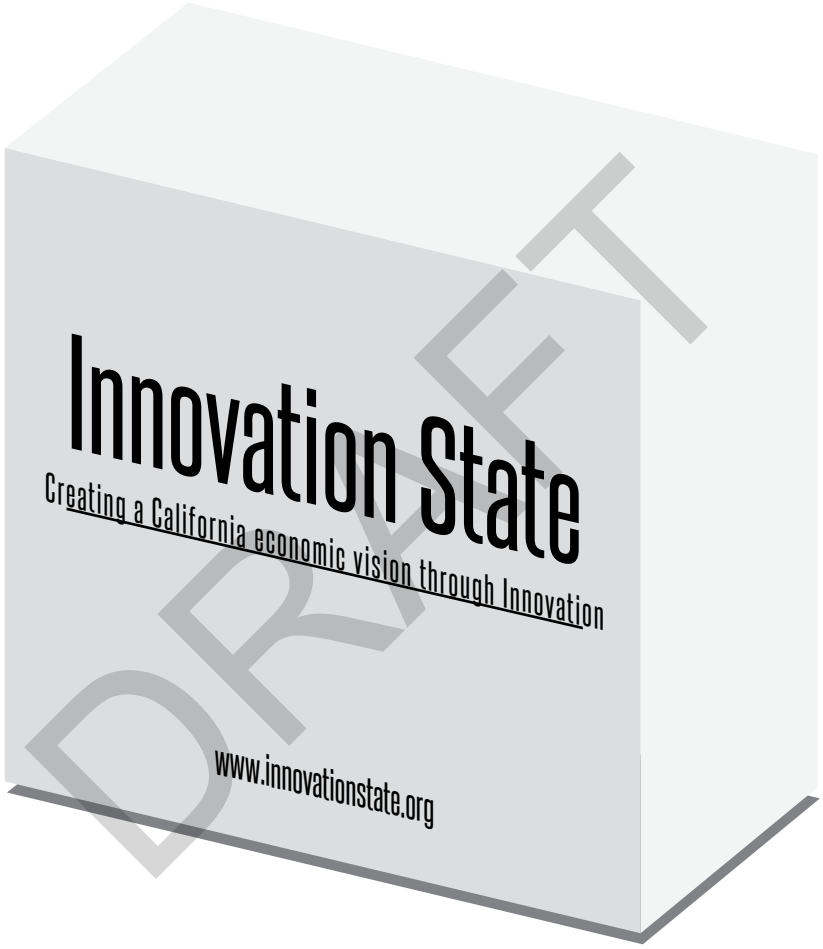
INNOVATION STATE

Increasing California's R&D Tax Credit

Empowering California's Economic Engine



Innovation State is a Sacramento based nonprofit, nonpartisan organization focused on creating an economic vision for California.

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CALIFORNIA'S DOMESTIC INNOVATION STANDING

	RANK	SCORE
Overall Innovation Ranking	4	79.1%
KNOWLEDGE JOBS		
Information Technology Jobs	10	2.1%
Manager, Professional and Technical Jobs	9	32.9%
Workforce Education	16	0.43
Immigration of Knowledge Workers	36	12.0
Migration of U.S. Knowledge Workers	12	14.0
Manufacturing Value Added	8	12.8%
GLOBALIZATION		
Foreign Direct Investment	25	2.9%
Export of Manufacturing and Services	15	$62,481
ECONOMIC DYNAMISM		
Fast Growing Firms	5	.019%
Initial Public Offerings	8	6.15
DIGITAL ECONOMY		
Online Population	9	84.2%
E-Government	5	93.3
Broadband Telecommunications	13	6.08
Health IT	40	25%
INNOVATION CAPACITY		
High-Tech Jobs	5	6.0%
Scientists and Engineers	6	4.6%
Patents	4	1.63
Industry Investment in R&D	5	4.7%
Non-Industry Investment R&D	11	.7%
Green Economy Movement	23	4.98

Data via ITIF.org

INCREASNG CALIFORNIA'S R&D TAX CREDIT

AN ANALYSIS OF R&D TAX CREDITS IN THE UNITED STATES AND THE ECONOMIC IMPACTS OF INCREASING CALIFORNIA'S R&D TAX CREDIT 15% INCREMENTALLY OVER FIVE YEARS

"It is not the strongest of the species that survive, nor the most intelligent, but the ones most responsive to change."

- CHARLES DARWIN

FOUNDER COMMENTS

As Californians we must ask ourselves, how do we create a more prosperous California, how do we regain our title as a world economic power on the cutting edge of fresh new ideas and products. What is it going to take to revitalize California's business climate from being consistently ranked the worst place to do business in the United States, to the best? One part of this equation is implementing the largest state research and development tax credit (RDC) in the United States.

By incentivizing even more R&D activities within the state, California will be encouraging companies to conduct business with the intent of making a breakthrough discovery that leads to the development of a new or improved product or procedures. From the Austrian Economist, Joseph Schumpeter, "Every piece of business strategy... must be seen in its role in the perennial gale of creative destruction; it cannot be understood irrespective of it." R&D is the root of 'creative destruction' of old technologies with the replacement of new ones, and California's businesses depend upon it for future growth.

California's Legislature must begin taking steps to ensure prosperity by supporting the businesses that will continue to innovate. What we need now is a strategic plan centered on the innovation economy to power California's economic engine.

Today, California faces intense global competition for economic advantage, particularly in innovation-based, and higher-wage industries, with more than 43 states offering RDCs, and countries such as China, offering 150% R&D super deductions.

The research findings in this white paper illustrate California's need to make a clear statement that it will no longer stand idle as other states and countries continue to entice companies out of the state. Empirical studies vary on the overall effectiveness of RDC's, but the majority of reports are positive, with few showing a negative net gain.

-Paul Gladfelty

INNOVATION MAKES CALIFORNIA THE GOLDEN STATE

$49 BILLION R&D

$176 BILLION T.E.I.

Why Innovation?

The heart of launching any new product or service is to do the necessary research and development to ensure success. California needs to be a partner in that success by recognizing that the individuals or companies that risk their capital should be provided with offsetting tax incentives. Increasing the R&D tax credit provides that additional incentive to compete for talent and research that could be conducted anywhere in the world.

