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Iowa's Research Activities Tax Credit Tax Credits Program Evaluation Study

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By
Angela Gullickson
Amy Rehder Harris
Zhong Jin

Tax Research and Program Analysis Section
Iowa Department of Revenue

Preface

During the 2005 Legislative Session the Iowa Department of Revenue received an appropriation to establish the Tax Credits Tracking and Analysis Program to track tax credit awards and claims. In addition, the Department was directed to perform periodic evaluations of tax credit programs. An initial evaluation of the State's Research Activities Tax Credit was released in 2008. This study updates and expands the evaluation of that credit.

As part of the evaluation, an advisory panel was convened to provide input and advice on the study's scope and analysis. We wish to thank the members of the panel: Dr. Ronald Cox of the Center for Industrial Research and Service at Iowa State University, Debi Durham of the Iowa Economic Development Authority, Liesl Eathington of Iowa State University, Deb Ostrem of Iowa Workforce Development, Mike Ralston of the Iowa Association of Business and Industry, Elliot Smith of the Iowa Business Council, Dr. John Solow of the University of Iowa, and Ed Wallace of Iowa Workforce Development. (The assistance of an advisory panel implies no responsibility for the final product.) We would also like to thank Grinnell College student intern Kunal Bansal for his help with the study.

This study includes results from a survey of companies in Iowa regarding their research activities. The Department would like to thank all of the companies who voluntarily participated in the survey.

This study and other evaluations of Iowa tax credits can be found on the Tax Credits Tracking and Analysis Program Web page on the Iowa Department of Revenue Web site located at:
http://www.state.ia.us/tax/taxlaw/creditstudy.html

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Executive Summary

The Iowa Research Activities Tax Credit (RAC), introduced in 1985, allows taxpayers to take a refundable tax credit equal to 6.5 percent of qualified research expenditures made within the State above a base amount. The definition of qualified research expenditures and the calculation of the base amount are coupled with rules established as part of the federal research tax credit. In 2000, the legislature added an alternative method for computing the credit called the alternative incremental research credit (AIRC), mirroring the change made in the federal credit four years prior. In 2010, that method was replaced with the alternative simplified credit (ASC), again following the federal change in tax year 2009.

The RAC is an automatic credit because any taxpayer with qualified research expenditures is eligible to claim the credit. However, firms can be awarded an additional Supplemental RAC by the Iowa Economic Development Authority (EDA) as part of an economic development tax credit program.

The major findings of the study are these:

Research Tax Credits in the United States

- Thirty-six states currently offer some form of research tax credit. Although Iowa's 6.5 percent credit rate falls below the most common rate of 10 percent, Iowa is one of six states to offer a refundable research tax credit. Three of Iowa's neighbors, Minnesota, Nebraska, and Wisconsin, also offer a research tax credit.

Research Expenditures and the Economy

- In 2007, Iowa ranked 31st among the states for total research expenditures, as estimated by the National Science Foundation. Businesses in Iowa were responsible for $1.2 billion (63.9%) of research during 2007, followed by colleges and universities with $0.6 billion (31.2%). Total 2007 Iowa research expenditures were $1.9 billion.

- Nominal research spending per capita in Iowa has risen from $195 in 1987, 31st among the states, to $630 in 2007, 32nd among the states. In 2007, national research spending per capita was $1,200.

Analysis of Iowa Research Activities Tax Credit Claims

- In tax year 2009, 182 corporations claimed $45.3 million in RAC, receiving $42.2 million in refunds. Individual taxpayers made 682 claims for an additional $3.3 million in RAC, with $0.8 million paid in refunds. Claims made by individuals in most cases reflect credits earned by S corporations or limited liability companies and passed through to the shareholders.

- RAC claims peaked in tax year 2007, prior to the recent recession, with $56.1 million claimed by 211 corporations and 1,065 individuals resulting in $50.8 million in refunds.

- Changes to the RAC would not have a significant fiscal impact until the second and third fiscal year after the tax year in which the credit changes become effective. Because of the lag in corporate tax returns filings, on average 43.9 percent of tax year corporate credit claims are made during two fiscal years following the tax year and 54.9 percent are made three fiscal years after.

- With the introduction of the IA 148 Tax Credits Schedule in tax year 2006, more complete data on credit claims became available such as the method used to calculate the credit and whether the claim included any Supplemental RAC awarded by EDA. For tax years 2006 through 2009, on average 46.2 percent were made using the AIRC method and 32.5 percent of total RAC claims were for awarded Supplemental credits.

- In 2009, while 182 corporations claimed an RAC, an additional 151 S corporations, limited liability companies, partnerships, or sole proprietors earned Iowa research credits. Since 2006, 77.8 percent of RAC claims have been earned by firms with more than 500 employees in Iowa and 90.0 percent have been earned by firms in manufacturing industries.

- Although an average of 354 firms earned an RAC each tax year since 2006, the top ten companies earned 76.1 percent of total credit dollars on average and accounted for 69.5 percent of Iowa research expenditures. The share of credits earned by the top ten companies falls to 71.2 percent when Supplemental claims are removed.

- In tax year 2009, companies reported $1.2 billion in research expenditures in Iowa, down from $1.3 billion in tax year 2007. With $49.9 million in total RAC earned in tax year 2009, companies earned an average of 4.2 cents in research tax credits for each dollar of research expenditures within the state.

- The research expenditures among counties in Iowa is also highly concentrated with 85.6 percent occurring in just ten counties and 88.7 percent of credit claims attributed to facilities in those ten counties. In tax year 2009, companies in Linn County claimed $16.3 million (33.8%) in RAC, companies in Black Hawk County claimed $9.7 million (20.0%), and companies in Polk County claimed $8.8 million (18.3%) in RAC. Despite the concentration, companies with credit claims are located in 74 of Iowa's 99 counties.

Relationship Between the RAC and Wages in Iowa

- Average wages paid to all employees in companies claiming the RAC are not systematically higher than other companies in the same industry and metropolitan locations. However, wages paid by companies in most industries with RAC claims are above statewide averages.

Survey on Research Activities

- Over 37 percent of companies surveyed by the Iowa Department of Revenue (IDR) about their research activities in Iowa responded, including 193 companies with recent claims to the RAC and 221 companies who have not claimed the credit. Seventy percent of the top 20 claimants responded; therefore, survey respondents represented 76.6 percent of total claim dollars between tax years 2006 and 2009.

- Fifteen percent of respondents that have not claimed the credit reported performing research in Iowa, but indicated that they were either not aware of the credit, uncertain whether their research qualified, or considered the administrative burden to claim the credit too high. Nineteen percent of respondents that have claimed the credit in the past did not claim the RAC in the most recent tax year, with some citing the recession as the reason research efforts were reduced.

- Three-fourths of survey respondents that performed research indicated their research activities were limited to Iowa, with average annual research expenditures of $1.6 million. The

remaining 25.6 percent reported performing 44.3 percent of their research activities in Iowa, with average annual Iowa research expenditures of $17.3 million.

- Respondents reported nearly 13,400 full-time equivalent employees conducting research in Iowa, with an average annual wage of $60,877 in the most recent tax year, much higher than Iowa's average annual wage of $37,397 for 2010. Twenty-three percent of research employees were reported to have a Master's degree or higher, compared to 7.4 percent of the Iowa population. Ninety-five percent of companies offered health insurance to research employees, compared to 55 percent of all Iowa employers, and around 88 percent offered paid vacation and a retirement savings plan, compared to 52 and 41 percent of all Iowa employers.

- For all respondents, ninety percent or more reported quality of the workforce, the state business tax climate, quality of life for employees, and low cost of labor and other research inputs as important factors driving research location decisions in Iowa. For those respondents conducting research in Iowa and other states, ninety percent or more reported quality of the workforce, presence of an existing research facility, quality of life for employees, and low cost of labor and other research inputs as important factors.

- Companies conducting research in Iowa and other states reported performing research in five additional states, on average. The most common location for that research was in other Midwestern states followed by the South Atlantic states.

- Survey respondents that perform research in Iowa and other states reported an average Iowa research expenditure share roughly equal to the average Iowa production share, suggesting those companies conduct similar levels of research and production in Iowa. Those same survey respondents reported an average Iowa sales share equal to less than one-third of their average Iowa research expenditure share, suggesting these multi-state research companies sell the majority of their products in other states or internationally.

- Sixty-five percent of companies responding to the survey that performed research in the most recent tax year reported creating at least one new product or service line in the last four years as a result of that research.

- Thirty-seven percent of companies responding to the survey that performed research in the most recent tax year reported receiving one or more patents in the last four years as a result of research conducted in Iowa.

- Since 2006, only one percent of Iowa start-up companies in industries where research is common were identified as claiming the RAC by tax year 2009.

Hypothetical Firm Analysis of the Iowa RAC and Other States' Credits

- Iowa' research tax credit rules offer the highest credit that can be claimed by large, multi-state research firms with high levels of research expenditures when compared to neighboring states and other states where most survey respondents indicated they also conduct research.

- With the exception of South Dakota, compared to all neighboring states and other key research states identified by survey respondents, calculations suggest that research costs for a large, multi-state company would be lower in Iowa because of Iowa's higher research credit and relatively lower wages for research employees.

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I. Introduction

The Iowa Research Activities Tax Credit (RAC) was introduced in tax year 1985, four years after the creation of the federal research tax credit. Recognizing the potential social benefits derived from research, the federal research tax credit was meant to subsidize research expenditures to raise total research closer to the socially optimal amount. At the state level, however, a research tax credit may serve more as an incentive for companies to locate and expand research activities within the state than as a correction for a market failure.

This evaluation study is the Iowa Department of Revenue's (IDR) second look at the Iowa Research Activities Tax Credit. There are two main goals of this evaluation study. The first is to update the data presented in the 2008 evaluation study. The second is to present information about research activities gathered directly from companies performing research in Iowa.

The first evaluation study focused on corporate claims of the RAC from its inception in 1985 through the 2005 tax year. The data showed a high concentration of claims among businesses in manufacturing industries with more than 500 employees. The data also revealed a high concentration of claims among the top ten firms in each tax year. For tax year 2004, the most recent complete tax year covered by that study, it was estimated corporations received tax credits equal to 4.3 cents per dollar spent on research. The study estimated that over ninety percent of corporate claims were paid as refunds. Economic analysis attempted to measure the impact of the research tax credit on research expenditures, research-related employment, and patent activity across states, but the results were not conclusive.

This study adds to the information presented in the first study, providing data on corporate and individual claims through the 2009 tax year with the help of the tax credit claim data collected from the IA 148 Tax Credits Schedule, introduced in tax year 2006. In Section II, this study briefly discusses the federal and Iowa credits, focusing on changes since 2008. It also presents an update on the research credits offered by other states and a review of the recent literature on research tax credits in the United States and around the world. Section III presents National Science Foundation data on research expenditures in Iowa and the rest of the nation and a discussion of the literature on the impact of research expenditures on economic productivity. In Section IV, data on claims to the Iowa Research Activities Tax Credit and the underlying qualified expenditures are presented, in many cases updating tables presented in the first study.

Section V compares wages paid at companies claiming the RAC with other companies in the same industry. Section VI presents analysis of data collected via a survey sent to over 1,100 companies in industries that are likely to be conducting research in the State and making claims to the RAC. The survey attempted to gather data on the magnitude and location of research conducted by businesses in Iowa, capture a snapshot of the impact of the RAC on research-related employment within the State, and measure companies' perceived benefits of the credit. Section VII compares Iowa's credit with other states' credits for a set of eight hypothetical firms based on employment size and whether the firm conducts research in-state only or in multiple states.

II. Research Tax Credits in the United States

A. The Federal Research and Experimentation Tax Credit

The federal research tax credit, also referred to as the Research and Experimentation Tax Credit or R&E tax credit, is an income tax credit equal to 20 percent of qualified research expenditures (QREs)

above a base amount.[1] The credit is not refundable, although unused credits can be carried back one year or forward up to 20 years. The IRS reports that corporate R&E tax credit claims totaled $8.3 billion for tax year 2008 (IRS, 2011).

