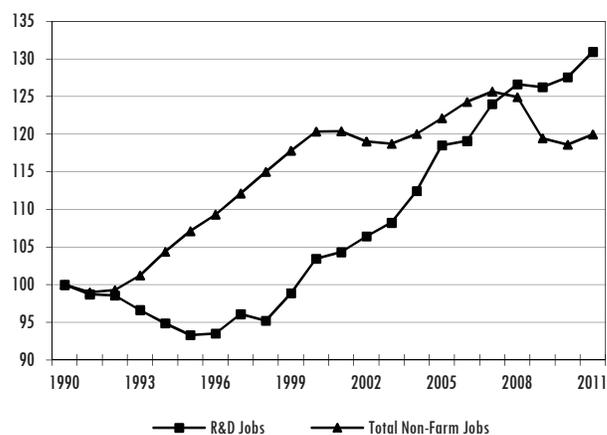
**FIGURE 3**  
**FEDERAL R&D TAX CREDIT BY NAICS SECTOR, CALENDAR YEAR 2009**  
**DATE RANGE**



SOURCE: Internal Revenue Service.

claiming a large majority of the credits. In addition, the number of corporations claiming the credit has increased 42 percent since 1990 to 12,359 claimants. As of 2011, R&D activities in the physical, engineering, and life sciences industry supported 561,000 jobs, or 0.4 percent of the total U.S. non-farm employment level. The average hourly wage in the industry was \$36.85 in 2011, nearly double the national average of \$19.47. **Figure 4** shows the relative

**FIGURE 4**  
**U.S. NON-FARM PAYROLL EMPLOYMENT, CALENDAR YEARS 1990 TO 2011**



Index, 1990 = 100  
 SOURCE: U.S. Bureau of Labor Statistics.

increase in both R&D and total non-farm employment in the U.S. over the past two decades. Employment in the R&D sector remained relatively healthy during the recent U.S. recession.

Calculation of the credit depends on several statutorily defined factors that have evolved over the life of the credit. In general, companies may claim a credit equal to the sum of (1) 20 percent of the qualified research expenses (QREs) in a year over a base amount, (2) 20 percent of basic research

payments (BRPs) over a qualified organization base period amount, and (3) 20 percent of amounts paid to an energy research consortium. The credit is non-refundable, but unused amounts of an earned credit may be used to offset tax liability in the previous tax year or for any tax year up to 20 years in the future (known as “carry back” and “carry forward” provisions). “Qualified research” is identified as research undertaken for the purpose of discovering information that is technological in nature and the application of which is intended to be useful in the development of a new or improved business component, as well as all of the activities of which constitute elements of a process of experimentation for a new or improved function, performance, reliability, or quality. There is also a list of research activities that do not qualify for the credit, such as computer software or social sciences. Finally, QREs are the amount paid for wages of employees engaging in qualified research, supplies used for qualified research, and 65 percent (higher for certain type of entities) of contract research expenses paid to outside entities to perform qualified research.

The definition of a “base amount” is an important consideration for a R&D tax credit. Allowing the credit to apply only to expenses above a certain level is intended to protect the government from subsidizing R&D expenses that would have been made absent the credit being in place, however designing an appropriate base amount can be challenging for policy makers. Originally, the federal base amount was the moving average of a taxpayer’s prior year QREs. Therefore, any QRE made by a company would reduce its credit in future years by increasing its future base amount, which resulted in the effective credit rate being much lower than the statutory rate of 20 percent. In 1989, the base amount calculation was amended to equal a taxpayer’s average annual gross receipts for the prior four years multiplied by their “fixed base percentage”. The fixed base percentage was designed to be a measure of a company’s R&D intensity and is its aggregate QRE divided by its aggregate gross receipts from 1984 to 1988, with an adjustment made for taxpayers starting business in later years. The fixed base percentage cannot exceed 16 percent and the base amount cannot be less than 50 percent of QREs in a year.

In 1996, the Alternative Incremental Credit (AIC) was added to benefit companies whose gross receipts were large enough to elevate their base amount above their QREs and prevent them from receiving a credit and to benefit companies with a relatively high 1984 to 1989 fixed-base percentage relative to

their current R&D spending intensity. This computation was replaced in 2007 with the Alternative Simplified Credit (ASC) equal to 14 percent of a taxpayer’s QREs in excess of 50 percent of their average QREs from the prior three years. If a company does not have QREs in one of the prior three years, the credit is equal to 6 percent of its current year QREs. Taxpayers electing to take the ASC must use that method to compute their future year’s credit unless authorized to revoke their election.

“Basic research payments” (BRPs) are an amounts paid by a company to a qualified organization to perform any original investigation for the advancement of scientific knowledge not having a specific commercial objective (excluding research done in humanities or social sciences). Qualified organizations include institutions of higher education, tax-exempt non-profit scientific research organizations, and tax-exempt grant organizations that make grants to institutions of higher education. The base period amount for BRPs differs from the QRE version. This amount is defined as the greater of 1 percent of the average of the sum of amounts paid during the base period for any in-house or contract research expenses, or the amounts treated as contract research expenses during the base period, with a floor of 50 percent of the basic research payments made in a year. A “maintenance of effort” amount is added to the base period amount equal to non-designated university contributions adjusted for the cost of living. Any amounts claimed as a BRP may not also be claimed as a QRE for the purpose of the calculating the main incremental credit.

The third and final element of the credit available pertaining to energy research consortiums was added in 2005. An energy research consortium is any tax-exempt non-profit organization that conducts energy research in the public interest. Any amounts claimed under this credit may not also be claimed under the first two credits. The third credit is more valuable than the first two because the credit percentage may be applied to the full amount of payments rather than just the excess over a base amount.

In addition to the R&D tax credit, the Internal Revenue Code, Section 174, allows taxpayers to deduct research and experimental expenses from their taxable income. However, beginning in 1989 Section 280C(c) states that the amount of research expenses taken as a credit may not be also deducted in a given tax year. Taxpayers have the option of either reducing the amount of research expenses they deduct by the amount of R&D credit they claim, or deducting the full amount of expenses and reducing their credit by the



Statutory credit percentages range from 1.25 percent in North Carolina (for total rather than excess QREs) to 40 percent in Louisiana (for small businesses), with 10 percent, or half of the federal rate, being the most common rate. Six states (Arizona, Indiana, Minnesota, Ohio, Rhode Island, and Virginia) offer tiered rates, with the percentage decreasing at some dollar amount of excess QRE. Ten states (Arkansas, Connecticut, Louisiana, New Hampshire, New York, North Carolina, Pennsylvania, and Wisconsin) offer higher rates for businesses based on their size or businesses performing research in a certain industry. Seven states (Arizona, California, Connecticut, Maine, Massachusetts, Nebraska, and Utah) offer a higher percentage for BRPs, rather than QREs.

A majority of states (31) use the federal definition of QRE from the Internal Revenue Code, Section 41, with a modification to include only expenses incurred within the state. Only five states (Colorado, Kentucky, New Hampshire, Washington, and West Virginia) substantially depart from the federal QRE definition. Some are narrower; New Hampshire and Washington only include certain industries, while some are broader; West Virginia's statutory definition includes many expenses not eligible for the federal credit and Kentucky's credit applies to the costs of constructing, equipping, or expanding facilities used for R&D. In contrast, much more variation exists in state's definition of the base amount for purpose of the credit. Eighteen states use the Section 41 definition with an adjustment to apply to in-state expenses. Washington uses 0.92 percent of taxable income as its base amount. Seven states use some form of a prior year(s) moving average base, which as previously discussed, substantially reduces the effective rate of the credit. Another alternative, used by four states (Alaska, Delaware, Nebraska, and New York), is to allow taxpayers to claim some percentage of their federal credit. Four states (Connecticut, Delaware, Oregon, and West Virginia) employ a dual base, where either different rates apply to two different base amounts or taxpayers can elect to claim the greater of two methods for computing the value of their credit. Finally, two states (Kentucky and North Carolina) have non-incremental credits and consequentially do not define a base period.

Nine states make some portion of their credit refundable. The credit's refund ability comes with no preconditions in Iowa, Louisiana, Minnesota, Nebraska, and Virginia, while Arizona, Connecticut, and West Virginia make the credit refundable for small businesses. Massachusetts offers a partial refund for companies performing research in certain fields.