By increasing the RDC by 15% incrementally over a five year period, California will be able to accelerate R&D by an additional $49 billion. The $49 billion in additonal R&D will also create additonal economic spillover effects estitmated to exceed over $176 billion in the total economic impact estimates.

The majoirty of empircal studies indicate that increasing a states RDC's does increase the amount of R&D that the state will attract. Among other factors of labor, industry clusters, and general tax climate of the state, all are calculated before an established company decides to build a new R&D facility.

California can reclaim the innovation economy by bringing together the correct package of incentives.

KEY RDC FINDINGS

- For every 1% increase in effective RDC rate results in an increase of in-state R&D activity of around 1.7% in the short run and 3% in the long run.[1]

- An incremental 3% increase for both basic and qualified RDC every year for five years is estimated to create an additional $16 to $49 billion in additional R&D.[2]

- An empirical study of 16 industrialized nations performed by the Organization for Economic Co-operation and Development for the period of 1980 to 1998 found that each $100 led to an additional R&D spending by business boosted the GDP by $113.[3]

- Based on a study of 39 North America Industry Classification System (NAICS) industries (30 in manufacturing and 9 in services) considered "high technology" 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. [5]

- Data suggests that the establishment of state RDC generates $75 to $118 additional industrial R&D dollars per capita for a state in one year.[4]

- Industry representatives stated that RDC's do have an impact on their investment decisions and several companies incorporate the credits into their cost models when choose where to locate an R&D facility.

- An increase in RDC's would be significantly beneficial for small to medium-sized firms where they account for over 80 percent of the RDC claims, yet their total RDC value accounts for less than 15% of the total value, RDC claims.

- The presence of an R&D incentive program is significant for 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%.

- An incremental 3% increase for both basic and qualified RDC is estimated to create an additional $41 to $91 billion in additional Gross State Product over the next five years.[6]

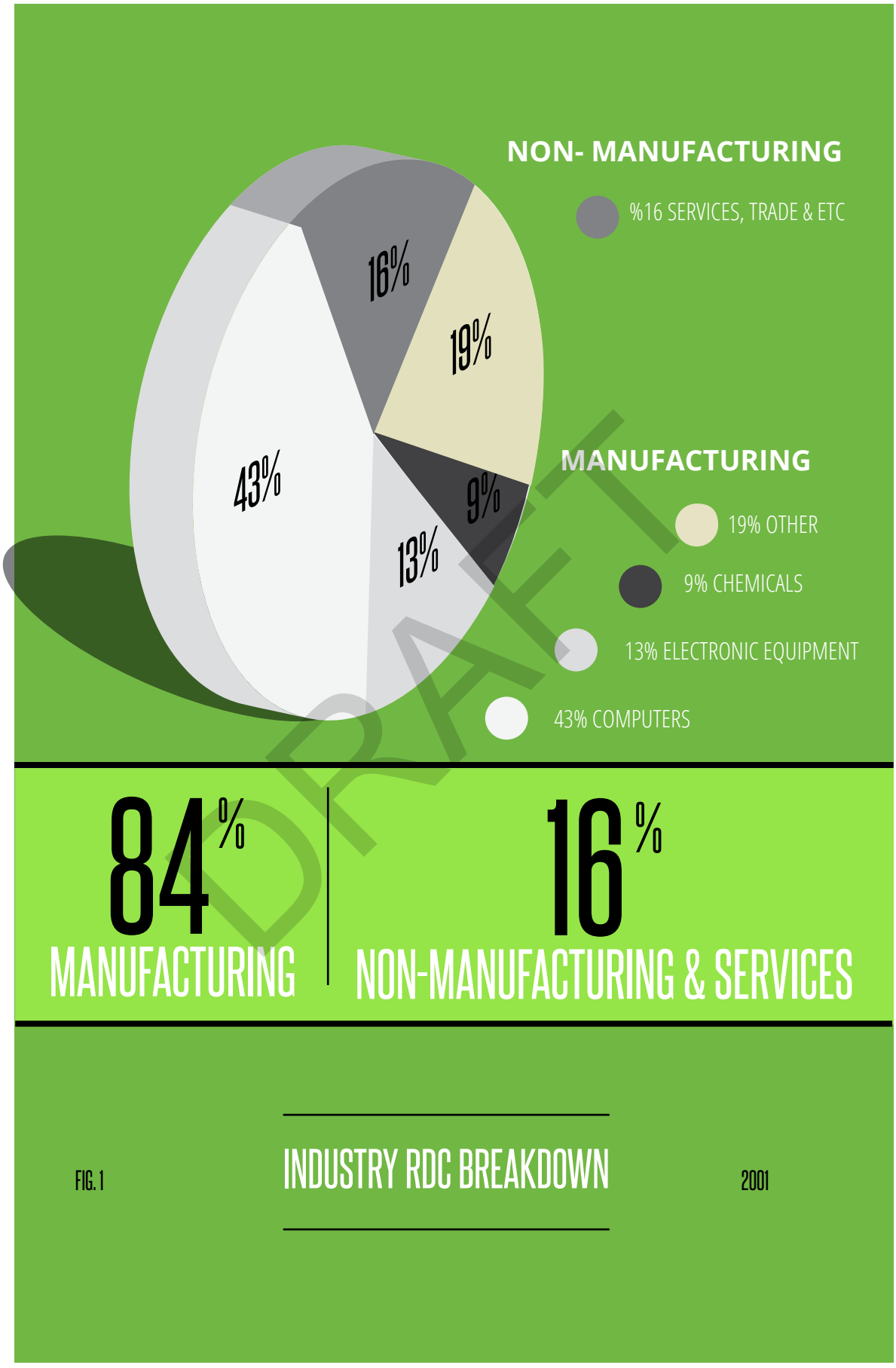

FIG. 1

INDUSTRY RDC BREAKDOWN

2001

CALIFORNIA'S DECLINE

1984

5TH LARGEST GDP

2011

9TH LARGEST GDP

California in the 1970's had grown from being the 7th largest economy in the world to its peak as the 5th largest economy by 1984 and 1985. Now California ranks only 9th in the world. California's Gross State Product (GSP) has been growing at a far slower rate than the Brazil, Russia, India and China. From 1997 to 2008 California, real output grew 3.6% annually compared to the 2.7% in the United States. Although California's GSP is growing faster than the US, the rate of growth has been on the decline. The factors attributing to California's growth decline, range from macroeconomic conditions to the growing competitive business incentives outside of California.