The federal research tax credit is a temporary credit first enacted in July 1981 that has been renewed 14 times, covering every year since its inception but one (July 1, 1995 - June 30, 1996). The credit was most recently extended for tax years 2010 and 2011 as part of the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010. The credit is automatic, no application or prior approval is required to make a claim. The credit equals the sum of three possible credits: the main research credit, a credit for basic research, and a credit for energy research, enacted in the Energy Policy Act of 2005. The main credit can be calculated using the regular method or the alternative simplified credit (ASC), a calculation method introduced in tax year 2007. From tax years 1996 through 2008, the alternative incremental research credit (AIRC) method was also available. Taxpayers who choose to compute their main credit using an alternative method are required to continue to use that method in future tax years, even if the regular research credit would produce a larger credit, unless given specific permission by the IRS to change credit calculation methods.

IDR's first study provided an extensive presentation of how the various federal credits are calculated, so only a brief summary is provided here.[2] As defined by the Internal Revenue Code (IRC), research eligible for the research tax credit must meet four criteria (US GAO, 2009):

1. Research must qualify under IRC section 174 (research expensing rules) which defines research as "experimental" and aimed at the development of a new product;
2. Research must be undertaken to discover information that is "technological in nature;"
3. The goal of the research should be the development of a new or improved product, process, formula, or invention for the taxpayer;
4. Research must constitute elements of a process of experimentation.

Conversely, qualified research cannot be (US GAO, 2009):

1. Conducted after the beginning of commercial production of the product;
2. Related to the adaptation of a product or service for a particular customer;
3. Related to the duplication of an existing product or service.

For in-house research, when a business undertakes research at its facilities using its employees, qualified research expenditures include outlays on wages and salaries for qualified research services, the cost of supplies used in conducting qualified research, and the rental or lease cost of personal property, such as computers, used to conduct qualified research. For contract research, when a

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[1] The federal research tax credit is specified in section 41 of the Internal Revenue Code (IRC). Federal tax law also allows for a full expensing of qualified research spending under Section 174 of the IRC. However, if a firm takes a deduction for research expenditures and claims the research tax credit for those same expenditures, the firm must reduce the deduction by the amount of the credit claimed.

[2] One aspect of the federal R&E credit that was not discussed in the first study is the option to claim a reduced federal credit. IRS Code Section 280C(c)(1) requires taxpayers who claim the R&E credit to reduce their deduction for research expenses by an amount equal to the credit. The legislative history of the R&E credit suggests that Congress considered the credit the equivalent of a federal payment for carrying out research for which the taxpayer should not also receive the benefit of a deduction. Under IRC Code Section 280C(c), taxpayers may either (1) claim a full R&E credit under Section 41 and reduce their current business expense deduction for research expenses by the credit amount, or (2) elect to reduce their R&E credit by 35 percent and claim a full deduction for research expenses. Under the second option, the 20 percent statutory credit rate effectively becomes 13 percent. In general, a corporation subject to the top corporate tax rate pays the same federal corporate tax under either option. However, taxpayers may choose to claim the reduced credit to minimize state taxes. In Iowa, federal taxable income is the starting point for calculating Iowa taxable income (Iowa Code Section 422.35). By making the federal reduced credit election, a taxpayer would reduce Iowa taxable income by the amount of the federal R&E credit with no impact on the Iowa Research Activities Tax Credit the taxpayer can claim. Claims to the Iowa credit do not impact the extent to which a company can deduct research expenses from Iowa taxable income.

business funds research conducted by outside institutions, only 65 percent of amounts paid are eligible. That share rises if the research is performed by non-profit organizations (75 percent), or by small firms, universities, or federal laboratories (100 percent). Non-eligible expenses include costs of purchased equipment or structures, overhead costs, or fringe benefits for employees.

The regular research credit is an incremental credit, which means only research expenditures that exceed the larger of a base amount or 50 percent of current year expenditures are eligible for the credit.[3] The base amount is intended to approximate a firm's level of research expenditures in the absence of the credit (CBO, 2007).

The ASC was introduced January 1, 2007. For tax years 2009 through 2011, firms using this method can take a credit equal to 14 percent of QREs that exceed 50 percent of average QREs in the three preceding tax years. That percentage was twelve percent for tax years 2007 and 2008. For firms that have no QREs in the any of the three previous years, the credit is six percent of current year QREs.

B. The Iowa Research Activities Tax Credit

For tax years beginning on or after January 1, 1985, businesses with qualified research expenditures can earn the Iowa Research Activities Tax Credit equal to 6.5 percent of Iowa's apportioned share of those research expenditures. The regular RAC is based on the rules governing the federal regular R&E credit, although Iowa's rate is lower than the 20 percent federal rate and only applies to research expenditures incurred within the state. The Iowa ASC method is also based on the federal ASC method, with again, lower rates applicable only to research conducted within Iowa. Claims for the RAC can be made against corporate or individual income tax. Unlike the federal research credit, the Iowa credit is refundable and, for tax years beginning on or after January 1, 1991, is permanent, thus the Iowa credit continues to exist even if the temporary federal credit is allowed to expire.

IDR's first study provided an extensive presentation of how the Iowa credits are calculated, so only a brief summary is provided here. The Iowa credit is automatic, which means any business with qualified research can claim the credit without an application or prior approval. Like the federal credit, the Iowa credit includes a credit for basic research and for energy research, both at a 6.5 percent rate. For all other research, the Iowa definition of qualified research expenditures is coupled with the federal definition and includes expenses incurred in Iowa on wages, the cost of supplies, the rental or lease cost of personal property, and applicable contract expenses. Where personal property is used both inside and outside of Iowa in conducting qualified research, the rental or lease cost must be prorated between Iowa and non-Iowa use by the ratio of days the property is used inside of Iowa to total days used.

Beginning in tax year 2010, the automatic credit can be calculated using either the regular or ASC method. To claim the regular RAC, the first step in determining the amount of QREs subject to the Iowa credit follows the calculation of the federal credit, using the same base amount of expenditures against total current year U.S. research expenditures. For the second step, the resulting incremental QREs are multiplied by the ratio of Iowa research expenditures to total U.S. research expenditures. The resulting amount, "total Iowa qualified research expenses," is multiplied by the 6.5 percent rate to

[3] The base amount for established firms, those firms with both business revenue and research expenditures for three or more years during the 1984 to 1988 period, is computed by multiplying average gross receipts for the four years prior to the credit claim by the fixed-base percentage. The fixed-base percentage equals total QREs for the 1984 to 1988 period divided by total gross receipts for that same period. The fixed-base percentage is capped at 16 percent. Non-established, or new, firms are assigned an initial fixed-base percentage of three percent during the first five years that the firm reports both receipts and qualified research expenditures. After five years, the percentage is gradually adjusted based on actual experience; by the eleventh year the fixed-base percentage is based on total QREs relative to total receipts in the sixth through tenth tax years. In all cases, the base amount is equal to the larger of the amount computed using one of the above methods or 50 percent of current year QREs.

compute the Iowa credit. Information underlying a claim for the regular Iowa RAC must be provided on form IA 128 (see Appendix A).

For tax years 2000 through 2009, Iowa taxpayers could elect to take the alternative incremental research tax credit (AIRC). The credit was calculated in the same manner as the federal AIRC, but had lower credit rates.[4] The Iowa AIRC compared research expenditures to average annual Iowa gross receipts rather than average annual U.S. gross receipts like the federal credit. Because the Iowa regular RAC calculation method compares research expenditures to average annual U.S. gross receipts, the AIRC was advantageous to firms with high research expenditures in Iowa relative to sales in the State. Information underlying a claim for the Iowa AIRC was provided by taxpayers on form IA 128A (see Appendix A).

Effective January 1, 2010, the Iowa AIRC was replaced with the Iowa ASC. Firms using this method can take a credit equal to 4.55 percent of Iowa QREs that exceed 50 percent of average Iowa QREs in the three preceding tax years. For firms that have no Iowa QREs in any of the three previous years, the credit is 1.95 percent of current year Iowa QREs. Information underlying a claim for the Iowa ASC is provided on form IA 128S (see Appendix A). The taxpayer can elect each year whether to take the ASC or the regular research credit for Iowa tax purposes and can choose a method independent of the method used to claim the federal credit.

Taxpayers who are approved by the Iowa Economic Development Authority (EDA) under the High Quality Jobs Program or the Enterprise Zone Program can receive a Supplemental Research Activities Tax Credit which can significantly increase the total research credit claim for a qualifying firm.[5] Unlike the previously discussed credits which can be claimed by any firm with qualified research expenditures in the state, the Supplemental RAC is awarded by EDA as part of a contract tied to a business expansion or a business retention project. When the supplemental RAC was introduced in the mid-1990s that portion of the credit was nonrefundable. However, three years later it was changed to a refundable credit as well. In 2009, a fiscal year cap was instituted over all EDA tax credit program awards. This has led to a reduction in the awarded Supplemental RACs.

Effective July 1, 2010, the calculation of the Supplemental RAC is conditional on the gross revenues of the eligible business. The change allows small companies to receive supplemental awards that exceed the automatic credit, but restricts awards for large companies to less than one-half of the automatic credit. For businesses claiming the regular RAC with gross revenues of $20 million or less the Supplemental credit can be as high as 10 percent of “total Iowa qualified research expenses” subject to any award cap amount. For businesses with gross revenues exceeding $20 million the Supplemental credit cannot exceed 3 percent of “total Iowa qualified research expenses.”

For businesses with gross revenues of $20 million or less choosing to compute the research credit using the ASC method, the Supplemental credit percentage is 7 percent of qualified research expenses that exceed 50 percent of average Iowa QREs in the three previous years, or 3 percent of current year Iowa QREs. For businesses with gross revenues exceeding $20 million the percentages are 2.1 and 0.9 percent.

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[4] The Iowa AIRC equaled 1.65 percent of research expenditures above 1 percent but not greater than 1.5 percent of average Iowa gross receipts in the four previous years, plus 2.2 percent of research expenditures above 1.5 percent but not greater than 2.0 percent of average gross receipts, plus 2.75 percent of research expenditures that exceeded 2.0 percent of average gross receipts.

[5] In 2005, the High Quality Job Creation Program (HQJC) replaced the New Capital Investment Program and the New Jobs and Income Program; the HQJC was subsequently renamed the High Quality Jobs Program. Supplemental credits awarded under those predecessor programs can be claimed through tax year 2015, as contracts are valid for up to ten years.

Effective July 1, 2005, companies with contracts under the Enterprise Zone or High Quality Jobs Programs can also be awarded the Renewable Energy Components Research Activities Credit for expenses related to the development and deployment of innovative renewable energy generation components manufactured or assembled in Iowa. These expenses are not eligible for the federal research tax credit. The total amount of awards cannot exceed $1 million per fiscal year, although up to $2 million was allowed for fiscal year 2010. The credits claimed under this program are not eligible for the Supplemental RAC.

Beginning in 2009, the Legislature mandated an annual report that includes the total amount of RAC claims made during the prior calendar year and the portion of those claims paid as refunds. In addition, companies with a total Research Activities Tax Credit claim exceeding $500,000 and filed after July 1, 2009, must be listed in the report. The 2009 calendar year report included five large RAC claims (IDR, 2009). The 2010 calendar year report included nine large RAC claims (IDR, 2010).

C. Other States' Research Tax Credits

In tax year 2011, 36 of the 46 states that impose a corporate income tax offered a research tax credit (see Table 1).[6] All states' credits only apply to research expenditures made within the state's borders. Twenty states, including Iowa, determine the base amount of qualified research expenditures for their credit following the federal credit rules in IRC Section 41. Nine states use a unique base period, varying from a comparison of current year research expenditures to expenditures in the previous year (Connecticut) to the previous four years (Delaware, Maryland, and Pennsylvania). Most states use the federal definition of qualified research expenditures, although some states include expenses for the construction of research facilities. The most common credit rate percentage is 10 percent, half of the federal rate, although the rates range from as low as 1.25 percent in North Carolina (for companies with gross receipts between $1 million and $50 million) to as high as 25 percent in North Dakota (on the first $100,000 of incremental qualified research expenditures).