Seventeen states place a cap on their non-refundable credits, either through a percentage of tax liability or nominal dollar amount. Seven states limit the total amount of credits that may be claimed statewide in a year, with caps ranging from \$1 million in New Hampshire to \$55 million in Pennsylvania. These states include some mechanism to proportionally reduce all taxpayers credit amounts in years that total claims exceed the statewide cap. Every state that offers a non-refundable credit except Washington allows unused credits to be carried forward to future tax years. On average, the credit may be carried forward for 10 years, while Kentucky offers unlimited carry forward and North Dakota allowing the credit to also be carried back for three years.

Some states choose to depart from the typical QRE model of business tax incentives. Mississippi and Oklahoma both offer a credit per employee hired by an R&D company. Montana exempts new R&D companies from corporate income tax for the first five years they operate in the state. New Mexico offers a credit for small R&D companies equal to all gross receipts taxes (the state's version of the sales tax) or 50 percent of all withholding taxes paid on behalf of their employees. A business must employ fewer than 25 employees and have receipts less than \$5 million to be eligible for the credit.

Monitoring provisions are an important feature of state R&D tax credits. Similar to the federal credit, 12 states have some form of sunset or expiration date for their R&D credit in statute. These expiration dates serve as a prompt for lawmakers to review the performance of the credits and to decide if their efficacy merits their continuation. In addition, 14 states require either the taxpayers to submit an application for approval before claiming the credit or upon receiving the credit submit data on economic indicators such as jobs created or capital investment tied to the R&D performed by the company. In addition, many states publish statistics on the number, type, and value of R&D credit claims in the state and on what companies claim the credit.

Sales tax exemptions are another type of incentive states use to encourage R&D activity. Five states (Alaska, Delaware, Montana, New Hampshire, and Oregon) do not levy a state sales tax. Of the remaining 45 states, 27 have some type of sales tax incentive specifically for R&D. Most apply broadly to tangible personal property used in R&D, but some special exemptions exist. Connecticut only exempts 50 percent of the value of machinery and equipment, while North Carolina offers a reduced sales tax rate. Utah exempts the materials used in the construction or expansion of R&D facilities. Finally, four states (Missouri, Oklahoma, Washington, and

Wisconsin) restrict their exemption to specific industries or fields of research.

Minnesota was the first state to enact a R&D tax incentive in 1981. Since then, nearly every state has enacted some type of incentive for R&D and subsequently repealed, modified, or expanded the incentive. Several states have made adjustments in recent years. Florida's business tax credit was first available in 2012, making it the newest state R&D tax incentive. Illinois and New Hampshire both extended impending sunset dates for their credits, while Hawaii allowed its credit to sunset at the end of 2010. Utah reenacted its business tax credit in 2012, after allowing it to expire for one year in 2011. Minnesota made its credit refundable in 2010 and included additional entities in the list eligible for the credit. New Jersey has removed the 50 percent of tax liability cap that previously existed for its credit. Virginia replaced its non-incremental, non-refundable R&D credit that expired in 2010, with a smaller incremental, refundable credit. In 2012, Wisconsin added a "super credit" calculation for QREs that were more than 125 percent of the base amount. Michigan underwent a broad business tax reform in 2012 and (similarly to Texas) did not include a previously available R&D credit in the new version of its state business tax. As for sales tax incentives, in 2012 Utah and Wisconsin became the

most recent states to exempt R&D equipment, while Colorado recently removed R&D equipment from the list of items eligible for sales tax refunds in certain years.

Isolating the effects of state tax incentives on R&D spending in a state is difficult to measure. Numerous factors influence a company's spending and location decision such as competitors spending on R&D, the overall tax burden, skill of workforce, quality of life, and infrastructure. However, it is still meaningful to examine the distribution of R&D spending in the U.S.. **Figure A2** (Appendix) displays data on state R&D spending for 2008, the most recent year data is available from the National Science Foundation (NSF). R&D intensity, the ratio of state R&D spending to the gross state product (GSP), is a measure designed to normalize R&D spending in a state by the size of the state's economy. High intensity R&D states are mostly clustered in the Northeast and West Coast regions. It should be noted that Texas ranks as the third highest in the country for total R&D spending and twenty-eighth highest when that spending is adjusted for state GSP, which is the top ranking amongst states that do not offer any R&D tax incentives. **Figure 6** shows the history of R&D spending in Texas. The state's national ranking in both total R&D spending and R&D intensity has remained relatively constant over the last two

**FIGURE 6**  
**R&D EXPENDITURES MADE IN TEXAS, CALENDAR YEARS 1987 TO 2008**

CALENDAR YEAR	R&D SPENDING (MILLIONS)	RANK	GROSS STATE PRODUCT (MILLIONS)	R&D INTENSITY	RANK
1987	\$5,454.7	7	\$300,667.0	1.81%	N/A
1989	\$6,581.7	6	\$349,952.0	1.88%	N/A
1991	\$6,635.3	7	\$393,574.0	1.69%	N/A
1993	\$6,965.9	8	\$430,973.0	1.62%	28
1995	\$8,384.5	6	\$514,206.0	1.63%	30
1997	\$9,487.3	6	\$606,982.0	1.56%	N/A
1998	\$10,774.1	6	\$634,286.0	1.70%	N/A
1999	\$12,429.2	4	\$684,936.0	1.81%	26
2000	\$11,552.4	7	\$742,274.0	1.56%	28
2001	\$12,722.0	5	\$763,874.0	1.67%	31
2002	\$14,223.0	4	\$773,455.0	1.84%	28
2003	\$14,785.0	4	\$821,943.0	1.80%	30
2004	\$14,266.0	5	\$903,208.0	1.58%	30
2005	\$15,867.0	4	\$989,333.0	1.60%	30
2006	\$17,059.0	4	\$1,068,119.0	1.60%	30
2007	\$17,853.0	4	\$1,148,531.0	1.55%	30
2008	\$20,316.0	3	\$1,196,771.0	1.70%	28

NOTE: Prior to 1998, data was only collected every other year. R&D Intensity Rankings not available for every year.  
SOURCE: National Science Foundation.

decades, both before, during, and after the timeframe the credit was available in Texas. A recent NSF article offers a potential explanation for this trend: “These below-average R&D intensity states reflect a higher concentration of less R&D-intensive industries within these states: oil and gas extraction in Texas, financial services in New York, and wholesale trade and financial and professional services in Illinois.” Unfortunately, sub-industry level data on R&D employment is not available at the state level. According to Current Employment Statistics data from the U.S. Bureau of Labor Statistics, the Management, Scientific, and Technical Consulting Services industry (of which R&D jobs are a subset) employment level has been less than 1 percent of all private non-farm jobs in Texas for the last two decades.

### TEXAS R&D TAX INCENTIVE

The Seventy-sixth Texas Legislature first implemented an R&D specific tax incentive in 1999. According to a Federal Reserve Bank of Dallas study, 21 other states had some type of R&D tax credit at the time. The calls for following other state’s lead on R&D incentives came against the backdrop of a booming economy, both at the state and national level. Annual increases in Texas GSP well above average for several consecutive years led to state revenue collections exceeding estimates throughout the late 1990s. In January 1999, at the beginning of the Seventy-sixth Legislative Session, the Comptroller of Public Accounts forecast an ending balance of \$4.4 billion in General Revenue Funds for the 1998–99 biennium, or 9 percent of biennial General Revenue Fund appropriations. The surplus, combined with growing pressure from other states expansion of R&D incentives and lower than average R&D spending in Texas, prompted several members to introduce legislation<sup>1</sup> that would have implemented various types of tax incentives.

Ultimately, the Seventy-sixth Legislature passed Senate Bill 441, a major piece of tax legislation that contained several sales tax exemptions and franchise tax credits, including a tax incentive for R&D expenditures. The legislation amended the Texas Tax Code by adding Subchapter O to Chapter 171, which statutorily defined the characteristics of the R&D incentive. Texas closely followed the federal calculation of the credit in the Internal Revenue Code, Section 41. QREs, BRPs, and base amount were all construed using the federal definition with an adjustment to apply only to expenses and

1 HB 62 would have exempted R&D equipment for manufacturers. HB 63, HB 755, HB 980, HB 2730, SB5, SB 492, and SB 704 all would have implemented various versions of an R&D franchise tax credit.

payments made in the state. The percentage amount for the credit was phased in at 4 percent for the first two years and 5 percent every year after. The amount of R&D credit claimed in a year was capped at 50 percent of tax liability, while the sum of all franchise tax credits claimed was capped at 100 percent of liability, however unused credits were allowed to be carried forward for 20 years. Texas lawmakers added a unique characteristic to its incentive; taxpayers performing qualified research in a Strategic Investment Area<sup>2</sup> were allowed to multiply their QREs and BRPs by two for the purpose of calculating the credit.