Recently, the Public Policy Institute of California (PPIC) reported that one of the top three areas that were associated with having a "positive and significant relationship" with economic growth was the structure of corporate tax. California ranks poorly because of its high tax rate, failure to conform to federal corporate tax schedules and has the corporate Alternative Minimum Tax (AMT). Given California's current business tax climate is ranked 46th in the nation, California will need to improve the corporate tax structure if it wants to bring businesses back. One significant area to improve California's Innovation Economy is by increasing the RDC.

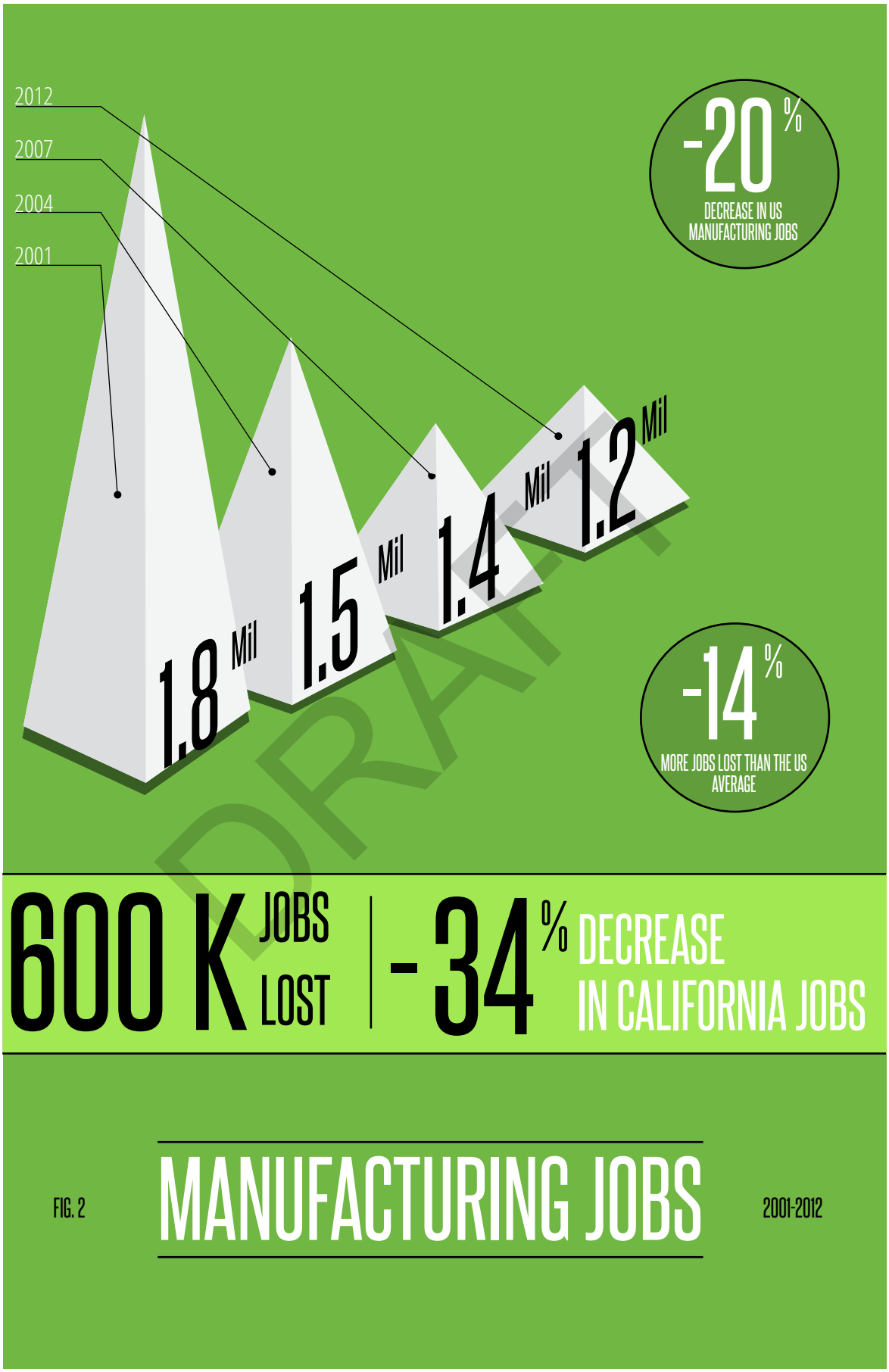

FIG. 2

MANUFACTURING JOBS

2001-2012

HISTORY & FUTURE OF CALIFORNIA'S RDC'S

California's RDC is a tax program that allows taxpayers filing under the Corporate Taxpayers (CT) and, in most cases, the Personal Income Taxpayers (PIT) to reduce their tax liabilities to the extent that they engage in particular types of R&D activities. California originally issued their RDC with the passage of AB 53, (Klehs) and SB 572, (Garamendi) in 1987. The California RDC mirrors Federal Credit with the exception that the Federal Government has moved to an Alternative Simplified Credit, while California has kept the alternative incremental as an option for an RDC.

The RDC is for use with particular types of qualified research activities defined under Revenue and Taxation Section 17052.12. These R&D activities must take place in California, and must exceed a certain base level of R&D expenditures through calculating the base amount of previous year's expenses. The credit may both be used to offset current-year tax liabilities and be "carried forward" to offset tax liabilities in future years, but may not be "carried back" to offset past year's liabilities.