Minnesota enacted its research tax credit in 1981, the same year as the federal government, followed by Indiana in 1984 and Iowa in 1985. Six states passed credits in the second half of the 1980s, Wisconsin, Montana, California, North Dakota, Colorado, and Oregon. Fifteen states enacted credits during the 1990s and eighteen states added research tax credits since 2000. Five states had research credits that have since expired or been repealed. Illinois's credit expired in 2011 along with the incremental research tax credits in Hawaii, Montana, and Utah, while the credit in Texas expired in 2009. An additional eleven states have sunset dates for their current credits with three set to expire in 2012.

In recent years, several states have revived or expanded their credits. Virginia created a new credit effective in 2011, replacing a more restrictive credit that expired in 2010. Vermont also revived a research tax credit in 2011, where its previous credit was repealed in 2007. Starting in 2010, Arizona allowed small businesses a partial refund of research tax credits and Minnesota increased its credit rate and made it refundable. For tax years 2010 through 2012, New York added a $2 million cap on all business incentive tax credits, which may push some refundable research tax credit claims into tax years 2013 or later. In 2011, Wisconsin created an additional "super" credit equal to total expenditures that exceed 125 percent of average expenditures in the previous three tax years.

Twelve states require businesses to complete an application for the research tax credit prior to a claim. This is necessary in the five states with a statewide cap so that claims can be prorated among businesses when the total amount of claims exceeds the yearly cap (Delaware, Maryland, New Hampshire, Pennsylvania, and Virginia). Louisiana and West Virginia require applications prior to

[6] Florida's credit will not become effective until tax year 2012, so is not included in the discussion of credits here, although information on the credit is provided in Table 1.

credit claims which include information on the employment or general economic activity that is associated with the research expenditures. In Arkansas, companies meeting certain criteria can receive a larger tax credit rate if they apply with the Arkansas Science & Technology Authority (ASTA). ASTA releases the names and credit claim amounts of all approved companies annually (Arkansas, 2010). In Maine, all companies with tax credit claims in excess of $10,000 must file an annual report on employment levels and changes. In 2007, a Maine report on research in the State provided the names and credit amounts of companies with claims over $10,000 for the 1999 through 2002 tax years (PolicyOne Research Inc, 2008). North Carolina also reports all taxpayers with claims to the research tax credit including the amount claimed (North Carolina, 2011). In Washington, claimants are required to complete an annual survey providing details on research, employment, and resulting new product lines or patents (Washington, 2010).

Other than Iowa, only Louisiana, Minnesota, Nebraska, New York, and Virginia have refundable research tax credits, while Massachusetts allows for a refund at a discounted rate. In Nebraska, the credit is refundable against the corporate income tax but not against the individual income tax, thus it is not refundable for shareholders of an S corporation. In New York, the credit claim, including the nonrefundable portion, is limited to $250,000 per taxpayer per tax year. Arizona, Connecticut, and West Virginia have provisions that make the credit refundable for businesses which meet the small business criteria for each state. In all of the other states, not only are credits nonrefundable, many credits are limited to 50, 70, or 75 percent of current year tax liability (Connecticut, Delaware, Georgia, Michigan, North Carolina, and South Carolina). Other states place a dollar limit, ranging from $10,000 to $2 million, on a taxpayer's credit claim (Arkansas, New York, and Oregon) or have a statewide cap for total credits, ranging from $1 million to $55 million, claimed by all companies in a given tax year (Delaware, Maryland, New Hampshire, Pennsylvania, and Virginia). Some states have provisions that allow firms with current-year credits that exceed current-year tax liability to carry them forward and reduce future-year tax liability. The carry forward period in Colorado is extended until credits are fully utilized, while in Arkansas the carry forward period is limited to just three tax years. Only Montana and North Dakota allow a taxpayer to carry back the credit. Other states allow businesses that do not have sufficient tax liability during the current tax year to take advantage of the full credit by selling, or transferring, the credit to another taxpayer with positive tax liability (Arkansas, North Dakota, and Pennsylvania). Although transferability is more attractive than carry forward, it is still not equivalent to refundability because when credits are transferred they are often purchased at less than face value.

Three of Iowa's six neighbors currently offer a research tax credit. Starting in tax year 2010, Minnesota allows a refundable 10 percent credit on the first $2 million of incremental QREs and 2.5 percent above that amount, the credit was also made refundable. Wisconsin allows a nonrefundable 5 percent credit with a 15-year carry forward and a nonrefundable 5 percent credit for infrastructure costs, costs that are not eligible for research credits under the federal or Iowa credits. The Wisconsin credit rate rises to 10 percent for research on engines and energy efficient products. Starting in tax year 2011, Wisconsin also offers a "super" credit equal to 100 percent of research expenditures that exceed 125 percent of the firm's average expenditures in the three previous years. Nebraska's refundable research credit equals 15 percent of the federal credit apportioned for research in the state, which makes it effectively a 3 percent credit. For research conducted at a Nebraska college or university, the credit rate rises to 35 percent of the federal credit. Missouri and Illinois no longer offer research tax credits with Missouri's 6.5 percent nonrefundable credit expiring in 2004 and Illinois's 6.5 percent nonrefundable credit expiring in 2011. South Dakota does not offer any credit because it does not levy tax on corporate or individual income.

Although credit rules can reveal differences between the credits offered by Iowa and its neighbors, comparing estimates of tax credit claims can more clearly indicate the impact of the credits on state revenues. Unfortunately, the most recent estimates reflect different time periods across the states.

- Iowa: Tax year 2009 research tax credit claims totaled $45.3 million for corporate income taxpayers and $3.3 million for individual income taxpayers, or $16.08 per capita.[7]
- Minnesota: Fiscal year 2011 research tax credit claims, accounting for the recent credit expansions, are estimated to total $27.7 million in corporate claims and $1.1 million in individual claims, or $5.44 per capita (Minnesota Department of Revenue, 2010).
- Nebraska: Calendar year 2010 research tax credit claims totaled $4.1 million, or $2.24 per capita (Nebraska Department of Revenue, 2011).
- Wisconsin: Fiscal year 2007 research tax credit claims, including the credit for expenditures on facilities, totaled $30.7 million for corporate income taxpayers or $5.42 per capita; the credit cannot be claimed against the individual income tax (Wisconsin Department of Revenue, 2011). This estimate does not capture the recent expansions in the Wisconsin credit.

D. Literature on the Impacts of Research Tax Credits

The rationale behind a tax credit for research expenditures reflects the belief that research and development provides social benefits that exceed the private benefits realized by businesses carrying out the research; essentially that research has characteristics of a public good. With a tax credit, the government lowers the effective price of research such that businesses will supply more, pushing the total amount closer to the socially optimal level. Research shows that indeed the federal R&E credit has raised the total amount of research conducted in the country (CBO, 2007). A recent evaluation estimated that the federal research credit induced over two dollars of additional research spending per dollar of credit claimed after the change to the federal credit calculation in 1989 (Gupta, Hwang, and Schmidt, 2011). Another suggested that the $6 to $8 billion in federal credits claimed each year induce $9.9 to $22.2 billion in private research spending (Ernst & Young, 2011).

The United States is not the only country to enact research tax credits as a means to increase research and development investment. Duguet (2010) studied the impact of the French research tax credit at the firm level between 1993 and 2003.[8] By constructing a focus group and a control group, he estimated that the national research tax credit increased private research and development investment by 7.9 percent annually from 1993 to 2003. For total research investment, measured as the sum of private research investment and research tax credits, the tax credit's impact was a positive 11.2 percent. Parsons and Phillips (2007) used simulation methods and estimates from previous studies to calculate the average welfare gain or loss generated by every dollar of the Canadian federal research tax credit.[9] Accounting for returns of investment on research and development, spillover effects of increasing research activity, direct costs of the tax credit, administrative and compliance costs of the tax credit, and the elasticity of research investment to the tax credit, the authors claimed that the wider economic effect more than offset the foregone tax revenue from research tax credit claims. The estimated net social welfare gain per each Canadian dollar of tax credit claimed was $0.11.

Several studies used the Regional Economic Models, Inc, (REMI) economic-forecasting and policy-analysis model to estimate the net impact of research tax credits on the economy of various states in the U.S. The REMI model includes the option of a balanced budget constraint that is reality for most state governments. In these studies when estimating the impact of tax credit claims on economic activity, the authors reduced government expenditures on other goods and services to recognize that higher credit claims means lower State revenue collections. For Massachusetts, Ernst & Young (2003) estimated that the incremental research tax credit induced 2,050 new jobs and $96.7 million of

[7] Per capita amounts were computed by dividing the total research tax credit claim estimates by the U.S. Census state population estimate for July 1, 2010.
[8] The French credit is incremental, only paid on research expenditures that exceed a base amount of research expenditures, similar to the U.S. credit.
[9] The Canadian credit is permanent and non-incremental, paid on every dollar of research expenditures each year.

increased personal income during 2003. However, the direct cost of the Massachusetts research tax credit was a $72.1 million reduction in corporate excise tax liabilities in 2003 with an equivalent reduction in State spending and the resulting economic activity. The study concludes that the net impact of the research tax credit on the state and local economy was -$61.3 million. Lott and McMillen (2005) used the REMI model to analyze impacts of Connecticut's corporate income tax rate cuts, research tax credits, and other tax incentives from 1995 to 2002 and forecast the future impact through 2012. They estimate that Connecticut's research tax credit increased net new jobs by 1,159 in 2002, which was the most productive tax credit program in the state. The net cost (including the direct tax credit claims and additional tax revenue generated from more economic activity induced by the tax credit) per new job was $4,706 based on the REMI estimates. Gittell and Tebaldi (2008) used the New Hampshire REMI model to estimate the employment impact of the research credit enacted in 2007. The estimated impact was an increase of 73 jobs, a $2.8 million increase in personal income, and a nearly $5 million increase in state gross domestic product under the $1 million statewide research tax credit cap.

Paff (2005) presented a firm-level analysis of the impact of California's 1997 increase in its research tax credit rate. Using a difference-in-differences approach with Massachusetts as the control state, she compared research expenditures by biopharmaceutical and software firms in California and Massachusetts before and after the credit change in California. Models that controlled for time across the panel suggested that the credit change had little impact on research expenditures in California for the industries studied.

A study completed by the State of Washington regarding tax incentives for research compares the tax liability that hypothetical firms undertaking research would face in the state with and without existing tax incentives and in six other states considered to be Washington's competitors (Washington, 2003). Results show how the research tax credit in Washington is more generous to most firms than other states' credits because Washington allows the credit on every dollar spent on research, not just incremental expenditures.

Wu (2005) estimated the impact of state research tax credits on private research expenditures. The author faced data limitations that restricted his analysis to a panel of 13 states (not including Iowa) over 1975 to 1995. Six of the states introduced research tax credits during that time. Using regression analysis, the author estimated the impact of introducing a research tax credit on private research expenditures per capita and attempted to estimate the impact of the relative strength of the credit, measured as the deviation of the state research tax credit rate from the average in the sample. The impact of the presence of the state research tax credit was significant and positive, suggesting research credit causes an additional $75 to $118 of private research expenditure per capita each year, compared to the panel average of $370 in research per capita. The coefficient of the deviation of the research tax credit rate from average was insignificant due to insufficient observations or the inability of that limited measure to capture the true variation and value of the different credits across the states. Wu also estimated that a $10 per capita increase in state expenditures on higher education increased private research expenditures $7 dollars per capita.

Despite the estimated positive impact of state research credits on in-state research expenditures, it is also recognized that the positive externalities are not constrained by state boundaries, and thus the public goods rationale for a state research tax credit is less straight forward (Hall and Wosinska, 1999). Indeed, state-level research tax credits may have more to do with improving the state business climate and attracting high-paying jobs than any attempt to correct for market failures. Wilson (2009) considered whether the expansion of research tax credits across the states in the U.S. during the 1990's and 2000's increased social returns from research or simply resulted in zero-sum tax competition between the states. He presented evidence that a reduction in the lowest after-tax state cost of research in a given year, driven by the largest state research tax credit, has a detrimental

effect on the average research spending in other states. Thus it appears firms are willing to incur costs to move research activities between states to take advantage of higher tax credits. Wilson estimated that the magnitude of this negative impact nearly equals the positive impact from a reduction in the user cost within a state, thus the net elasticity is near zero. This result suggests that state-level research tax credits are not able to expand research, rather they simply shift research dollars between states as firms play one state against another to minimize their overall tax liability.