Initially, the credit was set to sunset at the end of tax year 2009, however in 2005, the Supreme Court of Texas mandated the Legislature to reform the state’s public school finance system, specifically by giving school districts meaningful discretion in setting their property tax rates. The Governor appointed a former Comptroller of Public Accounts to lead the Texas Tax Reform Commission, with the goal of developing a proposal to provide long-term property tax relief and a stable finance mechanism for public schools in Texas. The commission proposed a large overhaul of the franchise tax that included eliminating the tax credit for R&D expenses. The enactment of House Bill 3, Seventy-ninth Legislature, Third Called Session, 2006, codified the commission’s recommendations concerning the franchise tax, making substantial changes to the tax structure. Beginning in 2008, taxpayers were no longer able to earn R&D tax credits, but could still claim unused credits from prior years until December 31, 2027, effectively until the credits were exhausted.

Senate Bill 441 also enacted a monitoring provision by requiring the Comptroller of Public Accounts to submit a report at the beginning of each regular legislative session that included, for each of the tax credits enacted in the bill, data on the amount of credits earned and claimed, the industrial and geographic distribution of the credits, and the impact of the credits on the Texas economy. **Figure 7** and **Figures A3** and **A4** (Appendix) show data on the R&D credit from the CPA’s 2007 report on the Senate Bill 441 credits. Texas taxpayers have saved \$270.8 million in franchise tax using the R&D credit over the past 11 years. From 2001 to 2006, the total amount of QREs by corporations claiming a tax credit was \$18.3 billion. During the same period, taxpayers earned \$448.2 million worth of credits and the average reduction of tax owed as a result of the application of the

2 These areas were either (1) a county with unemployment above the state average and personal income below the state average, or (2) a federally designated urban enterprise community.

**FIGURE 7  
TEXAS R&D FRANCHISE TAX CREDITS FROM SENATE BILL  
441, REPORT YEARS 2001 TO 2011**

REPORT YEAR	R&D CREDITS EARNED (MILLIONS)	R&D CREDITS CLAIMED (MILLIONS)	PERCENTAGE OF FRANCHISE TAX REVENUE
2001	\$79.3	\$10.4	0.5%
2002	\$85.2	\$15.4	0.8%
2003	\$95.3	\$17.4	1.0%
2004	\$71.5	\$15.6	0.9%
2005	\$66.7	\$21.5	1.0%
2006	\$50.2	\$32.9	1.3%
2007	N/A	\$41.2	1.3%
2008	N/A	\$55.1	1.2%
2009	N/A	\$31.1	0.7%
2010	N/A	\$15.6	0.4%
2011	N/A	\$14.7	0.4%
<b>Total</b>	<b>\$448.2</b>	<b>\$270.8</b>	

NOTE: A credit is considered earned when the taxpayer files a tax return that establishes the excess QREs subject to the credit, while the amount of the credit used to reduce their tax liability is considered claimed. Due to the 50 percent cap, they may not be able to claim all of an earned credit in a year and thus carry it forward to future years. Since the repeal of the ability to earn credits effective in 2008, all of the amounts claimed are unused credits from prior years, these amounts should steadily decline in future years.

SOURCE: Comptroller of Public Accounts.

credit was 24.4 percent. Just over half of the R&D credits earned (\$238.6 million) were in the manufacturing industry, with another 26 percent being claimed by the business services industry (\$117.1 million). Research expenditures were mostly clustered in metropolitan areas, with the five largest counties by QRE accounting for 88 percent of all QREs. These five counties, in order of total expenditures, were Travis, Dallas, Collin, Harris, and Tarrant.

Legislation was introduced in the Eighty-first Legislature, Regular Session, 2009, to again offer tax incentives for R&D in Texas, but it failed to become law. Senate Bill 885 would have temporarily reinstated, for three years, the version of the R&D franchise tax credit that existed prior to 2007. The fiscal note for Senate Bill 885 projected lost franchise tax revenue from the Property Tax Relief Fund of \$50.4 million during the 2012–13 biennium. Absent any specific directive otherwise in future legislation, this would increase the cost of General Revenue Funds for the Foundation School Program by an equal amount. In addition, House Bill 1996 would have created a sales tax exemption for tangible personal property used directly in research or development by a person

primarily engaged in manufacturing, telecommunications, or the performance of scientific or technical services related to manufacturing or telecommunications. The fiscal note for House Bill 1996 projected a loss of sales tax revenue from the General Revenue Fund of \$199.1 million during the 2012–13 biennium.

### COSTS AND BENEFITS

The increasing number and variety of R&D tax incentives in recent years has given rise to a growing body of studies analyzing the costs and benefits of these incentives to state and federal governments. In the past research has focused on the federal credit, however in recent years several studies have examined the state incentives as policy makers seek data and evidence on the efficacy of the incentives while deciding whether to modify, expand, or curtail their incentives for R&D. The statutory requirement for this report, for example, was a recommendation from the Senate Finance Committee’s Interim Report to the Eighty-second Legislature in response to the interim charge to review the effect of Texas business tax credits. Several other states, such as Iowa and California, as well as numerous research economists have conducted similar studies. The remainder of this section will summarize several of the more recent reports on R&D tax incentives, both at the federal and state level.

A majority of research on the federal credit has focused on estimation of the elasticity of a company’s research expenditures with respect to its research costs. The higher the elasticity, the more effective the credit will be in stimulating additional expenditures as any tax incentive represents a direct decrease in a company’s research costs. Empirical studies have been in general agreement that this elasticity is at or greater than one, signifying that \$1 in marginal R&D tax credit awarded induces more than \$1 of extra R&D expenditures by companies. Two recent reports provide an overview of existing research on federal credits: Hall and Reenen aggregate past work measuring the effect of government tax incentives on stimulating R&D investment, while Hall, Mairessee, and Mohnen review work on measuring the private and social returns to R&D as method to determine the spillover benefits of R&D investment. A 2009 report from the Government Accountability Office (GAO) examines several problems with the federal credit and

proposals for congressional action to address the issues. These problems include the lack of any update to the base for the regular credit since 1989, compliance burdens from the need to keep detailed records, and lack of clarification regarding the classification of certain items as QREs. As a solution, the GAO suggests eliminating the regular credit, adding a minimum base to the alternative simplified credit calculation, and issuing additional regulations clarifying the definition of QREs. Since many states mimic the federal version of the credit to some extent, these issues should be of interest to state policy makers as well.

Iowa has one of the most extensive single state analyses, which in 2005 gave an appropriation to its Department of Revenue (DOR) to create the Tax Credits Tracking and Analysis Program to track credit awards and claims. As part of the program, Iowa published a detailed study in 2001 that specifically evaluates its R&D incentive program. As part of the study, the Iowa DOR surveyed a large number of Iowa companies about their research activities. The state business tax climate ranked second amongst the importance of various factors in research location decisions, behind only quality of the workforce. Iowa has one of the most generous R&D credits in the country<sup>3</sup>. However, research from the Iowa State Department of Economics used several indirect measures of R&D performance to determine the state's overall competitive position in regards to R&D and found Iowa lags national average levels and that the rate of high technology firm growth is not sufficient to use the surplus of highly trained graduates in R&D related fields produced by the state's universities. The research results give evidence that, despite the generous credit, R&D intensity and high technology employment levels are also below the national average.

The New Hampshire R&D credit has also been individually evaluated in the context of the cost and benefit to the state from the incentive program in a study by Gittel and Tebaldi. New Hampshire was an interesting state to study as one of the few states that previously allowed a R&D credit, repealed the credit, and was considering reenactment at the time of the study. The authors claim interest in reinstating the credit was spurred by New Hampshire's declining ranking in state R&D expenditures and an Ernst and Young study in neighboring Massachusetts that showed in 2003 a \$72.1

<sup>3</sup> Total R&D credit claims made by corporations in Iowa have ranged from 13 percent to 28 percent of total business tax collections over the past decade. For comparison, R&D credits in Texas were approximately 1 percent of total business tax collections during the life of the credit.

million R&D tax credit created 2,000 jobs and \$100 million in personal income, but also concluded the additional tax revenue from the additional jobs did not offset the foregone tax revenue from the credit. The authors used the popular economic analysis model REMI to gauge the costs and benefits to New Hampshire of a proposed R&D tax incentive, which was capped at \$1 million in credits awarded annually. The model simulations forecast an increase of 73 jobs, \$5 million in GSP, \$1.8 million of R&D investment and \$0.05 million in additional tax revenue (much less than the \$1 million of foregone tax revenue). Therefore, the study concluded the credit would have a positive effect on the economy but a negative effect on the state budget.