Tax Years Beginning	Qualified Research	Basic Research	Alternative Incremental
1987-1996	8%	12%	N/A
1997	11%	24%	1.65%, 2.20% 2.75%
1998	11%	24%	1.65%, 1.76% 2.20%
1999	12%	24%	1.65%, 1.76% 2.20%
2000-2013	15%	24%	1.49%, 1.98%, 2.48%
(P)2014	18%	27%	1.49%, 1.98%, 2.48%
(P)2015	21%	30%	1.49%, 1.98%, 2.48%
(P)2016	24%	33%	1.49%, 1.98%, 2.48%
(P)2017	27%	36%	1.49%, 1.98%, 2.48%
(P)2018	30%	39%	1.49%, 1.98%, 2.48%

Specific program characteristics include three separate programs:

- **Qualified Research Credit:** The credit for qualified research is available for certain types of research activities conducted by the taxpayer, and is available to both PIT and CT taxpayers. Currently the credit is equal to 15% of the amount of qualified incremental expenditures over a calculated "base amount" of R&D expenditures.

- **Basic Research Credit:** The credit for basic research is available for certain types of research activities conducted by selected outside entities on behalf of the taxpayer, and is available to CT taxpayers only. The credit is equal to 24% of expenditures over a calculated base amount. Biopharmaceutical and biotechnology businesses may also use this credit.

- **Alternative Incremental Credit:** This credit is available for both the qualified and basic research RDC programs that allow certain ineligible corporate taxpayers to use the credit. This is a taxpayer election that typically is used with a firm whose R&D expenses have not kept pace with their gross receipts.

Overall, California's RDC program has been effective in promoting more R&D. However, with other states increasing their incentives for R&D activities, California is becoming a less competitive state because the overall business incentives are dwindling and California's environmental laws are creating ever larger amounts of red tape, slowly degrading California's business climate. According to the Public Policy Institute of California (PPIC), California is ranked 4th in entrepreneurial energy and 2nd in innovation capacity, however, ranked 43rd in corporate tax. Given California's high entrepreneurial rankings, increasing the RDC would leverage California's strengths and raise California's corporate tax rating.

Furthermore, as proposed in AB 653, increasing the RDC for both Qualified and Basic Research 15% incrementally over a five year period would be a major factor for small to medium size businesses where cost efficiencies are crucial factors for hiring and expanding R&D activities.

MORE THEN 3000 FIRMS UTILIZE RDCS

The primary reason why a number of large businesses would not be affected by an increase in RDC's is that they have maximized their current RDC's. Figure 3 below depicts the amount of RDC claims allocated to California busnesses over the past 13 years. These RDC claims have dramaticly increased by 400% in the past decade and empirical studies indicate that these RDCs boost the industrial R&D per capita by 17%.[7]

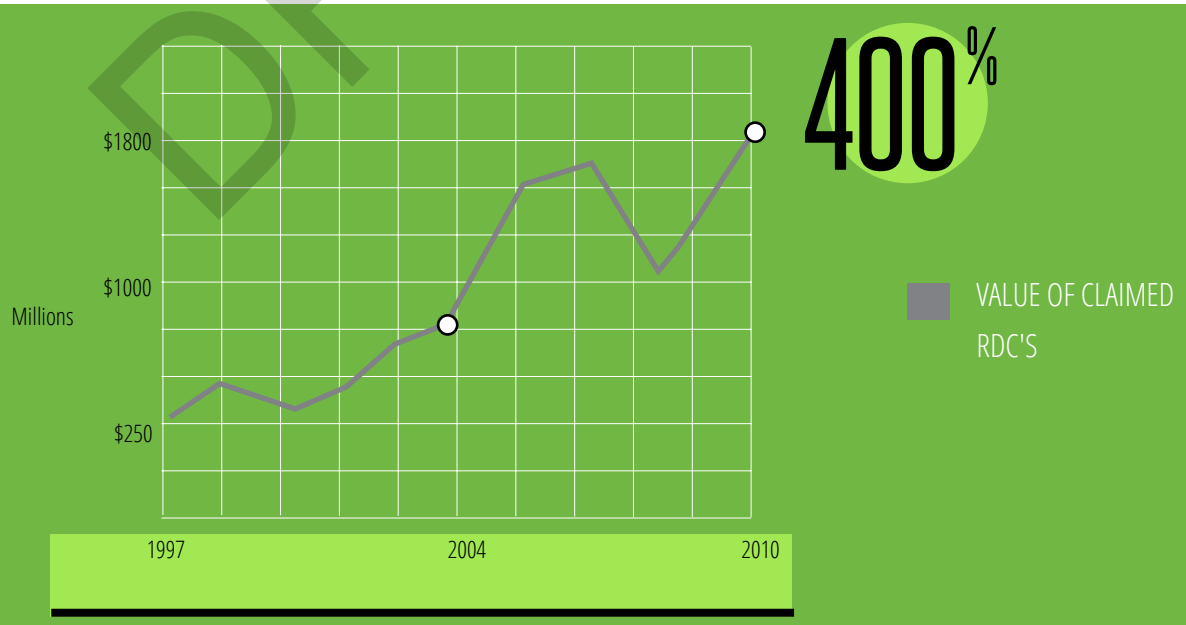

FIG. 3

CALIFORNIA RDC CLAIMS

IN-STATE RDC FINDINGS

There are an increasing number and variety of RDCs, as well as, other incentives that have given way to a growing body of studies analyzing the costs and benefits of these incentives to state and federal governments. More recently, studies have been focused on the state incentives as policy makers search for data to make sure implemented policies are effective. Reports do vary on the level of efficacy of policies due to the lack of publicly available data regarding private corporate financial data. Regardless, state RDC's appear to have a statistically significant effect on the level of R&D that is performed within the state. An empirical study of RDCs found that there were "positive relationships" for state RDCs more than the federal credit did, in part because it not only incentivizes firms to perform more R&D, it also incentivized them to relocate R&D to the state with the higher effective RDC rate from other states.[8]

However, the study also notes, R&D incentives do not appear to have, "equal incentive effects across industries." Thus, California's industrial clusters such as electrical and electronic equipment, pharmaceuticals and aerospace industries will be more proportionally affected by RDC's then across the board. Another study by Yonghong Wu from the University of Illinois at Chicago concludes that state RDC's have "significant and positive effects" on the number of high-tech establishments in a state.[9] This study also indicated that the R&D tax revenues foregone are larger than the additional R&D expenditures induced, but does not include the additional spillover effects resulting from additional R&D.