III. Research Expenditures and the Economy

A. Literature on Research Expenditures and Economic Growth

In the midst of the weak economic recovery, the Federal Reserve Chairman Ben Bernanke encouraged continued public support for research and development as a means to improve economic growth despite tight federal and state budgets (Wall Street Journal, 2011). He noted "the primary economic rationale for a government role in R&D is that, absent such intervention, the private market would not adequately supply certain types of research."

A CBO (2005) paper on research and development and productivity growth summarized previous estimates on the contribution of research on productivity and concluded that those expenditures do have a positive impact on productivity, with a rate of return that is at least equal to the return on other types of investment. However, the study pointed out various difficulties in making those estimates, including the difficulty of measuring output and research capital.

Verspagen (1995) used data from the Organization for Economic Co-operation and Development (OECD) to estimate impacts of research and development investment on productivity in 14 different industries across eleven developed countries (Belgium, Denmark, Canada, Germany, France, Japan, Italy, Norway, Sweden, United Kingdom, and the U.S.). Using a fixed-effect model, the author estimated for each country an output elasticity of research expenditures, the amount by which output grows as a result of a one percent increase in research. For the U.S., estimates suggested industrial output grew by 0.17 percent for every one percent increase in research expenditures in high technology industries (machinery, instruments, chemicals, transport equipment, and electrical machinery). The estimate for medium technology industries (nonmetallic minerals, other manufacturing, ferrous and nonferrous metals, and rubber and plastic products) was 0.019 percent. The elasticity estimate was 0.009 percent for low technology industries (food products, textiles, wooden products, paper and printing, and fabricated metal). For medium and low technology sectors the U.S. estimates ranked in the middle among the eleven countries considered in the paper, suggesting the U.S. productivity of research in those sectors is average. However, for the high technology sectors, the U.S. estimates ranked at the top among all of the countries considered, suggesting U.S. research is the most productive in those industries.

Griliches (1998) provided a comprehensive study of the effect of research expenditures on total factor productivity (TFP) in the U.S. using economic data from 1957 through 1977. Using Cobb-Douglas production functions, the author found that the R&D intensity, which is the ratio of research expenditures to output, has a positive and significant impact on TFP for 139 three-digit manufacturing industries in the U.S. Higher TFP leads to higher output for firms within those industries. For 133 publicly traded firms in the sample, the author estimated that output increased by 0.06 percent for every one percent increase in research expenditures.

Aw, Roberts, and Xu (2010) modeled the impact of historical research investment on firm productivity, using data on firms in the electronics industry in Taiwan. The authors estimated, using ordinary least squares models, that firms engaged in research investment had 4.79 percent higher productivity than other firms. Therefore, higher research expenditures resulted in those firms growing faster, which

enabled those firms to invest more in research. This paper also used a probit model to estimate the impacts of productivity on future research investment, where the dependent variable equals one when the plant invests in research and equals zero otherwise. The results show that firms with higher productivity are more likely to invest in research. By identifying a positive relationship of research on productivity and productivity on research, the authors point out that it is not possible to definitively measure the impacts of research on economic growth.

B. Research Expenditures Across the United States

Along with the wide variation in research tax credits offered across the states, the amount of research expenditures across the states also varies widely. The National Science Foundation (NSF) collects data on research and development expenditures by state and entity (see Table 2). Nationwide, in 2007 the majority of research expenditures were incurred by private businesses (73.9%) and academic institutions (13.7%), followed by the federal government (6.8%) and federally-funded research and development centers (FFRDC, 3.8%). Federal government funding does not include research grants paid to other entities nor claims to the federal research credit. Likewise, state government funding does not include claims to state research credits. In 2007, private businesses spent over $265 billion on research, with just under 10 percent of that amount funded through federal grants. In Iowa, private businesses spent $1.2 billion on research during 2007, 31st highest in the country. The top state was California, with Michigan coming in 4th, the highest of the Midwest states. Nationally, academic institutions incurred over $49 billion in research expenditures with 61 percent funded from federal sources. In Iowa, colleges and universities incurred $587 million in research expenditures, 26th highest in the country. Again, California ranked first, but Illinois ranked highest of the Midwest states at 8th with $1.9 billion in research expenditures. During 2007, Iowa ranked 31st in a comparison of total research expenditures among the states, far below neighboring states of Illinois (8), Minnesota (15), Wisconsin (21), and Missouri (25). In 2007, Iowa ranked above Nebraska (39) and South Dakota (50).

Iowa has seen an increase in research expenditures over time on a per capita basis, but not enough to catch up to spending nationwide or among other states in the Midwest (see Figure 1). Between 1987 and 2007, total nominal research spending in the United States rose from $520 per person to $1,200. Likewise, per capita research spending in the East North Central States (Illinois, Indiana, Michigan, Ohio, and Wisconsin) more than doubled during those 20 years, following the U.S. number closely (see Appendix D for a map). In Iowa and all other West North Central States (Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota) per capita spending also rose from $430 to $850 per capita, but remained well below U.S. per capita spending. Iowa per capita spending rose from $200 in 1987 to $630 in 2007.

In 1987, shortly after the introduction of the Iowa research credit, the National Science Foundation reports that total research expenditures in Iowa were $540 million (see Table 3). By 2007, research expenditures were $1,882 million, a 248 percent increase in nominal dollars since 1987. A similar amount of growth can be seen on a per capita basis. Despite the strong growth, Iowa's rank among the states changed little over that time when measured on a per capita basis suggesting other states have experienced similar rates of growth. When measured as a share of state GDP Iowa has seen 16.6 percent growth in research expenditures between 1987 and 2007, but yet the state's rank for research expenditures as a share of GDP fell from 31 to 35. Eathington and Swenson (2010) present similar data for Iowa and conclude "there is no clear evidence that the state's competitive position in terms of overall R&D activity or total productivity growth as measured by GDP have improved during the two decades of the RAC program's existence."

IV. Analysis of Iowa Research Activities Tax Credit Claims

A. Corporate and Individual Research Activities Tax Credit Claims

Both corporate and individual income taxpayers have been able to claim the Research Activities Tax Credit (RAC) from its inception; however, data on claims made by individual income taxpayers are only available beginning in tax year 2002. Until tax year 2006, the corporate income tax return (IA 1120) had a separate line for an RAC claim while the individual income tax return (IA 1040) had only an "other refundable credits" line which asked taxpayers to report RAC claims together with all other refundable credit claims.[10] The only way to discern whether an individual claimed the RAC was if the taxpayer filed a tax return with either an IA 128 or the IA 128A. During fiscal year 2006, IDR pulled individual returns with refundable tax credit claims for tax years 2002 through 2005 and captured information from those forms.[11] Because it is possible taxpayers made claims to the RAC in those tax years but did not file either form, complete data on RAC claims by individuals is only available beginning in 2006 when the IA 148 Tax Credits Schedule was introduced (see Figure 2).[12] Most claims for the RAC made by individual income taxpayers reflect pass-throughs of credits earned by an S corporation or limited liability company (LLC). The counts presented here reflect the total number of claims made by taxpayers, not the number of credits earned by businesses. The credits earned by businesses will be presented later in this analysis.

The first corporate claim for the RAC was made in the 1986 tax year for $245 (see Table 4). In 1989 nearly 200 firms claimed $4.7 million in credits, with an average nominal claim of $23,800. The largest number of corporate claims, 394, was filed in the 1992 tax year for a total of $5.3 million, although the average nominal claim fell to $13,500. Claims dropped off in 1994 and again in 1995, the one year the temporary federal research credit was allowed to expire. Throughout the late 1990's and early 2000's the number of claims leveled off at around 140, less than half of the peak count. However, total and average claims rose dramatically during that time, reaching $13.2 million and $88,500 in tax year 1999 and jumping to $25.5 million and $182,100 in tax year 2000. The jump reflects the introduction of the Alternative Incremental Research Credit calculation method that year (see Figure 3). Counts and dollars claimed rose over the 2002 through 2007 tax years, although part of the growth likely reflects improved data collection with the introduction of the IA 148 in 2006. Growth in RAC claims during those years also likely reflects the expanding economy resulting in rising research expenditures in the state. In tax year 2007, claims totaled $56.1 million. With the national recession taking hold in 2008, RAC claims fell for tax years 2008 and 2009. In tax year 2009, the latest year of complete data, the 182 corporate claims totaled $45.3 million and the 682 individual claims totaled $3.3 million.

Because data on RAC claims prior to 2002 is limited to the total dollars claimed on corporate returns with no data on the underlying research expenditures on which those claims were made or the method used to calculate the credit, the following analysis will present data from tax years 2002 and later. When the analysis requires information only available on the IA 148 Tax Credits Schedule, data will be limited to tax years 2006 and later.

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[10] Starting in tax year 2006, all corporate tax credits other than the Motor Vehicle Fuel Tax Credit are claimed on the IA 1120 as either refundable or non-refundable, similar to the IA 1040 for individual income taxpayers. Corporations and individuals now provide details about credit claims by completing the IA 148 Tax Credits Schedule, introduced in tax year 2006 to track most Iowa tax credit claims.

[11] A similar effort was made to collect data from the IA 128 and IA 128A forms filed with historical corporate income tax returns for tax years 2002 through 2005.

[12] Although most individual income tax credit claims and some corporate claims are available for tax year 2010, data from that tax year are not considered because many corporate claims have not yet been filed with IDR.

B. RAC Refunds, Timing, and Supplemental Claims

The data discussed in this subsection, as in the one prior, reflect actual claims for the RAC that were used to offset tax liability or refunded to corporate and individual income taxpayers. When a business conducting the qualified research is organized as an S corporation, LLC, or partnership, the RAC that is earned is passed through to shareholders to be claimed on their tax returns. These pass-through entities make the choice of whether to calculate the credit using the regular or AIRC method (ASC method after tax year 2009) and can pass through any awarded Supplemental credits to shareholders as well as the automatic credits.

As noted in Section II, Iowa is one of only four states with unlimited refundability for both corporate and individual income taxpayers. For tax year 2002, $26.3 million in RAC claims were refunded to taxpayers, with $25.7 million going to C corporations and $0.5 million going to individuals (see Table 5).[13] In tax year 2009, refunds totaled $43.6 million with $42.2 million refunded to corporations and $1.4 million going to individuals. Corporations receive a larger share of claim dollars as refunds, averaging 91.4 percent of total claim dollars refunded each tax year compared to 44.5 percent of claim dollars refunded to individuals. The difference likely reflects that individuals, as shareholders, have wages or other taxable income unrelated to the business carrying out the research with which to offset the credit claim. In 2009, 61.8 percent of corporations with a RAC claim received at least one dollar in refund compared to 28.3 percent of individuals.

Up to this point, RAC claims have been presented based on the tax year in which those claims were made. However, for state budgeting, it is important to also know the fiscal year in which claims are made to aid in forecasting how any change to the credit might impact future receipts and refunds. Iowa has a July to June fiscal year while many taxpayers, such as those filing individual income tax returns, have a January to December tax year. These “calendar year filers” face a state income tax return due date of the following April 30. Corporations can have tax years that start at the beginning of any month, thus pushing their tax filing deadline to different months of the following calendar year. In addition, taxpayers can exercise six-month extensions which further delay the filing of income tax returns. Therefore, it is not surprising that many corporate RAC claims for a given tax year are not filed with IDR until two or three fiscal years after the end of the tax year (see Table 6). For the $44.9 million of RAC claims filed by corporations in tax year 2009, $0.4 million were filed in fiscal year 2010 (July 2009-June 2010), $29.3 million were filed in fiscal year 2011 (July 2010-June 2011), and $15.7 million were filed in fiscal year 2012 (July 2011-June 2012).[14] The timing for claims is relatively steady over time, except for tax year 2007 when many claims that would normally have been claimed during the first few months of fiscal year 2010 were filed in fiscal year 2009. This is believed to be the result of the new disclosure rule that became effective July 1, 2009 (discussed in Section II, B). Taking the average distribution of corporate RAC claims over the most recent tax years, excluding 2007, shows 1.1 percent of claims were filed on returns received in the fiscal year following the tax year, 43.9 percent were received two fiscal years after the tax year, and 54.9 percent were received three fiscal years after the tax year.