The California R&D credit, due to both the size of the credit and the states position as the leader in R&D spending, has received large amounts of interest. In 1999, a detailed study of the California credit examined whether the credit played a role in encouraging more private R&D in the state. The study was neutral on the effect of the credit, but took issue with the incremental design, stating the benefits of the R&D credit were distributed unevenly amongst companies in an artificial manner. Also, in a presentation to the California Assembly Revenue and Taxation Committee, the Legislative Analyst Office (LAO) recommended reducing the state's credit or phasing it out over time. LAO claims the difficulty of measuring the public and private benefits associated with whatever additional research is induced by the state credit (which is also complicated to calculate) makes the value to the state unknown and therefore not enough to offset the substantial revenue loss of \$1.6 billion in 2010. It also noted that direct research related spending through California's public universities could be a more cost-effective way of subsidizing R&D. Finally, a 2005 study by Paff used a difference-in-difference model to compare data from California and Massachusetts and the effects of California increasing its statutory credit rate. The study implies that the credit is effective at stimulating QREs, or in-house research, but fails to have the intended effect for BRPs. The study also points out that because of the base amount calculation the credit benefit is unevenly distributed across industries, in a somewhat arbitrary fashion, which should be an important consideration tax incentive design.

In addition to studies on individual state credits, academic research economists have also started to examine the issue of the cross state variation in R&D incentives. Researchers from the University of Chicago at Illinois have published two

papers that study state R&D incentives, one on the ability of state incentives to generate additional R&D expenditures and the other judging the effectiveness of the incentives as an economic development tool. The first study estimates a panel data model using observations on private R&D expenditures and a variety of explanatory variables in 13 states from 1979 to 1995. The results suggest that the presence of an R&D credit in the state (without regards to the design of the credit) generates an additional \$75 to \$118 of additional R&D expenditures per capita. The study also finds a statistically significant positive relationship between the number of degree recipients in science and engineering disciplines in a state and R&D expenditures, thus arguing that state investment in higher education is another useful tool to promote R&D. The second study focuses on the economic development goal of R&D incentives. The study measures the effect of R&D tax incentives on the number of “high-technology” businesses<sup>4</sup> in the state and the share of those businesses in a state using many of the same variables as the previous research. The presence of a R&D incentive program is again significant, increasing the number of high technology establishments in a state by 17 per 1 million of population and increasing the proportion of high technology businesses in a state by 0.07 percent. In both studies, researchers claim their results present the benefits of R&D tax incentives; however, more complete data on the tax expenditures used to finance the incentive programs is needed to perform a comprehensive cost-benefit analysis.

In 2007, the San Francisco Federal Reserve Bank completed one of the first studies that simultaneously examined the effect of each of the different state R&D tax credits. Using an augmented version of the R&D factor demand model, the report estimates the elasticity of R&D spending with respect to both in-state and out-of-state R&D costs. The estimate of the in-state and out-of-state elasticity are of opposite signs, but nearly equal in magnitude, indicating that state R&D tax policy has become what the report refers to as a “zero-sum game.” In other words, state R&D credits shift the location of research spending, but not the magnitude; if one state offers a more generous R&D incentive a company will be more likely to shift research spending it was already performing in one state to the state with a more generous tax incentive. The report indicates the spillover benefit justification is not appropriate for state R&D tax incentives, and that R&D subsidization is more appropriate at the federal level. Conversely, these elasticity estimates indicate

<sup>4</sup> The report includes a list of 39 NAICS industries (30 in manufacturing and 9 in services) he considers “high technology”

the R&D incentives can be an effective economic development tool, since companies are willing to relocate their R&D spending to states with more favorable tax incentives.

Intel’s spokesperson recently commented on its decision to locate a multi-million dollar facility in Chandler, Arizona:

“The R&D tax credit was one of several factors Intel considered in making the decision to build the new R&D facility in Chandler. Policies such as a healthy R&D tax credit help create a business environment which encourages companies like Intel to invest and create jobs here in Arizona.”

Economic development incentives are a powerful driver of a state economy, especially in Texas. Texas has a relatively low overall tax burden, ranking ninth in the most recent Tax Foundation State Business Tax Climate Index. However, this burden is not evenly distributed across types of companies, as shown in another Tax Foundation study ranking Texas only forty-third in terms of total effective tax rate for a new R&D company moving to the state. Similarly, an Ernst and Young study ranked Texas at twentieth for the effective tax rate on new capital investment. These results suggest that economic development incentives have a role to play in luring new investment to the state. This in turn raises the question of whether states should focus their economic development policy on particular industries. Proponents of R&D credits will often cite higher than average wages and economic multipliers as a justification for R&D specific incentives, however several industries, such as financial services, legal services, and oil and gas exploration can make a similar claim, but gain little benefit from R&D incentives. In general, economists agree that tax policy favoring certain industries is sub-optimal, and thus preferred economic development tax incentives are those that are equal and uniform with respect to their treatment of different types of business and do not arbitrarily lower the after tax return on one government chosen investment relative to another investment. Tax incentive programs that offer credits based on a company’s initial capital investment to a wide range of industries, such as the Capital Investment Tax Credit in Alabama are a good example. However, if policy makers do choose to focus incentives on luring new R&D companies to the state, programs offered in Kentucky and Montana that front-load incentives without offering the open-ended financial commitment afforded by incremental expenditure credits, can provide a strong incentive to locate in a state at a lower budgetary cost.

A 2010 study by the University of Southern Mississippi employed a unique approach to examining state R&D credits, estimating the cause of R&D incentive diffusion among the states, as a complement to research examining the effectiveness of the credit. Using event history analysis and hazard modeling, the researchers tested several hypotheses about what drives a state to adopt an incentive. The results indicate that the credits are most often used as an economic development tool in manufacturing intensive states and they are an effective policy for expanding research among existing companies. However, the credits may not be as effective for encouraging high technology startups. The researchers also caution that “policy makers should be aware that there might not be a clear positive net fiscal impact to the state, so nuanced policy analysis is required.”

A final consideration for R&D tax incentives should be the sunset dates, monitoring provisions, and pre-application requirements. Sunset dates exist either as means for legislatures to periodically review the tax incentive or as a method to reduce the overall fiscal impact of legislation. However, many of the reports and studies referenced have cited the temporary nature of these incentives as detrimental to their intended goal; it is difficult for companies to plan R&D expenditure budgets in the future if they are uncertain over the effective tax rate their R&D investment will face over time. These sentiments were expressed by the former Treasury Secretary and CEO of Alcoa Paul O’Neill in remarks to the U.S. Senate Finance Committee with respect to temporary tax incentives:

“I never made an investment decision based on the tax code. If you make an investment for 20 years and you do not know pretty well how that investment is going to pay for the cost of capital, assuming the status quo ante with the tax system, then you are not a businessman, you are a gambler.”

Another way for a legislature to monitor the effectiveness of the incentives is mandatory reporting and pre-approval applications. Many states require the publication of a list of each company and amount of credit they received on an annual basis, and in some states also the amount of job and wage growth, company growth, growth in R&D investment, introduction of new products, and the movement of companies to or from a state. These provisions increase transparency for both taxpayers and legislators. Also, a recent article in the *Weekly State Tax Report* states “...the reality is that at both the federal and state level far too many companies— especially small and medium companies—fail

to realize they are eligible for this tax benefit.” Future credits claimed by these uninformed companies would indicate that to some extent a portion of the credit is taken for R&D expenditures that would have incurred in the absence of the credit, eliminating the both the spillover benefit and economic development justification for the incentive. Many states require companies submit a pre-approval application before the expenses are incurred to eliminate this problem.