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 and found that the state business tax climate ranked second amongst the importance of various factors in research location decisions, behind the quality of the workforce. Even though Iowa has one of the most generous RDCs in the country its workforce was the limiting factor.[10]

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 mainly due to lack of a pre-established high tech industry cluster and the quality of their workforce.

The New Hampshire RDC has also been individually evaluated in the context of the cost and benefit to the state from the incentive program in a study by Gittell and Tebaldi.[11] They claim interest in reinstating the credit was spurred by New Hampshire's declining ranking in state R&D expenditures, and an Ernst & Young study in neighboring Massachusetts that showed in 2003 a $72.1 million RDC's created 3,000 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 Regional Economic Models, Inc. (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. Therefore, the study concluded the credit would have a positive effect on the economy, with a small negative short term effect on the state budget.

An addition empirical study, 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 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 RDC 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 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 an R&D incentive program is again very 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%. 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 program is needed to perform a comprehensive cost-benefit analysis. The report includes a list of 39 North America Industry Classification System (NAICS) industries (30 in manufacturing and 9 in services) considered "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.

Proponents of RDC's 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 some 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 is 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 RDC's, 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 start-ups. 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."

Another study by San Francisco Federal Reserve Bank economist Dan Wilson found that state RDC's stimulated a relocation of R&D from states with less generous credits to states with more generous ones.[12] Wilson found that "the magnitude of this response is nearly as large as the response to an increase in a state's own user cost." Which means, that for every dollar of RDC the state allocates, creates an incentive for the firms to expand almost another dollar of R&D relocating to the state from other places. These positive findings are also criticized for having "zero-sum" effect in the United States. However, there are multiple problems with Wilson's conclusion. First, if the United States were a closed economy, his criticism would have more validity.

R&D is increasingly a global activity and corporate U.S. R&D facilities grew 2.7 times faster overseas over the last decade than all corporate R&D (foreign and domestic firms) did in the United States.[13] So while state RDC's might create more incentives R&D to move from one state to another, they also incentivize R&D to move (or stay) in the United States relative to other countries.

Although there are positive findings regarding an increase in R&D activity with the increase in R&D tax credits, the

fact that Wilson believes that there is a "zero-sum" game is not totally accurate. First, it disregards the fact that 2.9% of California's comapnies are foreign owned and operated.

Second, states do compete with one another for additional high-tech jobs through a collection of economic tools including, economic zones, low cost loans, tax holidays, and free land. Much of this competition is actually a negative sum in that it not only adds little to the productive and innovative capacity of the nation; it incentivizes firms to locate in places that may not be as efficient as they would otherwise. But to the extent that states compete through investing in innovation (e.g., having a better research university, or providing a better RDC), the net stock of innovation increases. Even Wilson's work indicates that state credits do incentivize more R&D production, and even some R&D facilities to relocate from state to state.

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.

Another way for the California Legislature to monitor the effectiveness of the incentives is creating a list of each company and amount of credit they received on an annual basis, and they could follow the amount of job and wage growth, company growth, increases 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.

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 both the spillover benefit and economic development justification for the incentive.

Finally, if we hypothesized that the RDC had no behavioral effect and it just lowered the taxes on the firms taking it, this would still have beneficial effects on California's economy. There are several reasons for this, but the principle one is that RDCs are taken largely by technology firms that are in "traded" sectors. This is important because if a high-tech firm in California closes, California loses those jobs as well as all the other jobs that the company and its workers supported through their spending. In contrast if a grocery store, for example closes, California doesn't lose these jobs because California residents will simply buy groceries at another store, creating jobs there. This is why state economic development efforts have long focused on sectors that sell much of their products or services outside the state. An ideal tax code, therefore, is one that provides more incentives and lower effective rates on firms in "traded" industries. If taxes on firms in traded sectors are raised, firms will act rationally by moving or expanding production to states or nations that tax them less.

MEASURING ECONOMIC SPILLOVERS

The measurement of the total economic impacts of an increase in RDC is difficult to accurately predict. Given that the total economic spillovers includes both knowledge and financial spillovers, the ability to quantitatively measure knowledge spillovers is not our primary focus, but acknowledging the existence is key for understanding the total economic impacts. Most of the relevant economic studies report their findings in terms of technical concepts such as "elasticity" and "total factor productivity," but a few studies report their findings in comprehensible dollar values.

One such analysis was on a global perspective of a group of advanced industrial economics called the "Group of Seven" nations, which are the U.S., Japan, Germany, France, the U.K., Italy and Canada, from the period of 1971 to 1990, found that each $100 of additional R&D led to a $123 increase in GDP.[14] In a recent study of 16 industrialized nations of the OECD, for the period of 1980 to 1998, found that each $100 led to an additional R&D spending by business boosted the GDP by $113.[15]

Knowledge Spillovers

Knowledge spillovers can occur for a variety of reasons. One reason is that a firm cannot completely capture all the impacts created by their R&D investment because of the natural progression of the idea being spread and discussed by others. Another reason is the ability of others to possibly reverse engineer or imitate a particular product, as it has been documented in China with knockoff Apple stores and merchandize.[16]

Regardless of the international spillovers, knowledge spillovers are especially important for productivity growth because they allow some of the results of one firm's research investments to help multiple firms at little more than their cost of absorbing the additional knowledge. There are numerous academic studies that report significant features of knowledge spillovers that rely heavily on R&D expenditures and skilled workers.[17]

Although we live in a globalized economy in the information age, one would suspect that the knowledge spillovers are not localized as they were pre-internet, however recent research confirms that physical distance still matters when it comes to the speed and size of the knowledge diffusion.[18]

The critical technical and scientific knowledge is still often exchanged through face-to-face encounters or through the movement of researchers from one company to another. The result of this will create areas of concentrated innovation where theses geographically concentrated R&D industries exist. Hence, why clusters of high-technology industries continue to develop in California usually centered near a research university.