Individual income tax claims to the RAC are made much more quickly, with 74.1 percent filed in the fiscal year after the tax year during the regular tax filing season. Still, many individual income taxpayers appear to be taking advantage of the six-month extension as 25.7 percent were claimed in the fiscal year two years after the tax year.

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[13] Refund amounts were determined by subtracting from tax liability, after nonrefundable credits, each refundable credit claim in the sequence established in Department of Revenue administrative rule 701- 42.44 for individual and 52.12 for corporate. The rules specify the RAC is to be the third refundable credit applied in the determination of tax liability for individual income taxpayers and the fourth refundable credit applied in the determination of tax liability for corporate income taxpayers.

[14] Timing for this analysis reflects the date IDR received the tax return and not the date the return completed review, where in some cases the latter can be several months after the former.

The estimated timing of the fiscal impact of a hypothetical change to the RAC is presented to demonstrate how much of a lag exists between a change in the credit rules and an expected change in credit claims (see Table 7). If a change were made to the RAC with an estimated impact of reducing tax year 2012 claims by $10 million, the majority of the reduction in actual claims would not be realized until fiscal year 2015. First the forecasted change must be split between corporate and individual claims, because the timing of claims differs so starkly between the two tax types. Individual taxpayers claim on average just 6.6 percent of total RAC claims, so under this example the reduction in expected individual claims is only $0.7 million. In fiscal year 2013, 74.1 percent of those reduced individual claims for the credit would be filed for a total reduction of $0.5 million. In addition, 1.1 percent of corporate claims would also be filed, for a $0.1 million reduction. Therefore the total forecasted change for fiscal year 2013 is only -$0.6 million, or 5.9 percent of the -$10 million total. Fiscal year 2014 would see a $4.3 million drop in claims, 42.7 percent of the total change, with 43.9 percent of corporate claims and most of the remainder of the individual claims for tax year 2012 filed in that period. In fiscal year 2015 when the majority of RAC dollars would be claimed on tax year 2012 corporate returns, 51.3 percent, -$5.1 million, of the -$10 million change would finally be realized.

While RAC claims have already been presented by tax type by matching claims to the IA 128 and IA 128A filed by the corporation or the pass-through entity (see Table 4), these claims can be further broken down by the credit calculation method used and by whether the credit claim was for an automatic or Supplemental RAC. For tax years 2000 through 2009, businesses with incremental qualified research expenditures in Iowa were eligible to claim the RAC using one of two methods, the regular method (claimed using an IA 128) or the AIRC (claimed using an IA 128A).[15] In addition, businesses could as much as double their tax credit claim if awarded a Supplemental RAC as part of a business incentive package.[16]

On average 22.9 percent of claims to the RAC also included a Supplemental claim, accounting for 32.5 percent of total dollars claimed (see Table 8). On average, 26.6 percent of claims to the RAC were made using the AIRC method, accounting for 46.2 percent of the dollars claimed. These numbers suggest that AIRC claims are larger, on average, than claims calculated using the regular method. In particular, large corporate claims were much more likely to be calculated using the AIRC method, accounting for 22.2 percent of corporate credit claims, on average, but 41.7 percent of corporate automatic RAC claim dollars. These companies were also more likely to have a Supplemental claim, with 33.4 percent of Supplemental RAC claims made by corporations using the AIRC method, accounting for 62.0 percent of the Supplemental claim dollars on average. For individuals, 27.4 percent of claims and only 15.9 percent of automatic RAC dollars were claimed using the AIRC method. On average, 43.5 percent of supplemental claims made by individuals were under the AIRC method, but only 20.3 percent of Supplemental RAC dollars.

C. Business RAC Claims by Size and Industry

Although many individuals make claims to the RAC on their individual income tax return, very few of those taxpayers earned the credits by carrying out the research directly. Rather most are shareholders in businesses, organized as S corporations, LLCs, or partnerships, that are conducting the research. For this subsection, data are based on credits earned by businesses rather than credits claimed by taxpayers. It is possible that earned credits can exceed claimed credits because not all

[15] Starting in tax year 2010, the AIRC method was replaced with the ASC method, see Section II.

[16] Starting on July 1, 2010, the calculation of the supplemental credit was changed as noted in Section II allowing some firms to more than double their claim, but limiting others to under a 50 percent increase. Since fiscal year 2010 supplemental awards have also been subject to the EDA award caps, which may further constrain the size of supplemental claims going forward.

shareholders make claims to the credit, particularly when those shareholders live outside of Iowa.[17] For example, in tax year 2009, total RAC claims, based on claims data reported on the IA 148 Schedule, were $48.2 million while total earned RACs, based on data reported on IA 128 and IA 128A forms filed by businesses earning credits, were $49.1 million. The discrepancy between claimed and earned credits is only evident in the last three years of the data, reflecting the improved data collection starting in tax year 2007.

All businesses identified as having earned and claimed the RAC, either directly as a C corporation, or indirectly by passing the credit to shareholders, were matched to Iowa Workforce Development (IWD) data from the 2002 to 2010 period. These data contain characteristics about those businesses such as firm size and industry. Firm size is measured as the maximum quarterly number of employees in Iowa.[18] Based on that measure, firms are categorized as micro, less than 10 employees; small, 10 to 99 employees; medium, 100 to 499 employees; or large, 500 or more employees. Three-digit North American Industry Classification System (NAICS) codes are used to group businesses by industry type.[19]

For tax years 2002 through 2009, over one-half of the count of RAC claims was earned by businesses with less than 100 employees in Iowa, although those claims accounted for only 9 percent of RAC dollars earned (see Table 9). Conversely, businesses with 500 or more employees in Iowa accounted for one-tenth of claims but 79.6 percent of RAC dollars earned. The concentration of RAC dollars going to large firms falls slightly when the data is limited to tax years 2006 through 2009, years in which IDR could collect credit information from more micro and small pass-through entities identified by shareholders on the IA 148 Tax Credits Schedule. During the last four tax years, micro firms accounted for 13.0 percent of claims but just 0.9 percent of claim dollars. Small firms accounted for 46.4 percent of claims and 9.0 percent of claim dollars. Medium firms made 26.8 percent of the claims, but accounted for just 11.3 percent of claim dollars. Large firms made 9.4 percent of the claims, but earned 77.8 percent of claim dollars. The remainder of firms could not be matched to IWD data.

In Iowa, firms earning RACs have been predominantly in the manufacturing sector, although claims have also been made by firms in the financial and service sector and in agriculture-related sectors (see Table 10). Businesses in the top twenty industries together account for 87.3 percent of the total number of claims and 98.9 percent of the total dollars in credits earned since 2002. The industry with the largest RAC claim total is machinery manufacturing. During the last eight tax years, 82 businesses in this industry made 350 claims averaging $321,000 per claim to total over $112.2 million. These firms averaged 335 employees in Iowa. The industry with the next largest total claims, $92.2 million, is transportation equipment manufacturing. The 32 businesses made 152 claims averaging $607,000 and accounted for 29.4 percent of total earned credits. Firms in this industry averaged 896 Iowa employees. Of the top twenty industries earning RAC claims, ten are in manufacturing. Manufacturing firms accounted for $283.0 million, 90.0 percent, of the total value of credits earned since 2002, while they accounted for 61.2 percent of the number of credits earned.

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[17] Many out-of-state shareholders do not file Iowa returns despite their eligibility to claim the refundable credit. Other shareholders make claims that are less than the amount earned because they incorrectly apportion their credit claim by the Iowa business activity ratio.

[18] The IWD data are quarterly files that include monthly employment counts covering calendar years 2002 through 2010. First, monthly employee counts are averaged within quarter for each year, then the maximum quarterly count of employees over the eleven year period is computed. Because all firms are categorized by their maximum size in recent years, firms that experienced significant growth or decline between the time of an RAC claim and the time of their maximum employment could be categorized incorrectly. In several cases, employment data gathered from the IDR survey were used to update the IWD employment data.

[19] Although the IWD data was the starting source for NAICS code, information from federal corporate tax returns and survey responses from the businesses were used to supplement and improve the data.

D. Concentration of Earned Credits and Research Expenditure Details

Data presented above suggests a high concentration of claims by businesses with more than 500 Iowa employees and businesses in manufacturing. Another way to consider concentration of claims is to compare the amount of RAC earned by those companies with the ten largest credits to total earned credits each tax year. Since 2002, 269 businesses on average earn an RAC each tax year (see Table 11). The top ten annual claimants account for 77.4 percent of the value of the earned credit and 70.0 percent of total Iowa research expenditures. The average count of businesses rises to 354 when only tax years 2006 through 2009 are considered, years when data collection on credits earned by pass-through entities is more complete. For 2006 through 2009 the concentration of claims earned by the top ten businesses falls to 76.1 percent. The concentration of research expenditures among the top ten claimants for the recent tax years is 69.5 percent. The gap between the share of research and credits can mostly be explained by the amount of Supplemental RAC these companies have been awarded. Compared to all businesses earning RAC claims in 2006 through 2009, Supplemental RAC comprise 36.6 percent of credits earned by the top ten claimants compared to 32.3 percent for all claimants. The average concentration of claims earned by the top ten businesses falls to 71.2 percent for 2006 through 2009 tax years if only automatic earned credits are considered, closer to the share of research reported by those companies. The remaining gap reflects the increased use of the AIRC calculation method among the top ten claimants, with 52.2 percent of credits claimed by the top ten claimants using that method compared to 46.1 percent for all claimants. It will be shown below that the credits paid per dollar of research are higher under the AIRC method.

In addition to revealing the calculation method used, the IA 128 and IA 128A forms also provide details on the qualified research expenditures of businesses in Iowa, and, in the case of the IA 128, for the entire U.S. These expenditures are split into four categories, following the breakdown on the federal research tax credit form (Form 6765). For firms claiming the RAC using the regular method and filing the IA 128, 67.7 percent of expenditures in Iowa were claimed as wages, higher than the 57.5 percent of total U.S. research expenditures (see Table 12). Conversely, only 11.6 percent was attributed toward contract research compared to 20.3 percent of U.S. expenditures. This suggests that businesses with research expenditures both inside and outside the state are more likely to incur in-house research in Iowa. For firms using the AIRC method, the IA 128A form did not require disclosure of total U.S. research expenditures.

In 2009, businesses earning Iowa RAC using the regular calculation method and filing form IA 128 reported over $9.8 billion in U.S. qualified research expenditures and $604.9 million in Iowa qualified research expenditures, 6.1 percent of the U.S. total (see Table 12). Firms using the AIRC calculation method and filing form IA 128A, claimed an additional $575.3 million in Iowa qualified research expenditures. Thus a total of $1.18 billion was spent on research activities in Iowa during the 2009 tax year by businesses earning claims to the RAC. This compares to the $1.29 billion reported on tax returns for tax year 2007. Recall that the National Science Foundation reported $1.20 billion in research expenditures by businesses in Iowa during calendar year 2007. Part of the discrepancy may reflect differences between tax year and calendar year for many businesses. However, the numbers suggest that the NSF survey is understating actual research in Iowa and that nearly all research being conducted by companies in Iowa is receiving some subsidy from the State.

In tax year 2009, businesses claiming the regular RAC earned $25.1 million in both automatic and Supplemental credits for the $603.8 million of research expenditures in Iowa, or 4.1 cents of credit per dollar of research. Because the RAC is an incremental credit the regular research credit rate of 6.5 percent, or 6.5 cents per dollar of total "Iowa qualified research expenses," only applies to expenditures above a base amount. This explains why credits per dollar of total research expenditures fall below 6.5 cents. For businesses claiming the AIRC, credits per dollar of total research expenditures were slightly higher at 4.3 cents in tax year 2009. Over the 2002 through 2009 period and combining the regular and AIRC claims, on average businesses earned 4.2 cents in total

RAC per dollar spent on research activities in Iowa. Without the Supplemental RAC, credits earned per dollar of research expenditure were 2.8 cents.