**APPENDIX**

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**FIGURE A1  
STATE R&D TAX INCENTIVES, 2012**

STATE	BUSINESS TAX INCENTIVE	SALES TAX INCENTIVE	NOTES
Alabama	None.	None.	No specific R&D credit. A business that falls in certain research related NAICS industries is eligible for a capital investment tax credit of up to 5% of initial capital costs for qualifying projects and is eligible for an abatement of all state and local non-educational portion of the construction related sales tax associated with equipping and constructing a qualified project.
Alaska	Alaska adopts the federal credit by reference. Taxpayers are eligible to claim 18% of the amount of federal credit attributable to Alaska. . Credits may be carried forward for 15 years.	Alaska does not levy a sales tax.	In early 2012, the Alaska House passed a bill implementing a R&D credit similar to the federal credit, but the bill failed to advance in the Senate.
Arizona	Beginning in 2011, a business may claim the Credit for Increased Research Activities equal to 24% of the first \$2.5 million of qualifying expenses (follows the federal definition) plus 15% of the qualifying expenses in excess of \$2.5 million. The credit is capped at \$2.5 million and unused credits may be carried forward for 15 years. Previously the credit was non-refundable, however beginning in 2011 a small business (< 150 employees) may apply for a partial refund of up to 75% of the unused credit. Beginning in 2011 a business may claim an additional credit of 10% of basic research payments to an Arizona state university.	Machinery or equipment used in R&D is exempt from the Transaction Privilege Tax.	In 2018, the percentage credit amounts will revert to 20% and 11% for amounts below and in excess of \$2.5 million, respectively.
Arkansas	A business may claim a credit of 20% of its excess qualified research expenditures (same as the federal credit). The credit is non-refundable, non-capped, and unused credits may be carried forward for 9 years. Arkansas has a larger business tax R&D credit for 3 types of research: A business that (1) contracts with a state university in performing research, (2) is in one of 6 sectors deemed a "targeted business" (generally start-up tech companies), or (3) a business performing research in an "area of strategic value" to the state may claim a credit of 33% instead of the normal 20% offered to all businesses.	None	Arkansas businesses must apply to the Economic Development Commission to receive a R&D tax credit. The business must re-apply every 5 years to continue to claim the credit.
California	The state has a credit for both the personal and corporate income tax for qualified research expenditures above a computed base amount. The credit is 15% and is non-refundable, but unused credits may be carried forward to future years. In addition, corporations may claim a credit of 24% of payments to qualified organizations for basic research.	None	California generally follows the federal definition of "qualified research expenditure" with some modifications, such as the definition of a "qualified organization" and the definition of gross receipts.

**FIGURE A1 (CONTINUED)**  
**STATE R&D TAX INCENTIVES, 2012**

STATE	BUSINESS TAX INCENTIVE	SALES TAX INCENTIVE	NOTES
Colorado	Non-refundable income tax credit equal to 3% of expenditures on research and experimental activity above the average of those expenditures in the prior two years. The research and expenditure definition is based on the federal definition, but is not as strict. 25% of the earned credit may be claimed in the year it is earned and in each of the 3 following years.	None.	Research activity must be performed in an enterprise zone. The credit must be pre-certified by the zone administrator prior to the research expenditures being made.  Prior to 2010, taxpayers were eligible for a refund of sales and use tax paid for property used in R&D if state revenue collections exceeded a certain level (TABOR), however this provision was repealed in 2010.
Connecticut	Includes 3 different business tax credits. (1) 20% of the research and experimentation expenditures (those that may be deducted under Section 174 of the Internal Revenue Code) that exceed the prior year. Credit is non-refundable but may be carried forward 15 years. (2) 25% of the amount spent on grants to Connecticut institutions of higher education for performing R&D activities. (3) A credit may be taken for the total R&D expenses made in a year, with the definition of expenditures including those deductible under Section 174 of the Internal Revenue Code and those defined under Section 41 of the Internal Revenue Code. The amount of the credit increases ratably with the amount of expenses made, starting at 1% for less than \$50 million of expenses and increasing up to 6% for expenses exceeding \$200 million. Qualified small businesses are eligible for the 6% credit regardless of total expenditures. No more than 1/3 of the amount of credit earned may be claimed in a year and the amount of credit claimed may not exceed 50% of tax liability, but unused credits may be carried forward to future years.	50% exemption for machinery and equipment used in R&D in furtherance of manufacturing tangible personal property.	If a company claims credit (3) and either (1) or (2), they must the amount of allowable expenditures claimed for credit (3), by the amount of excess expenditures they claimed for either (1) or (2).
Delaware	Taxpayers are eligible to claim a credit equal to either (1) 10% of their qualified R&D expenditures over a base amount, or (2) 50% of the amount of their federal R&D tax credit apportioned to Delaware. Qualified research follows the definition in Section 41 of the Internal Revenue Code. Credits claimed in a year may not exceed 50% of a taxpayer's tax liability and unused credits may be carried forward for 15 years. The total amount of credits claimed by all taxpayers may not exceed \$5 million in any fiscal year.	Delaware does not levy a sales tax.	Taxpayers must apply to the Director of the Department of Revenue to claim the credit. The tax credit currently sunsets on December 31, 2013.
Florida	Credit equals 10% of qualified research expenses over the average of qualified research expenses made in the preceding 4 years. The definition of qualified research expenses follows the federal definition in Section 41 of the Internal Revenue Code. Credits may not exceed 50% of tax liability in a year, and unused credits may be carried forward for 5 years. Total credits taken by all taxpayers may not exceed \$9 million in any one year.	Tangible personal property for use directly and solely in R&D is exempt for the state sales tax. Machinery and equipment used predominately for R&D are exempt from the state sales tax.	The credit was enacted in 2011 and will be first available for tax year 2012, making it the newest state R&D tax credit.

**FIGURE A1 (CONTINUED)**  
**STATE R&D TAX INCENTIVES, 2012**

STATE	BUSINESS TAX INCENTIVE	SALES TAX INCENTIVE	NOTES
Georgia	If a taxpayer claims a federal R&D tax credit, they are eligible for a state credit of 10 percent of qualifying research expenses above a base amount. Qualifying research expenses follow the federal definition in Chapter 41 of the Internal Revenue Code, except that all wages paid and services and supplies purchased must be made in Georgia. The base amount is the current year Georgia gross receipts multiplied by the average ratio of state research expenses to state gross receipts for the prior 3 years, or 0.3, whichever is less. Credits may not exceed 50% of tax liability in a year, and unused credits may be carried forward for 10 years.	None.	New business enterprises in their first 5 years can use unused credits against state payroll withholding.
Hawaii	None.	None.	Hawaii previously provided a 20% refundable credit for qualified research activities, which expired on December 31, 2010.
Idaho	Non-refundable credit of 5% of qualified research expenses for research conducted in Idaho over the base amount and 5% of basic research payments. Qualified research expenses, base amount, and basic research payment definitions follow section 41 of the Internal Revenue Code. Credits may be carried forward for 14 years.	Tangible personal property primarily used in R&D activities is exempt from the state sales tax.	
Illinois	Non-refundable credit of 6.5% of qualifying research expenditures above the average of the previous three years qualifying research expenditures. Qualifying research expenditures follow the definition in Section 41 of the Internal Revenue Code. Unused credits may be carried forward for 5 years.	None.	Illinois recently extended the sunset date of its research tax credit from 2011 until 2016.  In the past, Illinois provided an exemption from the sales tax for tangible personal property used in R&D from July 1, 2007 to June 30, 2008.
Indiana	Research expense credit is equal to 15% of the first \$1 million of qualified research expenses over a base amount and 10% of excess qualified research expenses above \$1 million. Qualified research expense follows the definition in section 41 of the Internal Revenue Code; however, the base amount is a modification of the federal definition by including only Indiana qualified research expenses and gross receipts in the calculation of the taxpayers fixed base percentage and average annual gross receipts. The credit is non-refundable and may be carried forward for 10 years.	Beginning June 30, 2007 tangible personal property used for R&D equipment is exempt from the sales tax.	Indiana allows taxpayers engaged in aerospace manufacturing to use the alternative computation allowed under the federal credit definition.
Iowa	Research Activities Credit equal to 6.5% of qualified research expenditures in the state above a base amount. Qualified expenditures and base amount definitions follow section 41 of the Internal Revenue Code. The credit is refundable. Certain taxpayers can apply to the Economic Development Authority to receive a Supplemental RAC that can be as high as 10% depending on the size of the business.	The sale of computers, machinery, and equipment directly and primarily used in R&D of new products or processes of processing is exempt from the state sales tax.	Taxpayers can elect to calculate the credit using the Alternative Simplified Credit calculation, similar to the federal version of the ASC. No prior approval for the credit is required unless the taxpayer wishes to claim the supplemental credit.