Financial Spillovers

A financial spillover is when the technology output from one firm's R&D lowers the prices or raises the quality of goods used by consumers or other companies. These financial benefits are often not as clear as the data linking R&D investment and GDP growth, but they are an important component of the societal benefit from R&D.

Computers and smart phones are examples of goods where steady improvements have brought society-level benefits that have not been fully captured by the firms that made the improvements. One study looked at the relationship of R&D in five industries to the variable costs of production in the same five industries found that the R&D-related cost reduction in the receiving industry was anywhere from 10% to 1,000% of the cost reduction in each industry received as a result of its own R&D.[19]

10% COST REDUCTION

TO

1000%

COST REDUCTION FOR R&D ACTIVITIES IN THE SAME INDUSTRY

OTHER STATES R&D TAX INCENTIVES

States are offering a diverse mix of RDC incentives to add on to the federal tax incentive. As seen in figure 4, the majority of states have some type of R&D incentive. Only 7 states currently do not have R&D incentive and the majority of states follow the Federal statutory provisions of RDC. Statutory credit percentages range from 1.25% in North Carolina to 40% in Louisiana (for small businesses), with 10%, or half of the federal rate, being the most common rate. Six states include (Arizona, Indiana, Minnesota, Ohio, Rhodes Island and Virginia) offered tiered rates, with the percentage decreasing at some dollar amount of excess qualified research expenses.

Ten states 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 basic research rather than for qualified research expenditures.

Some states choose to depart from the typical federal model of RDC and use other models for R&D 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 the gross receipt taxes or 50% of all withholding taxes paid on behalf of their employees. There are 12 states that have some form of sunset or expiration date for their RDC in statue.

(Appendix A lists the description of incentives available in each state)

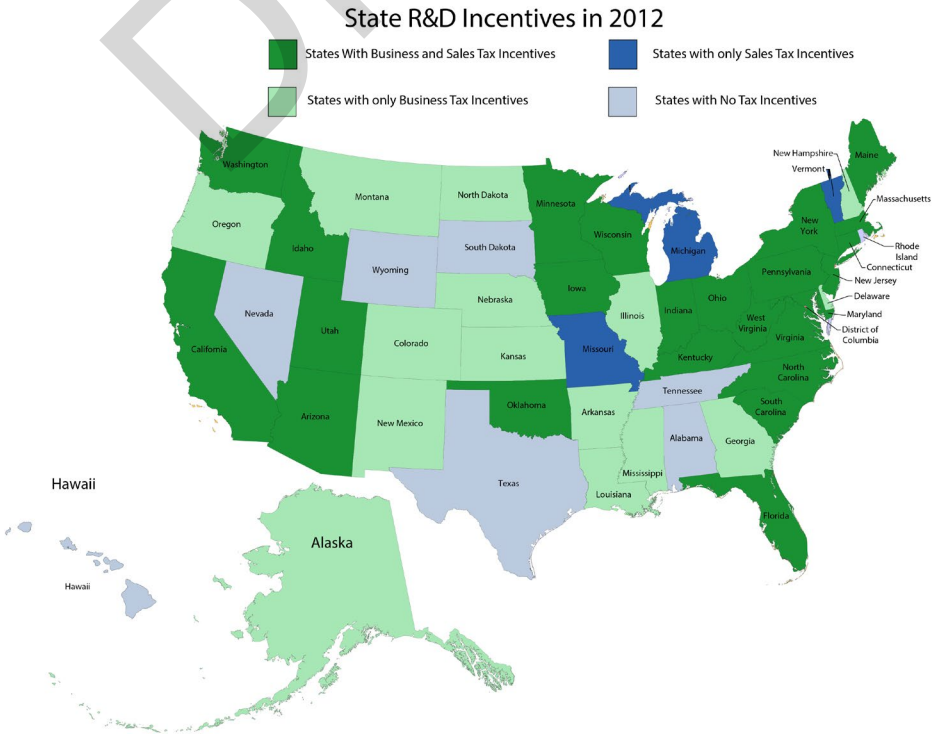

FIG. 4

SALES R&D EXEMPTION VERSUS RDC

An alternative tax procedure that is designed to increase R&D spending within the state is the sales tax exemption for purchases of inputs to R&D and/or manufacturing equipment. Washington for example, exempts their manufacturing equipment used in R&D as "for hire" operation from sales tax. They also exempt materials that are incorporated into the development of new aircraft parts, equipment and modifications; this reflects the desire to grow the industrial cluster which is a predominant industry in Washington. Clustering industry growth is a key factor in growing specific industries within the state.

Given a sales tax rate of approximately 8.25% and a RDC credit of 8% to 11%, the differences between the two tax instruments center on two factors: 1) the basis to which the rate applies, and 2) the timing of when the benefit has arrived. In the case of sales tax exemption, the basis is capital equipment and repairs to that particular equipment, whereas the RDC is the credit given for labor, supplies, and certain services as defined as R&D over a base amount of R&D. Thus the sales tax exemption may be more generous for capital expenditures that depreciate quickly and less for others whose R&D is mostly skilled workers and equipment that has been fully depreciated.

The difference in timing is important for a firm just starting up, since they are receiving a sales tax exemption at the time of the purchase where budget limits are usually more restricted. With an RDC available for manufacturing equipment, the firm would only be able to see a benefit when they are able to depreciate the equipment. In addition, the benefit of the credit may be delayed or never realized if the firm does not have taxable earnings for years to come.

Point being, that between 2000 and 2010, California's manufacturing employment declined by more than 34% or 603,000 jobs.[1] A sales tax exemption for manufacturing equipment as proposed in AB 653, (Perez) would substantially reduce the barriers of entry for a new manufacturer in California, and it would begin to reverse this trend.

ESTIMATING EFFECTS OF A 15% INCREASE IN RDC

Extrapolating the effects from previous studies from Ernst and Young, Legislative Analyst Office and other empirical studies indicate that an increase of the RDC will be beneficial for California's Gross State Product and employment with minor impacts to the state fund. A 15% increase of both qualified and basic RDC over the next five years will contribute the following in figures 5 & 6.