E. Location of Research Activities Within Iowa

Research activities and credits claimed can be mapped to locations within Iowa based on the addresses of the companies making the claims. However, it is likely that many large companies conduct research in locations that differ from the location of the headquarters. Therefore, on the IDR Survey of Research Activities, companies were asked to break down their research expenditures by Iowa zip code. For the companies that responded to the survey, 75 percent of Iowa research expenditures were made in the same zip code as the company mailing address. Although far from a perfect match, this percentage was high enough to provide some confidence in the assumption that all research expenditures reported in Iowa occur within the same county as the mailing address for the company in the case where other information, such as a survey response on research expenditures by zip code or an Iowa location of a facility from IWD records was not available.[20]

Of the $1.1 billion in qualified research expenditures reported by Iowa companies during tax year 2009 that could be matched to a research location in Iowa, nearly 60 percent was conducted in the Northeast district, which includes the counties of Linn, Black Hawk, and Dubuque (see Table 13). Almost one-fifth was conducted in the Southwest district, which includes the counties of Polk and Dallas, 12 percent was conducted in the Southeast district, which includes the counties of Marion, Wapello, Scott, and Johnson, and the remaining 10 percent was conducted in the Northwest district, which includes Story County. The breakdown of research wages is very similar, while the breakdown of earned RAC between the four districts is even more concentrated in the Northeast and Southwest districts. However, the breadth of research is greatest in the Northeast and Northwest district with 16 of 20 (80 percent) and 32 of 39 (82 percent) counties reporting at least one facility where qualified research was being conducted compared to only 10 of 16 (63 percent) in the Southwest district and 15 of 24 (63 percent) in the Southeast district.

The concentration of qualified research expenditures among counties is similar to that among companies, with 85.6 percent occurring in just ten counties and 88.7 percent of credit claims attributed to facilities in those ten counties (see Table 13). Leading the way is Linn County with 32.7 percent of statewide expenditures and 33.8 percent of credits followed by Black Hawk County with 16.3 percent of expenditures and 20.0 percent of credits and Polk County with 15.3 percent of expenditures and 18.3 percent of credits. These counties also jump out on maps of qualified research expenditures and earned RAC (see Figures 4 and 5). The $375.9 million total research expenditures reported by RAC claimants in tax year 2009 in Linn County is 2.8 percent of the gross domestic product (GDP) of the Cedar Rapids metropolitan area for 2009.[21] Likewise, the $187.3 million of tax year 2009 research expenditures reported in Black Hawk County is 2.5 percent of GDP for the Waterloo and Cedar Falls metropolitan area. However, Polk County's $174.5 million in research expenditures is only 0.5 percent of the Des Moines and West Des Moines metropolitan area GDP for 2009.

Not surprisingly, these ten counties include most of the urban counties in the state, and were home to over 45 percent of the population in Iowa in 2009. The one measure by which these counties are not as dominant is the count of companies conducting research, with just 53.5 percent of company

[20] One-third of companies with RAC claims responded to the IDR Survey on Research Activities, accounting for nearly 80 percent of total RAC claims between the 2006 through 2009 tax years. In cases where companies reported conducting research in multiple zip codes for the most recent tax year, research expenditures and earned credits for 2008 for those companies were divided among those zip codes using the same distribution. Zip codes were matched to counties assuming the business is located in the county with the highest share of population reporting that zip code, in the case when zip codes overlapped county borders.

[21] The U.S. Bureau of Economic Analysis (2011) reports gross domestic product values by state and metropolitan area, but not by county.

locations concentrated in the ten counties (see Figure 6). This suggests that there are many micro and small companies located around the state conducting a small amount of qualified research. In tax year 2009, companies conducting research and earning RAC were located in 74 of Iowa's 99 counties.

V. Relationship Between the RAC and Wages in Iowa

With the credit's low compensation per dollar of research, it is reasonable to believe that the RAC does not impact companies' research decisions on the margin. However, the permanent and refundable nature of the Iowa credit does give firms certainty that they will receive some benefit for research conducted within the state regardless of the status of the temporary federal credit or the firms' Iowa tax liability. This certainty could induce firms to increase research efforts within the State. Unfortunately, it is not possible to measure the extent to which the credit drives the amount of research conducted in Iowa because there is no counterfactual, i.e., no recent time period where Iowa did not offer the credit. Likewise, there is no ideal control group, i.e., firms operating in Iowa that are similar to firms claiming the credit but that are ineligible for the credit regardless of their level of research, to compare to the companies in Iowa that do claim the credit. These limitations were one reason driving the efforts by IDR to survey companies in Iowa about their research activities, as will be discussed in the following section. Though the fundamental question of whether the credit drives research cannot be answered definitively with the available data, it is possible to compare statistics between companies claiming the credit and those with no claims to see if a possible link between credit claims and other desirable economic outcomes, such as higher wages, exist.

Although there is no direct link between a claim to the RAC and wage levels, there are several arguments for why companies conducting qualified research in Iowa and claiming the RAC could be expected to pay higher average wages than companies within the same industry not claiming the credit. First, companies conducting research likely have highly-paid research staff that would raise the overall average wage compared to companies not conducting research. Second, companies successfully conducting research to develop and produce new products should have higher productivity that could result in higher wages paid to employees. Third, if two companies in the same industry both conduct research but only one claims the credit, part of the credit might be passed to the research employees as higher wages.

Regardless for the explanation behind it, an interesting exercise is a comparison of average wages paid by companies claiming the RAC compared to companies who do not make claims to the credit. Average annual wage data was compiled by IWD by three-digit NAICS, dividing companies into those located in metro counties and non-metro counties. This geographic division is important because average wages differ significantly between the counties. In 2010, the average annual wage of private industry employees in metro counties was $40,200 compared to $32,700 in non-metro counties.[22] If a company has a presence in multiple counties, as reported on the IDR survey, the average wage for those companies was computed separately if one county was considered metro and another non-metro. Companies were then split into those with a claim to the RAC in tax year 2008 and those without. Only industries where at least three companies could be identified as making a claim to the RAC were included. The average annual wages are plotted in Figures 7 and 8 for all industries where

[22] The USDA produces a classification scheme that distinguishes metropolitan counties by population and non-metropolitan counties by degree of urbanization and proximity to metro areas. This urban/rural continuum ranges from 1 to 9. For this analysis, counties with a value of 1 through 3 were designated as metro counties, where commuting patterns can cause relatively rural counties to be designated as part of a metro area. Metro counties include: Benton, Black Hawk, Bremer, Dallas, Dubuque, Grundy, Guthrie, Harrison, Johnson, Jones, Linn, Madison, Mills, Polk, Pottawattamie, Scott, Story, Warren, Washington, and Woodbury.

RAC companies comprised more than one percent of the total count of companies identified in that industry.

Although average annual wages at companies claiming the RAC do exceed average annual wages at companies not claiming the RAC for some industries, the relationship for metro counties in Iowa is not consistent (see Figure 7). Although for most of these industries, predominantly manufacturing, the average annual wage exceeds the statewide average for metro counties, eight of fourteen reveal a higher average annual wage paid by the companies not claiming the RAC. Note that the values are ordered by the share of RAC companies identified in the industry, with the highest concentration to the left.

For non-metro counties, the discrepancies in average annual wages between companies claiming the RAC and companies not claiming the RAC are much smaller (see Figure 8). Five of the ten industries reveal wages at RAC companies that equal or exceed wages at companies not claiming the RAC, although in all cases, average annual wages exceed the statewide average for non-metro counties.

VI. Survey on Research Activities

The above analysis of the data available on RAC claim forms provides useful information about the amount of research companies have conducted in Iowa and, with matches to IWD data, some basic characteristics about those companies. However, it does not provide any information about the jobs associated with that research, in what other states those claimants also conduct research, whether the research results in patents or additional products produced here in Iowa, nor any opinion of how important the tax credit is for companies when making research decisions. In order to gather that information, IDR, in cooperation with the Center for Industrial Research and Service (CIRAS) at Iowa State University, surveyed companies with a presence in Iowa about their research activities. In April 2011, IDR mailed 517 surveys to companies that had made at least one claim to the RAC during the 2006 through 2009 tax years (see Appendix B). In June 2011, IDR mailed a similar survey to 679 companies in the same industries as RAC claimants and identified by CIRAS staff as potentially conducting research in Iowa (see Appendix C). Companies that do not perform research in Iowa were asked to complete a few basic questions about their company, such as gross revenues in the most recent year and Iowa business start date, and return the survey, while those conducting research were asked to provide details about that research.

A. Response Rates, Characteristics of Respondents, and Representativeness

The overall response rate for the surveys was 37.2 percent.[23] Acknowledging the high concentration of the dollar amount of claims, IDR made additional efforts to encourage survey completion by businesses with the largest historical claims to the RAC. These efforts raised the survey response rate of the top 20 RAC claimants to 70 percent. A total of 414 companies completed a survey with 194 of those companies having an identified claim to the RAC in at least one tax year since 2006. Those respondents accounted for nearly 77 percent of average annual RAC claims earned by the businesses surveyed.

While nearly 46 percent of survey respondents with a recent RAC claim reported gross revenues above $20 million in the most recent tax year, only 21 percent of companies with no claim to the RAC had gross revenues above $20 million (see Table 14). A slightly lower share of companies with RAC claims started doing business in Iowa during 2002 or later (16.5 percent versus 17.7 percent).

[23] The response rate removes surveys returned as undeliverable when a new address was not identified for a follow-up mailing, cases where companies received multiple surveys sent to subsidiaries, and cases where respondents noted the company was no longer in business.

Companies with RAC claims reported a higher share of production in Iowa (85.0 percent versus 79.5 percent) but a lower share of sales in Iowa (31.9 percent versus 47.8 percent). In both groups, the average Iowa production share and sales share were higher for companies with gross revenues of $20 million or less than for those companies with gross revenues exceeding $20 million. Not surprisingly, 89.2 percent of companies with a recent RAC claim reported conducting research in Iowa during their most recent tax year compared to just 15.5 percent of those without a recent RAC claim.

Thirty-six companies that had claimed the RAC in tax year 2006 or later did not claim the credit in their most recent tax year, with 15 reporting they did not conduct research in Iowa during the most recent tax year, with some companies citing the recession as a cause. Another 16 reported they were not eligible for the credit based on current and past levels of research expenditures. Five companies responded that the administrative burden of claiming the credit was too high.[24] Of the 34 companies with no RAC claim since 2006 that indicated they perform research in Iowa, nine reported they did not claim the RAC in the most recent tax year because they were not aware of the credit. Twelve companies indicated they were unsure if their research qualified while eight cited a high administrative burden.

The main goal of the survey was to learn more information about the companies that have recently taken advantage of the RAC. Overall, it appears that the survey respondents are fairly representative of the population of businesses that have earned an RAC since tax year 2006, based on company size and industry. This conclusion is based on matches of survey respondents to all companies identified as RAC claimants.[25] Respondents' shares of the RAC population and total RAC dollars earned were calculated by employment size and by three-digit NAICS (See Tables 15 and 16).

Around 40 percent of small and medium size firms, companies with 10 to 499 employees in Iowa, responded to the survey. The small company responses accounted for under one-quarter of credits earned by those companies while the medium company responses accounted for 35 percent of total credits earned (See Table 15). For large firms, those with 500 or more employees in Iowa, 46 percent completed the survey accounting for 96 percent of large firm RAC claims. The high response rate reflects the increased efforts by IDR to encourage survey completion by businesses with the largest claims, most of whom are large firms. For micro firms, those with less than ten employees, only 36 percent completed the survey accounting for 38 percent of micro firm RAC claims. The low response rate reflects both the likelihood that micro firms outsource tax preparation duties and therefore may have not had the resources or information to complete the survey in-house. Because the response rate for the largest claimants was higher, the respondents' share of total RAC earned, 76.6 percent, greatly exceeds the total respondents' share of the RAC population, 36.9 percent.