**FIGURE A1 (CONTINUED)**  
**STATE R&D TAX INCENTIVES, 2012**

STATE	BUSINESS TAX INCENTIVE	SALES TAX INCENTIVE	NOTES
Kansas	Credit for qualified R&D expenditures equal to 6.5% of expenditures over the average of the current year and prior 2 years expenditures. Qualified expenditures definition follows the federal definition in section 41 of the Internal Revenue, with some exceptions. Credit is non-refundable and 25% of the total amount of credit may be used in a single year. Unused credits may be carried forward until all of the credit is used.	None.	
Kentucky	Non-refundable income tax credit equal to 5% of the qualified costs of constructing, remodeling, or equipping, or expanding facilities conducting qualified research. Unused credits may be carried forward for 10 years. The definition of qualified research follows section 41 on the Internal Revenue Code.	Companies can apply for a refund of sales tax on R&D equipment for certain economic development projects with a minimum \$500 thousand investment.	Total sales tax refunds for all projects may not exceed \$5 million in a single year.
Louisiana	Refundable tax credit based on the number of employees of the taxpayers. Qualified research expenses follow the federal definition in section 41 of the Internal Revenue Code. The base amount equals 70% of the annual average of qualified research expenses made in the preceding 3 years. If a company employees: (1) over 100 employees the credit is 8% of the qualified research expenses in the state in excess of the base amount, (2) between 50 and 99 employees the credit is 20% of the qualified research expenses in the state in excess of the base amount, or (3) less than 50 employees the credit is 40% of the qualified research expenses in the state.	None.	The credit is scheduled to sunset in 2019. All taxpayers must apply to the Department of Economic Development to receive the credit.
Maine	Non-refundable Research expense credit equals to 5% of qualified research expenses in the state over a base amount plus 7.5% of basic research payments in the state. Qualified research expenses and basic research payments follow the definition in section 41 of the Internal Revenue Code. Base amount is the average of qualified research expenditures for the prior 3 years. If tax liability exceeds \$25,000, the credit cannot reduce tax liability below 75% of the amount of tax liability above 25,000, and unused credits may be carried forward for 15 years. Taxpayers can also receive a "super credit" equal to the qualified research expenditures in excess of 1.5 times the base amount. Super credits are limited to 50% of the taxpayer's tax liability and may be carried forward for 5 years.	Sale of machinery and equipment for use in a statutorily defined list of R&D purposes is exempt from the state sales tax.	Individual entities of a combined group can give unused credits to other entities within the group.

**FIGURE A1 (CONTINUED)  
STATE R&D TAX INCENTIVES, 2012**

STATE	BUSINESS TAX INCENTIVE	SALES TAX INCENTIVE	NOTES
Maryland	Taxpayers are eligible a non-refundable credit equal to 3% of total qualified research and expenditure expenses in the state that are less than the base amount plus 10% of qualified research and expenditure expenses in the state in excess of a base amount. Qualified research and expenditure expenses and the base amount follow the federal definition in section 41 of the Internal Revenue Code, adjusted for expenses in Maryland. Unused credits may be carried forward for seven years.	The sale of tangible personal property for use in statutorily defined R&D activities is exempt from the state sales tax.	Taxpayers must file an application with the Department of Business and Economic Development to receive the credit. The total credit amount awarded to all taxpayers cannot exceed \$6 million in a given year. The credits are scheduled to sunset in 2020.
Massachusetts	Business corporations are eligible for a credit of 10% of qualified research expenses over a base amount, and 15% of basic research payments made to research organizations in the state. Qualified research expenses, base amount, and basic research payments all follow the federal definition in Section 41 of the Internal Revenue Code, except only apply to instate expenses. The credit may not reduce a taxpayer's liability below \$456 and a taxpayer cannot earn a credit greater than the first \$25,000 of tax liability and 75% of any liability over \$25,000. Unused credits may be carried forward for an unlimited amount of time.	Sales of materials, tools, fuels, and machinery used directly and exclusively by a R&D corporation are exempt from the state sales tax.	Beginning in 2009, a company certified as a "life science company" is eligible for a refund of 90% of any unused research and expense credits in a given year. Life science companies include areas such as biomedical engineering, medical devices, pharmaceuticals, stem cell research, etc...
Michigan	None.	Tangible personal property used for industrial processing is exempt from the state sales tax. The statutory definition of industrial processing includes research and experimental activities.	Michigan previously allowed a 1.9% R&D credit under the Michigan Business Tax. The MBT was replaced in 2012 with a 6% corporate income tax that does not include a R&D credit.
Minnesota	A refundable credit equal to 10% of first \$2 million of qualified research expenses over the base amount plus 2.5% of the qualified research expenses in excess of \$2 million over the base amount. Qualified research expenses and base amount follow the definition if Section 41 of the Internal Revenue Code, with adjustments made to include only expenses made in the state.	Machinery and equipment used for R&D is exempt from the sales tax.	Minnesota made its credit refundable in 2010 and added more entities to the list that was eligible to receive the credit.
Mississippi	Business or corporation may claim a tax credit of \$1,000 for each full time employee requiring R&D skills for a 5 year period. There is no limit on the number of employees, but the total amount of credit may not exceed 50% of tax liability. Unused credits may be carried forward for 5 years.	None.	Taxpayers must apply to the Department of Revenue to be eligible for the Research and Development Skills Tax Credit.

**FIGURE A1 (CONTINUED)  
STATE R&D TAX INCENTIVES, 2012**

STATE	BUSINESS TAX INCENTIVE	SALES TAX INCENTIVE	NOTES
Missouri	None.	Tangible personal property and utilities purchased for use or consumption directly or exclusively in the R&D of agricultural, biotechnology, plant genomics products, or prescription pharmaceuticals consumed by humans or animals are exempt from the state sales tax.	Missouri previously had a 6.5% incremental credit that expired on January 1, 2005.
Montana	A R&D company is not subject to corporate income taxes for the first 5 years of activity in the state.	Montana does not levy a sales tax.	Montana previously had a 5% incremental, non-refundable tax credit that expired on December 31, 2010.
Nebraska	Two credits are available. (1) A refundable credit equal to 15% of the incremental qualified expenditures federal credit as defined by Section 41 of the Internal Revenue Code and (2) A refundable credit equal to 35% of the basic research payment federal credit as defined by Section 41 of the Internal Revenue Code made to a college or university in Nebraska. Only qualified research expenses made in Nebraska qualify for the credit. The amount of credit may also be used to claim a refund of sales and use tax paid by the taxpayer.	None.	Beginning in 2009, all taxpayers claiming the credit must use the E-verify system to verify the work eligibility status of all employees hired in the year the credit is claimed.
Nevada	Nevada does not levy a business tax.	None.	
New Hampshire	Non-refundable credit equal to 10% of the qualified manufacturing R&D expenses. Total credit for a single taxpayer may not exceed \$50,000 and unused credits may be carried forward for 5 years. Qualified manufacturing R&D expenses and the base amount definitions follow Section 41 of the Internal Revenue Code, except that statutory adjustments are made to include only the manufacturing industry.	New Hampshire does not levy a sales tax.	Taxpayers must apply to the Commissioner of Revenue Administration to be eligible to claim the credit. Total amount of credits awarded to all taxpayers may not exceed \$1 million in any one year. The credit was scheduled to expire on July 1, 2013, however the sunset date was recently extended until 2015.
New Jersey	Non-refundable credit equal to 10% of the qualified research expenses in the state over the base amount and 10% of the basic research payments made in the state. Qualified research expenses, base amount, and basic research payment definitions follow Section 41 of the Internal Revenue Code. Unused credits may be carried forward for 7 years.	Sales of tangible personal property, except energy, and digital property purchased for use or consumption directly and exclusively in R&D in the experimental or laboratory sense are exempt from the state sales tax.	Prior to 2012, the amount of credit claimed in a year could not exceed 50% of tax liability. Beginning in 2012, the amount of credit can reduce tax liability by greater than 50%, as long as tax liability does not fall below the statutory minimum amount of tax due in the state.