In 2009 private R&D in California was approximately $64 billion; given a 7 year annual growth rate of 6.5% a year, by 2018 California is projected to have $115 billion in private R&D activities. However, if California increased its RDC incrementally over a 5 year period California would be able to attract an additional 1% to 2% in total R&D each year. Projections for a 3% RDC over five years would cumulatively increase private R&D by $49 billion. Interestingly, California is highly dependent upon personal income tax and would be able to capture an estimated $461 million to $2.4 billion over the next five years and $219 to $681 million in increased sales tax. It should be noted that additional taxes will arise from real estate, IPOs and other spillover effects that occur from additional R&D spending.

The impact to the general fund is expected to range from $5 to $140 million net gain for the first 3% increase in RDC, and cumulatively over five years from $360 million to $1.8 billion. This includes an estimated five year cumulative loss of corporate tax revenue of $1.6 billion however, the total economic impact from personal income, R&D investment, GSP, sales tax and personal tax revenue exceeds the cost over a five year period in the range from $68 to $176 billion.

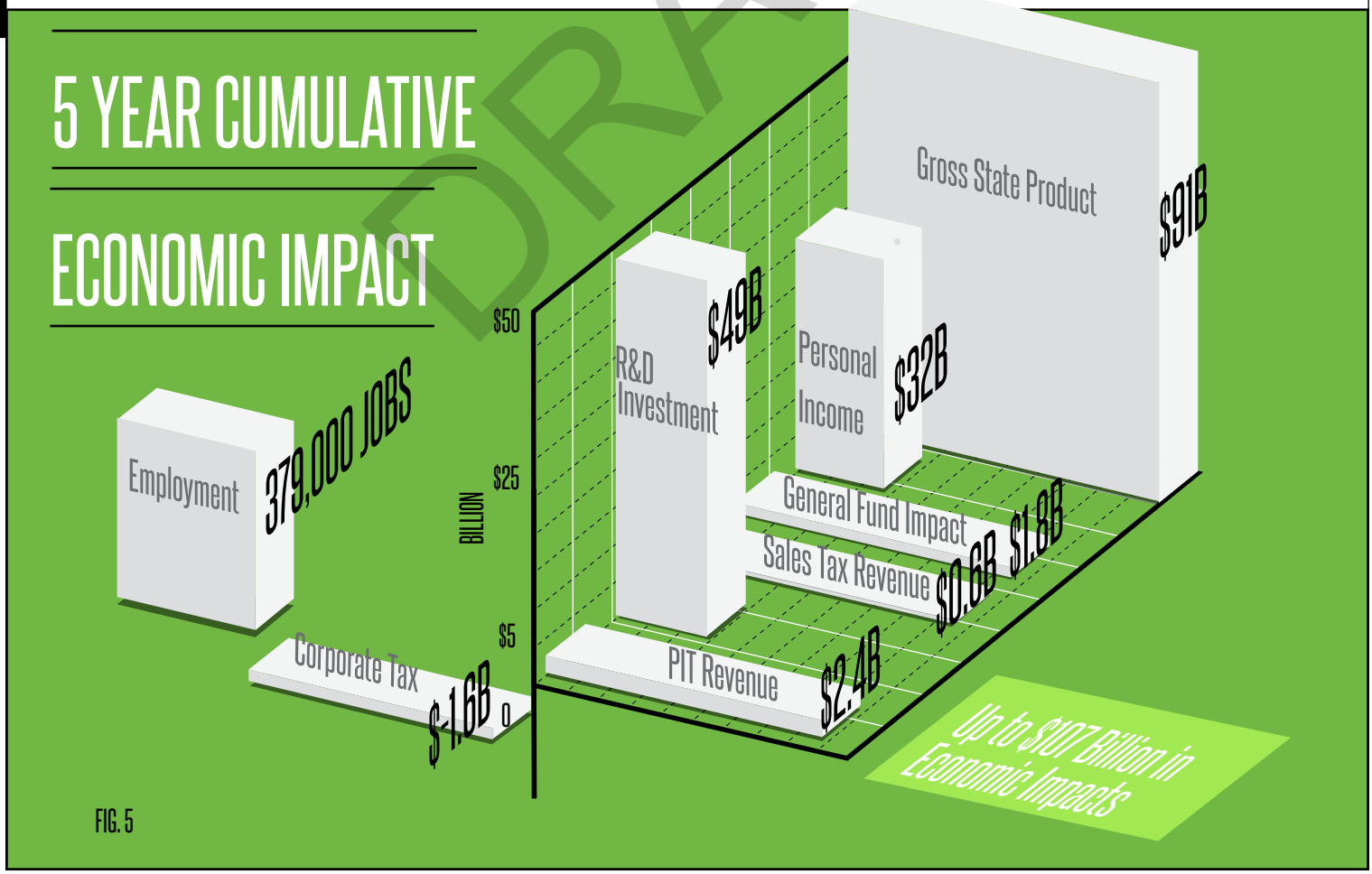

FIG. 5

Basic and Qualified RDC Increase	Variable	Impact Estimates*		Impact Estimates (Cumulative)	
		Low	High	Low	High
3% (2014)	Employment (K)	6	14	6	14
	Personal Income ($M)	579	1,750	579	1,750
	Gross State Product ($M)	2,299	4,195	2,299	4,195
	R&D Investment ($M)	828	2,500	828	2,500
	Personal Income Tax Rev. ($M)	20	147	20	147
	Sales Tax Revenue ($M)	12	37	17	53
	Net General Fund Impact ($M)	5	140	5	140
3% (2015)	Employment (K)	14	45	21	59
	Personal Income ($M)	1,240	3,781	1,819	5,532
	Gross State Product ($M)	4,915	10,619	7,220	15,535
	R&D Investment ($M)	2,844	8,754	3,672	11,254
	Personal Income Tax Rev. ($M)	49	318	68	465
	Sales Tax Revenue ($M)	26	79	38	116
	Net General Fund Impact ($M)	38	282	43	423
3% (2016)	Employment (K)	23	72	45	132
	Personal Income ($M)	1,991	6,128	3,810	11,659
	Gross State Product ($M)	7,900	17,208	15,120	32,743
	R&D Investment ($M)	2,844	8,754	6,516	20,008
	Personal Income Tax Rev. ($M)	90	515	158	979
	Sales Tax Revenue ($M)	42	129	80	245
	Net General Fund Impact ($M)	72	423	115	845
3% (2017)	Employment (K)	33	105	79	237
	Personal Income ($M)	2,841	8,827	6,651	20,487
	Gross State Product ($M)	11,273	24,789	26,394	57,532
	R&D Investment ($M)	4,059	12,610	10,574	32,618
	Personal Income Tax Rev. ($M)	90	515	248	1,494
	Sales Tax Revenue ($M)	60	185	140	430
	Net General Fund Impact ($M)	64	333	179	1,178
3% (2018)	Employment (K)	45	141	124	379
	Personal Income ($M)	3,801	11,922	10,452	32,408
	Gross State Product ($M)	15,082	33,479	41,477	91,012
	R&D Investment ($M)	5,430	17,031	16,004	49,649
	Personal Income Tax Rev. ($M)	214	1,001	461	2,496
	Sales Tax Revenue ($M)	80	250	219	681
	Net General Fund Impact ($M)	180	688	359	1,867

*See Appendix B for model assumptions

FIG. 6

CONCLUSION

California needs to leverage its number one asset and that's its ability to innovate. By increasing the RDC from 15% to 30% for basic research and 24% to 39% for qualified research incrementally over a five year period, California will be able to attract the necessary companies willing to invest in R&D for future growth. Increasing California's RDC rate will be most effective for small to medium sized companies where the majority of those firms don't have the RDC carry-forwards that large companies are carrying. This is beneficial for California since the growth engines are from small to medium size companies.

Most economists can't agree on the total economic spillover effects from increasing RDC, however, it's clear from the previous empirical studies, that the net gain outweighs the decrease in general funds. The trend for California for the past 20 years has been an increasingly inhospitable place for business and regardless of the degrading business climate, California continues to grow, however, at a much slower pace.

California's legislators can reverse this trend by increasing the RDC which sends a clear message to the business community that the State of California is making a commitment to its Innovation Economy.

APPENDIX-A STATE BY STATE RDC AND SALES TAX COMPARISON

State	Business Tax Incentive	Sales Tax Incentive	Notes
Alabama	None.	None.	No specific RDC. 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 an RDC 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 RDC for 3 types of research: A business that (1) contracts with a state university in performing research, (2) is in 1 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 an 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, with some exceptions.	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.

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 recertified 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)(referring to the business tax incentives of the state in the first column) 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.	None.	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 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.