The response rate for manufacturing companies exceeded the response rate for companies in other industries. Almost 70 percent of survey respondents reported their industry as manufacturing, with nearly one-fifth reporting their industry as machinery manufacturing (see Table 16).[26] Both shares are higher than the corresponding shares for all RAC businesses of 55 and 16 percent. Following machinery manufacturing, respondents were most likely to report fabricated metal product manufacturing (15.5%) and professional, scientific, and technical services (10.4%). Based on the dollar value of claims, the industries with the best response rate were machinery manufacturing, transportation equipment manufacturing, and chemical manufacturing, the same top three industries

[24] The administrative burden of the Iowa credit is not much greater than the administrative burden of the federal credit, with only the additional burden of tracking Iowa expenditures separate from all other expenditures and completing one of the Iowa forms. Two of the five companies indicated they did claim the federal credit in their most recent tax year.

[25] Seven additional companies were identified as having earned a credit after the initial survey was sent, raising the population to 524.

[26] The survey asked companies to report a 6-digit NAICS code. When one was not provided, IDR attempted to assign one by searching the internet for a description of the company's main line of business.

for total claims (see Table 10). The respondents accounted for 85 to 95 percent of average earned RAC claims made by all companies in those industries over tax years 2006 through 2009, reflecting the fact the largest claimants were more likely to respond. It is also important to keep in mind that the high concentration of claims seen among the population of RAC businesses will also appear among the survey respondents.

B. Research Expenditures and Employment

The survey asked companies to provide total U.S. and Iowa research expenditures for each tax year 2006 and later. For any company that claimed the regular RAC, the data are also available on the IA 128. However, for any company that claimed the AIRC, total U.S. expenditures are not provided on the IA 128A (see Table 12). For tax years 2006 through 2009, survey respondents reported an average of over $3.5 billion in total U.S. qualified research expenditures and over $903 million in total Iowa qualified research expenditures (see Table 17). Tax year 2010 data was only provided by half of the respondents as many had not closed tax year 2010 at the time the survey was completed, therefore tax year 2010 data is not included in the averages. For the three-fourths of respondents conducting research only in Iowa, the average amount of research expenditures reported was $1.6 million per company per tax year. This is much smaller than the average $17.9 million in Iowa research reported by the one-fourth of survey respondents also conducting research in states outside of Iowa, either at another facility or through contract research. For those companies, Iowa research expenditures comprised an average of nearly 45 percent of total U.S. research. Although many of these multi-state research companies may also conduct research in facilities outside of the U.S., the survey did not collect information about international research.

While total U.S. qualified research expenditures reported by respondents peaked in tax year 2007, total Iowa qualified research expenditures peaked in tax year 2008. Respondents reported double-digit growth in total U.S. and Iowa research expenditures in tax year 2007 over 2006, excluding companies that reported zero in either year (see Table 18). The national recession in 2007 through 2009 led to a reversal of that growth in research expenditures. Respondents' U.S. expenditures dropped 3.1 percent in tax year 2008, while Iowa expenditures increased 5.4 percent. However, that increase was concentrated among the multi-state research firms, which increased Iowa expenditures by 8.0 percent, while Iowa-only research firms decreased expenditures by 3.3 percent. In tax year 2009, total Iowa research expenditures dropped across the board, with a 19.3 percent decline at Iowa-only research firms and a 3.2 percent drop for multi-state research firms.[27]

There were 184 companies that reported doing research in the most recent tax year that also provided information regarding the number of full-time equivalent (FTE) research employees they employ (see Table 19).[28] Statewide the respondents employ 13,378 FTEs, 0.9 percent of total Iowa employment, with 94 percent of the FTEs employed by companies with gross revenues greater than $20 million. The average number of research FTEs at companies with gross revenues over $20 million was 143 compared to just 8 at firms with gross revenues of $20 million or less. Companies reported an average annual wage of $60,877 paid to research employees in the most recent tax year, much higher than Iowa's average annual wage of $37,397 for 2010.

In addition to asking about the number of employees, the survey also asked about the educational level of the company's research employees. Nearly 80 percent of survey respondents included information regarding whether or not their research employees had Master's degrees or higher (see

[27] For the limited group of respondents reporting 2010 as the most recent tax year, both total U.S. and Iowa expenditures increased over 2009 expenditures. This group does not include many of the large, multi-state research companies who reported tax year 2009 as their most recent tax year.

[28] As noted in Section IV, business tax years can vary such that some companies completing the survey reported 2008 as the most recent tax year for which they had complete data while others reported 2010. Therefore, the most current tax year is not the same across companies.

Table 19). At companies with gross revenues over $20 million, employees with Master's degrees or higher comprised nearly a quarter of their research employees while companies with less than $20 million in gross revenues reported 13.3 percent of research employees held Master's degrees. According to the U.S. Census Bureau, just 7.4 percent of Iowans aged 25 and older hold a graduate or other advanced degree.

The survey also requested information regarding fringe benefits provided to research employees (see Table 19). Of the 185 companies that reported fringe benefit information, over 95 percent provide health insurance to their employees, far above the 55 percent of employers who offer health insurance statewide (IWD, 2010). About 88 percent of respondents also provide vacation and make 401k or similar plans available to employees. Statewide, 52 percent of employers provide paid vacation and 41 percent provide some retirement or pension plan (IWD, 2010).

C. Research Locations and Decisions

For all companies performing research in Iowa during the most recent tax year, the survey asked for research employment and expenditures by zip code. Without survey data, a map of Iowa research expenditures and RAC by county would rely on the assumption that all research occurred in the same county where the main facility for the business is located. Survey results indicate that while this assumption is reasonable for most micro, small, and medium companies, it is often incorrect for large companies doing research in Iowa. Of the 189 companies reporting zip codes, 20 reported conducting research in two to seven different zip codes within Iowa. Overall, respondents reported 75 percent of research expenditures occurred within the same zip code as their mailing address. Survey respondents reported research expenditures in 63 of 99 counties, with over $100 million spent each in Black Hawk, Linn, and Polk counties (see Figure 9). These counties also appear in the top for total tax year 2009 research expenditures (see Figure 4).

The distribution of research employees among counties is slightly less concentrated than research expenditures (see Figure 10). Survey respondents reported 500 or more full-time equivalent employees working on research in Dubuque County as well as Black Hawk, Linn, and Polk counties. An additional ten counties have between 100 and 499 research employees.

When making decisions about where to locate or expand research expenditures, companies consider many factors. At an international level, previous analysis indicated that the quality of research personnel, proximity to specialized university faculty, and tax breaks or other government assistance appear at the top of the list of reasons why companies choose to locate research in a particular country (Thursby and Thursby, 2006). An attempt was made to quantify the importance of various factors affecting a company's decision to locate or expand research in Iowa by asking the survey respondents to rate the importance of eleven potential factors using the following scale: 1=not at all important, 2=not important, 3=somewhat important, 4=important, and 5=very important. Nearly all respondents performing research in Iowa responded to this question, although a few missed one or two of the factors. The factors that companies considered the most important in locating research in Iowa, with 90 percent indicating of value of 3 or higher, are quality of the workforce, the state business tax climate, the quality of life for employees, and the low cost of labor and other research inputs (see Table 20). In Iowa, despite the relatively high amount of research conducted at Iowa universities noted in Table 2 and the recent high growth in research spending at Iowa's academic institutions cited by Eathington and Swenson (2010), proximity to academic research institutions was only considered important by 63 percent of companies. Only local density of similar technology companies received less than 50 percent indicating it as important, suggesting that research clusters of similar companies is not a key driver of research activity decisions in Iowa.

D. Multi-State Research Companies

Although the Iowa Research Activities Tax Credit encourages research efforts of companies located in Iowa, it may also serve as an economic development incentive for new companies to locate in Iowa or existing companies to expand their presence within Iowa. One goal of the survey was to gather information directly from the companies about what factors motivate their decisions on where to locate research activities, particularly those companies that currently conduct research in multiple states.

Companies reporting out-of-state research were asked to provide the name of each state in which they conduct research along with the number of FTE research employees and total research expenditures for the most recent tax year. Forty-four companies reported multi-state research, but six failed to provide the states in which that research was performed. Altogether, the 38 multi-state research companies that provided specific state information reported a research presence in 41 states in addition to Iowa, for an average of 4.7 states per company (see Table 21). The presentation of those states is aggregated by Census Divisions because some states only had one company reporting a research presence (see Appendix D). The greatest presence in states excluding Iowa is in the West North Central and East North Central divisions which together comprise the Midwest Region (see Table 21). Thirty-three companies reported conducting a total of $256.6 million in research in the five states neighboring Iowa in the West North Central Division while 29 companies reported $195.5 million in research to Iowa's east in the East North Central Division. These are followed closely in counts by the South Atlantic Division with 26 companies, but surpassed in expenditures with more than $459 million in research reported. Companies reporting research in one or more of the West North Central states had an average of 35 research employees and spent an average of $7.8 million in each state. Companies reporting research in one or more of the East North Central states had an average of 25 research employees and spent an average of $6.7 million in each state.

For all multi-state research companies, Iowa research expenditures as a share of total U.S. research expenditures in the most recent tax year was 45 percent. Not surprisingly, that share falls as the number of additional states rises. For the 17 multi-state research companies performing research in only one other state, the average Iowa share of research expenditures was 66 percent. Seven companies reported conducting research in two additional states, while the remaining companies reported three or more other states. The average Iowa share of research expenditures for those 21 companies was 30 percent.

In the prior section, survey respondents' rankings of eleven factors important for making a decision to expand research in one state versus another were presented (see Table 20). For the subset of survey respondents reporting research expenditures in states other than Iowa, nine of eleven factors were considered important by 80 percent or more of respondents (see Table 22). Three of the top four most important factors reported by this subset were the same as all survey respondents including quality of workforce, quality of life for employees, and low cost of labor and other research inputs. The other important factor in the top four for multi-state research companies, with 92.5 percent indicating it as important, was the presence of an existing research facility in Iowa. The state business tax climate, reported second most important by all survey respondents, was fifth with 85 percent of multi-state research companies ranking it as important.

Eighty-five percent of multi-state research companies indicated that when making a choice about where to expand research efforts among the states, proximity to primary markets is important, followed by proximity to manufacturing or supply chains at 82.5 percent. Therefore, it is reasonable to believe that the share of research that a company conducts within a state should be proportional to the share of production in that state, and the share of sales within the state. However, if other factors driving research location decisions that companies consider more important are favorable in a state, the share of research may be higher than either production or sales shares.

One means to discern whether multi-state research companies who responded to the survey conduct a disproportionate share of research in Iowa, possibly as a result of the refundable RAC, is to compare the reported share of Iowa research expenditures to other measures of the company's presence in Iowa. In the survey, companies were asked to provide the average share of their production and sales occurring in Iowa for the last four tax years, along with data on their research expenditures in Iowa and other states. Of the 44 multi-state research companies that responded to the survey, only 30 made a recent claim to the RAC and provided complete data on their research share and their production share while 34 provided data on their research share and sales share.

The share of research expenditures in Iowa in the most recent tax year for companies with an RAC claim were plotted against their share of production in Iowa (see Figure 11) and their share of sales in Iowa (see Figure 12). Less than half of the companies, 13, reported an Iowa research share that exceeded their Iowa production share. The average Iowa research share for the 30 companies is 50 percent, matching the average production share. A quite different relationship can be seen when considering the sales share. Twenty-eight of 34 reported an Iowa research share that exceeds their Iowa sales share. This suggests that the vast majority of survey respondents consider Iowa a good place to conduct research despite lower sales here. The average Iowa research share for the 34 companies is 41 percent while the average sales share is only 13 percent. This may reflect Iowa's 100 percent sales factor for determining corporate income tax liability, but it may also reflect the favorable research tax credit rules in Iowa.[29]

E. Research Outcomes

Only one-fifth of survey respondents conducting research in Iowa undertake basic research (see Table 23). Over 96 percent reported undertaking product invention and/or development and 83 percent undertake manufacturing process design. This follows from the requirement that in order for research activities, other than basic research, to qualify for the federal and the Iowa credit, those activities must be undertaken with the goal of creating a new product or service line. Therefore, companies performing qualified research should report one of three outcomes:

1. The research was successful and a new product or service line is being produced in Iowa;
2. The research was successful but the new product or service line is being produced outside of Iowa; or,
3. The research was unsuccessful.