**FIGURE A1 (CONTINUED)  
STATE R&D TAX INCENTIVES, 2012**

STATE	BUSINESS TAX INCENTIVE	SALES TAX INCENTIVE	NOTES
New Mexico	A credit for a qualified R&D small businesses equal to sum of all gross receipts taxes or 50% of withholding taxes paid on behalf of employees during a reporting period. To be a small business a business must employ less than 25 employees and have total revenue of no more than \$5 million.	None.	The tax credit expired on June 30, 2009 and was inactive for 2 years. The credit was reenacted on July 1, 2011 and will sunset on June 30, 2015.
New York	Taxpayers must apply to Empire State Development to participate in the Excelsior Jobs Program. If approved, taxpayers may claim a credit for R&D expenses made in New York equal to 50% of their federal research and experimentation credit claimed under Section 41 of the Internal Revenue Code. The credit is capped at 3% of total research and expenditure expenses made in New York. Unused credits may be carried forward for 10 years.	Fuel oil, gas, electricity, refrigeration, and steam; and gas, electric, refrigeration, and steam service used directly and exclusively in R&D is exempt from the state sales tax. Tangible personal property used or consumed directly in R&D is exempt from the sales tax.	The state previously had a 9% credit for qualified research expenses made by qualified emerging technology companies that met certain conditions. The credit expired on December 31, 2011.
North Carolina	Credit for qualified North Carolina research expenses of (1) 1.25% of expenses less than \$50 million, (2) 2.25% of expenses between \$50 million and \$200 million, and (3) 3.25% of expenses above \$200 million. Taxpayers may claim a credit of 20% for any North Carolina University research expense. Beginning in 2011, research performed in an Eco-Industrial Park is eligible for a credit of 35% of eligible expenses. Amount of credit may not exceed 50% of tax liability and unused credits may be carried forward for 15 years.	A R&D company in the physical, engineering, and life sciences is eligible to purchase tangible personal property used for R&D at a reduced sales tax rate of 1%. The statutory sales tax rate is 4.75%	The tax credit is scheduled to sunset on December 31, 2014.
North Dakota	A non-refundable credit equal to 25% of the first \$100,000 of qualified research expenses over the base amount and 8% of all qualified research expenses more than \$100,000 in excess of the base amount. Qualified research expenses and base amount definitions follow Section 41 of the Internal Revenue Code, with adjustments to only include expenses in North Dakota. Unused credits may be carried back for 3 years or carried forward for 15 years.	None.	Prior to 2010, the credit percentage was larger for expenses over \$100,000, but the total credit was capped at \$2 million
Ohio	A non-refundable credit equal to 7% of the qualified research expenses in excess of the average qualified research expenses made in the prior 3 years. Qualified research expense follows the definition under Section 41 of the Internal Revenue Code. Unused credits may be carried forward for 7 years. In addition, taxpayers who have borrowed money through the state's R&D loan fund are eligible for a credit equal to the qualified R&D loan payments made during the previous year. This credit may not exceed \$150,000 in single tax year.	Capitalized tangible personal property used primarily to perform R&D is exempt from the sales tax.	

**FIGURE A1 (CONTINUED)**  
**STATE R&D TAX INCENTIVES, 2012**

STATE	BUSINESS TAX INCENTIVE	SALES TAX INCENTIVE	NOTES
Oklahoma	Taxpayers may claim a non-refundable credit of \$500 per employee for each new employee added in a year engaged in R&D, capped at 50 employees per year. Unused credits in a year may carry forward for 4 years.	Taxpayers in a R&D NAICS industry are eligible for a sales tax refund on the purchase of computers, data processing equipment, related peripherals, telegraph or telecommunications services, and equipment.	The jobs credit expired July 1, 2010, but was renewed on July 1, 2012.
Oregon	Taxpayers can elect to take one of two credits (but not both): A non-refundable credit of 5% of qualified research expenses and basic research payments over a base amount, or a non-refundable credit of qualified research expenses that exceed 10% of Oregon sales. If the second credit is used, the amount of credit is capped at \$10,000 times the percentage amount that qualifying research expenses exceed 10% of Oregon sales. Both credits are capped at \$1 million per taxpayer. Qualified research expenses, basic research payments, and base amount follow the definitions in Section 41 of the Internal Revenue Code, with adjustments made to apply only to Oregon expenses. Unused credits may be carried forward for 5 years.	Oregon does not levy a sales tax.	Oregon recently extended the sunset date of the credit from 2012 to 2018 and reduced the maximum credit per taxpayer from \$2 million to \$1 million.
Pennsylvania	Non-refundable credit equal to 10% (20% for a "small" business, whose total business assets are less than \$5 million) of qualified research expenses over the product of the fixed-base percentage and the average annualized gross receipts of the taxpayer for the previous 4 years. Qualified research expenses follow the definition in Section 41 of the Internal Revenue Code. Unused credits may be carried forward for 15 years or sold to another taxpayer. If sold, the credit cannot exceed 75% of the purchaser's tax liability.	Tangible personal property and services used directly in research having as its objective the production of a new or improved product or utility service or method of producing a product or utility service is exempt from the state sales tax.	Taxpayers must submit an application to the Department of Revenue to receive the credit. The amount of credit to all taxpayers is capped at \$55 million in a year. The credit is currently set to sunset in 2016.
Rhode Island	A non-refundable credit equal to 22.5% for the first \$111,111 of qualified research expenses over the base period, and 16.9 percent for the qualified research expenses in excess of \$111,111 over the base period. Qualified research expenses and base period follow the same definition as Section 41 of the Internal Revenue Code. The credit may not reduce tax liability by more than 50% and unused credits may be carried forward for 7 years. Taxpayers are also eligible for a credit equal to 10% of the cost of tangible personal property, including buildings and components of buildings that are used principally for purposes of R&D.	Scientific equipment, computers, software, and related items used for R&D purposed are exempt from the sales tax.	

**FIGURE A1 (CONTINUED)  
STATE R&D TAX INCENTIVES, 2012**

STATE	BUSINESS TAX INCENTIVE	SALES TAX INCENTIVE	NOTES
South Carolina	A credit equal to 5% of qualified research expenses made in South Carolina. Qualified research expense follows the definition in Section 41 of the Internal Revenue Code. A credit may not reduce a taxpayer's liability by more than 50% in a year and unused credits may be carried forward for 10 years.	Machines used in R&D are exempt from the sales tax.	Taxpayers operating a R&D facility may qualify for a jobs credit depending on the county they are located in.
South Dakota	South Dakota does not levy a business tax.	None.	
Tennessee	None.	None.	R&D enterprises can qualify for a jobs credit based on the number of jobs created and the size of their capital investment.
Texas	None.	None.	Texas previously had an incremental non-refundable credit that was repealed, effective January 1, 2008.
Utah	Non-refundable credit equal to 5% of a taxpayer's qualified research expenses that exceed the base amount and a non-refundable credit equal to 7.5% of basic research payments to a qualified organization. Qualified research expenses, base amount, and basic research payments all follow the definition from Section 41 of the Internal Revenue Code, with an adjustment made to apply to expenses and payments in Utah. The unused portion of the 5% credit may be carried forward for 14 years, but the 7.5% credit may not be carried forward	Construction materials used in the construction of a new or expanding life science R&D facility and machinery and equipment that are used in performing qualified research are exempt from the state sales tax.	Utah's qualified research expenses credit expired in 2011, but was renewed in 2012. The sales tax exemption was enacted in 2012.
Vermont	None.	Tangible personal property used directly or exclusively in R&D is exempt from the state sales tax.	Beginning in 2011, Vermont has a credit equal to 30% of the federal credit for qualified research expenses performed in Vermont. Since the credit is tied to federal version, it also expired in 2012, but will be reinstated if and when the federal credit is reinstated.
Virginia	A credit equal to 15% of the first \$167,000 of qualified research expenses in excess of the base amount or 20% of the first \$175,000 of qualified research expenses in excess of the base amount if the research is conducted in conjunction with a Virginia college or university. Qualified research expenses and base amount follow the definition in Section 41 of the Internal Revenue Code, with an adjustment made to apply only to expenses incurred in the state. Tax credits in excess of a taxpayer's liability are refundable.	Tangible personal property used directly and exclusively in basic research or R&D in the experimental or laboratory sense is exempt from the state sales tax.	A previous version of the credit expired at the end of 2010. The current version was implemented in 2011 and will sunset at the end of 2015. There is a statewide cap of total credits awarded of \$5 million.

**FIGURE A1 (CONTINUED)**  
**STATE R&D TAX INCENTIVES, 2012**

STATE	BUSINESS TAX INCENTIVE	SALES TAX INCENTIVE	NOTES
Washington	A credit against the state Business and Operations (gross receipts) tax is given if taxpayers qualified R&D spending exceeds 0.92 percent of their taxable income during the year. The credit is equal to 1.5% of the difference of these two amounts. The credit is capped at \$2 million per taxpayer, is non-refundable, and may not be carried forward to future years. Washington has its own definition of qualified R&D expenditures and must be performed in one of 5 specific fields.	Sales to a public research institution of machinery and equipment used primarily in a R&D operations are exempt from the state sales tax.	Its credit is scheduled to expire on January 1, 2015. Taxpayers claiming the credit must complete an annual survey with information on the jobs created by the research and the output of the research, such as new products, patents, or trademarks.
West Virginia	A credit equal to the greater of 3% of annual qualified R&D expenditures or 10% of annual qualified R&D expenditures over the base amount. West Virginia has statutory definitions of qualified research and expenditures and base amount that are broader in scope than the federal definition. The credit is refundable for businesses with revenues less than \$20 million and payroll less than \$2.5 million. For other businesses, unused credits may be carried forward for 10 years. Credits are capped at \$2 million per year.	Sales of tangible personal property and services directly used or consumed in the activity of R&D are exempt from the state sales tax.	Taxpayers must apply to the tax commissioner to be eligible to receive the credit.
Wisconsin	A non-refundable credit equal to 5% of the qualified research expenses over the base amount and 5% of the amount paid to construct and equip new facilities or expand existing facilities for qualified research. Qualified research expenses and base amount follow the definition in Section 41 of the Internal Revenue Code with an adjustment made to apply only to expenses in Wisconsin. Unused credits may be carried forward for 15 years. The amount of credit increases to 10% if the research is related to designing internal combustion engines or the design and manufacturing of energy efficient lighting systems, building automation and control systems, or automotive batteries for use in hybrid-electric vehicles. In addition, taxpayers are eligible for a "super" credit equal to 100% of the qualified research expenses over 1.25 times the average of qualified research expenses made in the prior 3 years. The super credit is non-refundable and may be carried forward for 5 years.	Machinery and equipment, including attachments, parts, and accessories, and tangible personal property that are sold to entities engaged primarily in manufacturing or biotechnology in this state and are used exclusively and directly in qualified research.	The super R&D credit was recently enacted in tax year 2011. The sales tax exemption was enacted beginning in 2012.
Wyoming	Wyoming does not levy a business tax.	None.	