Georgia	If a taxpayer claims a federal R&D tax credit, they are eligible for a state credit of 10% of qualifying research expenses above a base amount. Qualifying research expenses follow the federal definition in Section 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 .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 3 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.

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 Code, 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, 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.	Non-refundable I.T. credit equal to 5% of the qualified costs of constructing, remodeling, 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 IRC.	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.

Maryland	Taxpayers are eligible for a non-refundable credit equal to 3% of total qualified research and expenditure expenses in the state that are less than the base amount plus10% 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 7 years.	The sale of tangible personal property for use in statutorily defined R&D activities is exempt from the state sales tax.	Taxpayers must fi le 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 an R&D corporation are exempt from the state sales tax.	Beginning in 2009, a company certifi ed 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% RDC under the Michigan Business Tax. The MBT was replaced in 2012 with a 6% corporate income tax that does not include a RDC.
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.
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	An R&D company is not subject to corporate income taxes for the first 5 years of activity in the state.	None.	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	None.	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.	None.	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.
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; 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.	An 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 a single tax year.	Capitalized tangible personal property used primarily to perform R&D is exempt from the sales tax.	
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 an 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 1 or 2 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.	None.	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.	
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 an R&D facility may qualify for a jobs credit depending on the county they are located in.
South Dakota	None.	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	HB 800 has been introduced with a 5% qualified R&D tax credit.	None.	Texas previously had an incremental nonrefundable 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 nonrefundable 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. 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.	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.
Washington	A credit against the state Business and Operations (gross receipts) tax is given if taxpayers qualified R&D spending exceeds 0.92% of their taxable income during the year. The credit is equal to 1.5% of the difference of these 2 amounts. The credit is capped at $2 million per taxpayer, is nonrefundable, and may not be carried forward to future years. Washington has its own definition of qualified R&D expenditures and must be performed in 1 of 5 specific fields.	Sales to a public research institution of machinery and equipment used primarily in an 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 amounts 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, 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 RDC was recently enacted in tax year 2011. The sales tax exemption was enacted beginning in 2012.
Wyoming	None.	none	

[2]

Appendix B

Employment, Gross State Product, Sales Tax Income, Personal Income, Personal Income Tax and General Fund Impact, estimations were modeled after state comparisons and other economic models.[x] Additionally estimates primarily rest on additional "R&D investment" with R&wwD firms in California having an effective RDC of .018 (using pR= 1 - tf - ts+ tstf - cf(1-tf) - cs(1-ts) + tf cs(1-ts)) every year for 5 years with an assumed average 7 year growth rate of 6.5%. With the additional 3% in RDCs, we estimate two growth paths, a low growth path of 7.52% and a high growth path of 8.52%. Personal Income assumed that 70% of R&D expenditures went directly to wages as reported by National Science Foundation and Personal Income Tax is based off the average income of an employee in R&D being $84,000 with a tax bracket of 8.84%. The General Fund Impact was calculated based on the average 7 year ratio of private R&D to RDC's allocated for the fiscal year and doubling that ratio over a 5 year period, our estimations concluded a cumulative additional increase in RDCs ranging from $579 million to $1.6 billion. However, the net effect from increase sales and personal income tax show a net positive gain for both low and high projections. Sales tax revenue estimations were modeled after the assumption that 28% of an average American salary is spent on items containing sales tax (according to the U.S. labor department estimations) with a sales tax of 7.5%. For further assumptions contact Innovation State.

(ENDNOTES)

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