SOURCE: Legislative Budget Board.

**FIGURE A2**  
**U.S. RESEARCH AND DEVELOPMENT EXPENDITURES , BY STATE, 2008**

STATE	TOTAL R&D SPENDING	RANK	R&D INTENSITY	RANK
States total	372,660	N/A	2.61	N/A
Alabama	4,870	24	2.85	12
Alaska	269	49	0.54	50
Arizona	7,010	15	2.68	15
Arkansas	747	43	0.75	45
California	81,323	1	4.22	9
Colorado	5,810	21	2.28	21
Connecticut	11,322	12	5.10	5
Delaware	1,594	33	2.73	14
D.C.	5,946	19	6.15	2
Florida	6,515	17	0.87	43
Georgia	5,232	22	1.30	36
Hawaii	663	44	1.00	41
Idaho	1,375	34	2.48	18
Illinois	11,961	10	1.88	27
Indiana	6,111	18	2.32	20
Iowa	2,136	30	1.57	33
Kansas	2,029	32	1.62	30
Kentucky	1,463	35	0.94	42
Louisiana	1,193	37	0.56	49
Maine	516	46	1.02	40
Maryland	16,605	6	5.92	3
Massachusetts	20,090	4	5.53	4
Michigan	15,507	8	4.12	10
Minnesota	6,697	16	2.56	17
Mississippi	808	41	0.84	44
Missouri	3,884	26	1.62	31
Montana	401	48	1.12	39
Nebraska	988	39	1.17	38
Nevada	913	40	0.69	46
New Hampshire	2,496	29	4.24	8
New Jersey	20,713	2	4.28	7
New Mexico	5,906	20	7.58	1
New York	16,486	7	1.48	34
North Carolina	8,612	14	2.13	25
North Dakota	511	47	1.64	29
Ohio	10,164	13	2.15	24
Oklahoma	1,030	38	0.68	47
Oregon	4,802	25	2.83	13

**FIGURE A2 (CONTINUED)**  
**U.S. RESEARCH AND DEVELOPMENT EXPENDITURES , BY STATE, 2008**

STATE	TOTAL R&D SPENDING	RANK	R&D INTENSITY	RANK
Pennsylvania	13,068	9	2.39	19
Rhode Island	1,233	36	2.59	16
South Carolina	2,086	31	1.31	35
South Dakota	254	50	0.67	48
Tennessee	3,871	27	1.57	32
<b>Texas</b>	<b>20,316</b>	<b>3</b>	<b>1.7</b>	<b>28</b>
Utah	2,522	28	2.24	22
Vermont	546	45	2.18	23
Virginia	11,472	11	2.86	11
Washington	16,696	5	4.96	6
West Virginia	778	42	1.27	37
Wisconsin	4,967	23	2.06	26
Wyoming	154	51	0.4	51

SOURCE: National Science Foundation.

**FIGURE A3**  
**TOTAL R&D TAX CREDITS EARNED BY STANDARD INDUSTRIAL CLASSIFICATION, REPORT YEARS 2001 TO 2006 COMBINED**

INDUSTRY	NUMBER OF CORPORATIONS	CREDITS EARNED
Oil and Gas Extraction	18	\$11,035,281
Constructions—special trade contractors	5	94,712
Manufacturing—food and kindred products	18	1,445,156
Manufacturing—chemicals and allied products	40	28,197,422
Manufacturing—petroleum refining	4	2,307,464
Manufacturing—stone, clay, glass, and concrete	6	616,585
Manufacturing—primary metals	11	18,162,833
Manufacturing—fabricated metal products	22	3,324,906
Manufacturing—machinery and computer equipment	44	8,058,185
Manufacturing—electronics	66	158,488,296
Manufacturing—transportation equipment	14	6,238,358
Manufacturing—instruments	31	3,521,225
Miscellaneous manufacturing	36	8,258,533
Communications	22	17,955,624
Wholesale trade—durable goods	49	25,437,622
Wholesale trade—nondurable goods	29	5,382,003
Retail Trade—food stores	5	477,275
Retail Trade—home furnishings and furnishings	22	9,755,103
Miscellaneous retail	27	2,464,349
Business services	235	117,099,275
Health services	5	237,071
Engineering/accounting/research services	77	14,153,902
Miscellaneous services	4	90,170
Other	33	5,442,885
<b>Total</b>	<b>823</b>	<b>\$448,244,235</b>

SOURCE: Comptroller of Public Accounts.

**FIGURE A4**  
**TEXAS COUNTY DISTRIBUTION OF QUALIFYING R&D EXPENDITURES, REPORT YEARS 2001 – 2006 COMBINED**

COUNTY	R&D EXPENDITURES	COUNTY	R&D EXPENDITURES
Angelina	\$636,307	Kendall	\$975
Aransas	1,157,782	Kerr	117,476
Austin	82,029,115	Kleberg	12,904
Bandera	327,042	Leon	3,616,650
Bell	31,212,865	Liberty	19,310,029
Bexar	184,965,136	Limestone	5,528,530
Borden	147	Lubbock	2,970,447
Bosque	533,176	McLennan	39,655,587
Brazoria	99,768,542	Medina	2,611
Brazos	19,161,587	Midland	564,197
Burnet	5,405,868	Montgomery	279,474,131
Caldwell	1,255,690	Moore	6,355,092
Calhoun	280,882,760	Nacogdoches	1,954,431
Cameron	116,568,824	Navarro	1,421,563
Chambers	7,055,588	Nueces	1,448,716
Collin	2,330,077,293	Orange	36,179,351
Colorado	1,018,155	Palo Pinto	983,442
Comal	27,363	Panola	483,785
Dallas	5,369,960,063	Parker	9,899,157
Deaf Smith	1,150,607	Potter	3,014,933
Denton	29,953,148	Randall	320,075
Ector	3,538,767	Rockwall	3,472,300
Ellis	141,894	Runnels	38,058
El Paso	7,768,645	Scurry	1,062,955
Fannin	1,591,598	Smith	75,597,256
Fayette	853,432	Starr	10,371
Fort Bend	379,404,040	Stephens	289,072
Galveston	29,226,807	Tarrant	1,060,584,643
Gillespie	2,977	Taylor	114,219
Gonzales	1,390,068	Terrell	51,454
Grayson	25,052,678	Tom Green	102,406,071
Gregg	890,892	Travis	5,693,755,630
Guadalupe	1,522,621	Uvalde	820,098
Hale	1,878,817	Victoria	4,937,592
Harris	1,628,384,547	Walker	1,843
Harrison	3,486,185	Waller	8,140,389
Haskell	24,855,074	Washington	80,638
Hays	2,926,467	Webb	13,758
Hidalgo	70,054	Wharton	436,749

**FIGURE A4**  
**TEXAS COUNTY DISTRIBUTION OF QUALIFYING R&D EXPENDITURES, REPORT YEARS 2001 – 2006 COMBINED**

COUNTY	R&D EXPENDITURES	COUNTY	R&D EXPENDITURES
Hood	28,878	Wichita	13,724,407
Houston	64,830,301	Wilbarger	625,765
Hunt	40,868,884	Williamson	48,507,642
Jefferson	67,323,448	Wilson	3,108,771
Johnson	969,532	Winkler	3,159
Kaufman	22,875		
<b>Total</b>	<b>\$18,281,273,461</b>		

SOURCE: Comptroller of Public Accounts.

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