Survey results show 135 of the 201 companies currently performing research in Iowa (65%) have been successful in creating at least one new product or service line in the last four years (see Table 24). The survey responses cannot reveal whether the remaining one third of companies fall into category 2 or 3. Of the 135 companies, 118 companies reported whether new employees were added to produce the new product line or service. The companies estimated adding 2,407 positions which averages 20 employees per company, not including jobs retained. Machinery manufacturing companies added the most new product lines at 27 and fabricated metal product manufacturing and transportation equipment manufacturing had the next two highest totals with 18 and 15, respectively.

Seventy-seven of the survey respondents (37%) indicated that they had received one or more patents as a result of research expenditures in Iowa during the last four years for a total of 2,043 patents (see Table 24). Iowa patents account for 31.6 percent of all U.S. patents awarded to these companies during that time.

[29] Many states compute corporate income tax liability considering a company's share of employment, property, and sales within a state. Iowa establishes the apportionment factor for taxable income for companies based solely on the company's share of sales within the state.

Along with information on whether new products had resulted from research in Iowa, the survey requested the zip code in which the new product was being produced. There were 130 unique locations for new product lines reported by 127 companies (see Table 25). Companies reported 1,909 jobs were created to produce those new product lines, not including jobs retained. Underlying these new products and new jobs was $947.5 million in research expenditures in the most recent tax year and $40.9 million in earned RAC, on average, for each of the last four tax years. The reported locations of production for the new products were aggregated into four districts in the state. Over one-third of the companies reported new production occurring in the Northwest district of Iowa (including Story County), with 704 new jobs, while 32 percent of companies with new production were located in the Northeast district (including Linn and Dubuque counties) with 751 new jobs. Sixty-six percent of the annual research expenditures made by companies reporting new products in the survey can be attributed to the Northeast district, along with two-thirds of tax credits earned.

Just over half of the production reported by survey respondents occurred in metropolitan counties, with the remaining share split equally between micropolitan and rural counties. The five counties with the largest shares of new product lines and resulting employment gains were Linn, Story, Dubuque, Scott, and Polk counties. Linn County had 14 companies with new product lines, and 618 new jobs created to produce those new products.

Comparing the location of research to the location of production reveals that of the 130 companies reporting at least one new product line, 128 produced those lines in a county in which the company also conducted the research. This suggests a high “co-location” of research and production.

F. Start-Ups and the Research Activities Tax Credit

One possible benefit of Iowa’s refundable RAC is that the credit can subsidize research efforts at start-up companies in Iowa, even before those companies have any income and thus State tax liability. In an effort to see if the credit is being claimed by start-ups, the survey asked respondents what year the company opened for business in Iowa and, if the company performs research in Iowa, what year it began that research. Although an average of 52.0 percent of all survey respondents reported performing research in Iowa, the shares ranged from 61.1 percent for companies starting business in Iowa between 1991 and 1995 to 48.5 percent for companies starting between 2006 and 2010 (see Table 26). The 61 research companies that began operating in Iowa between 1986 and 2000 started performing research over two years later, on average. The 24 companies that began operating in Iowa between 2001 and 2005 started conducting research just over one and a half years later, on average. The 16 companies performing research in the most recent tax year that started business in Iowa between 2006 and 2010, started performing research only 0.3 years later, on average. Obviously the more recent the start year, the more skewed the sample is toward companies that began research early.

Nearly 90 percent of companies starting business in Iowa prior to 1990 had a recent RAC claim while only 70 percent of companies starting business between 1996 and 2000 had a recent RAC claim (see Table 26). Of the 16 companies that reported starting research in Iowa in 2006 or later, nine filed at least one claim to the RAC by the 2010 tax year. Their average first year tax claim was almost $15,000 and the total claims made by these companies since 2006 was only $356,000, which is a very small percentage of all claims made in that time.

To determine how useful the RAC is for start-up companies in Iowa, the questions that one would like to answer are how many start-up companies in Iowa conduct research and how many of those companies claim the RAC. The responses from the IDR Survey on Research Activities cannot answer those questions because the sample for the first survey was limited to companies that had claimed the credit while the sample for the second survey was companies in the same industries as RAC claimants who were believed to perform research but who had not claimed the credit. The data

necessary to answer the questions posed above is information on all start-up companies in industries likely to conduct research, independent of other information about the companies' research behavior or credit claims. Fortunately, Iowa Workforce Development (IWD) has that data. For all businesses starting in Iowa in the last decade in industries with the highest claims to the RAC, IWD provided IDR with business start dates. These companies were matched to RAC claims data for 2006 and later. For the 3,400 companies who were identified as starting business in Iowa in 2006 and later in the eighteen industries where most research occurs in Iowa, just over one percent were matched to an RAC claim made in tax years 2006 through 2009 (see Table 27).

G. Contract Research and the Supplemental Research Activities Tax Credit

Forty of the survey respondents performing research in Iowa paid for contract research (see Table 28). These companies had 29 contracts with private businesses that totaled nearly $5 million. There were also 19 contracts with Iowa public universities that totaled over $2.4 million and two contracts with government agencies that equaled over $1.3 million. Respondents reporting contract research with a private business were also requested to provide the zip code of that business. The reported locations of the contract research companies were aggregated into four districts in the state, along with the public university contracts. The majority of contract research dollars were spent in the Northwest district which includes Iowa State University. Contract locations were also aggregated by county population groups. Metropolitan counties were the location of 36 contract businesses, accounting for $5.4 million of research contracts. However, the six companies located in rural counties accounted for $1.2 million in research contracts.

The survey also requested information regarding whether companies claimed a Supplemental RAC in tax years 2006 and later. Because the Supplemental is an awarded credit, companies reported having an award in some tax years but not in other tax years. Therefore this analysis considers each tax year for each survey respondent as a separate observation. Eighty-four respondents reported claiming a Supplemental credit in a tax year (see Table 29). Supplemental claims were more likely to be made by survey respondents with gross revenues over $20 million, accounting for over 77 percent of supplemental claims. At companies with gross revenues over $20 million that received a Supplemental RAC, the average amount of Iowa research expenditures and the average number of Iowa research FTEs were significantly greater than at companies that did not receive Supplemental RAC. Those companies receiving Supplemental RAC performed less of their production in Iowa and reported a lower share of sales in Iowa. Similar relationships in expenditures and sales were reported by the companies with gross revenues less than $20 million, but differences are much smaller. One deviation from that relationship is that the smaller companies receiving Supplemental RAC performed 100 percent of their production in Iowa, which is more than the companies not receiving the Supplemental RAC. While the average research wage per FTE is essentially the same for the companies with gross revenues greater than $20 million, respondents with gross revenues of $20 million or less who reported Supplemental RAC reported average research wages over 10 percent higher than respondents without Supplemental RAC.

VII. Hypothetical Firm Analysis of the Iowa RAC and Other States' Credits

Part C in Section II discussed the characteristics of the Iowa RAC relative to neighboring states and compared credits claimed on a per capita basis. To get a better understanding of how the Iowa credit compares to potential competitors for Iowa research expenditures the following analysis computes research credits for eight hypothetical firms under Iowa's and various other states' credit rules.

In tax year 2011, three of Iowa's six neighbors also offered a research tax credit. Minnesota offered a refundable 10 percent credit on the first $2 million of incremental qualified research expenditures and 2.5 percent above that amount. Wisconsin offered a nonrefundable 5 percent credit on incremental

qualified research expenditures with a 15-year carry forward, and a nonrefundable 5 percent credit for infrastructure costs, costs that are not eligible for research credits under the federal or Iowa credits. Starting in tax year 2011, Wisconsin also offered a "super" credit equal to 100 percent of research expenditures that exceed 125 percent of the average expenditures in the three previous years. Nebraska offered a refundable credit equal to 15 percent of the federal credit apportioned for research in the state, making it effectively a 3 percent state credit. For research conducted at a Nebraska college or university, the credit rate rises to 35 percent of the federal credit. Missouri's credit expired in 2004 and Illinois's credit expired in 2011. South Dakota does not offer any credit because it does not levy tax on corporate or individual income.

Along with considering neighboring states as Iowa's competitors for firms' research activities, survey results suggest that companies performing research in Iowa also conduct research in numerous other states across the country. Indeed, the top ten states in which survey respondents also have research employees include six states that do not border Iowa: California, Texas, Ohio, Kansas, New York, and Indiana. Five of these states also offered research credits in tac year 2011 that can be compared to Iowa's credit. California offered a 15 percent credit on incremental research and also offered an alternative incremental research credit calculation similar to the old federal AIRC credit. Ohio offered a 7 percent nonrefundable credit on incremental research. Kansas offered a nonrefundable credit equal to Iowa's 6.5 percent but limits annual claims to just 25 percent of the credit earned. New York offered a 9 percent credit on incremental research, but caps credit claims at $250,000 per taxpayer per year and applies many restrictions on eligible firms (see Table 1). Indiana offered a 15 percent nonrefundable credit on the first $1 million of incremental qualified research expenditures and a 10 percent credit on expenditures above that amount. Texas repealed its research credit in 2008.

The analysis focuses on eight hypothetical firms that differ by Iowa employment levels and whether the firm performs research only in-state or in multiple states (see Table 30). Characteristics for the hypothetical firms are based on averages of data reported by Iowa RAC claimants in tax year 2008, using research expenditures and gross receipt information collected from the IA 128 and IA 128A and employment data from IWD supplemented by survey response data when available. For firms conducting research only in-state, research expenditures range from $0.2 million per year for the micro firm to $12.4 million per year for the large firm. Dollar amounts of research rise with employment. Research as a share of gross revenues falls from 21.1 percent to just over two percent as the size of the company increases. For firms conducting research in Iowa and other states, U.S. research expenditures range from $4.4 million per year for the micro research firm to $64.5 million per year for the large research firm. In-state research expenditures range from $0.2 million per year (5.0% of total research) for the micro research firm to $20.4 million per year (31.7%) for the large research firm. Similar to the in-state research companies, research expenditures as a share of revenues is highest for the micro firm at 17.4 percent, then falls to single digits for the other firms. For all firms, wages comprise the vast majority of research expenditures, ranging from $0.2 million (71.5%) per year for the micro, in-state research firm to $13.7 million (66.7%) for the large, multi-state research firm.

While an analysis of potential tax credits based the various states' rules for all eight hypothetical firms is interesting, note that over 60 percent of qualified research expenditures reported in Iowa during tax year 2008 were reported by companies that fall in the large, multi-state research firm group (see Table 30). This compares to one percent or less for firms considered micro, and between six and nine percent each for the small in-state and multi-state groups, the medium in-state and multi-state groups, and the large in-state group. The distribution of research expenditures reflects the high level of research conducted by these firms, with average research amounts nearly three times the next highest level.

Several assumptions were necessary to calculate research tax credits under the credit rules for Iowa and the eight other neighboring and/or top competitor states. It was assumed that under the various credit rules, firms would make no changes in their research expenditures. The state tax liability for the firms against which the credit could be applied was held constant at the Iowa level regardless of what tax credit rules were being used. That liability was assumed to equal liability after all other credits had been applied and ignores the possibility of research tax credit carry forward earned in prior years. For states offering multiple methods of calculation, the maximum credit determined when comparing the methods is presented in the table. For New York, it was assumed the hypothetical firm met the various conditions necessary for credit eligibility.

Research tax credits were calculated for each of the eight hypothetical firms for tax year 2011 (see Table 31).[30] For states with nonrefundable credits, the credits each firm could earn are divided into the part that the firm could claim against tax liability during the tax year and the part that must be carried forward (although the credit is refundable only for C corporations in Nebraska, that distinction was ignored here). Within each panel, credits by state are ordered based on the total credit earned.

Tying for the highest tax credit rate for incremental qualified research expenditures among the states considered, California and Indiana offer the highest total credit for both micro and medium firms and for the large, multi-state firm. Small firms would receive the largest total credits from Indiana, followed by Ohio. However, credits in all three of these states are nonrefundable. The largest credit that all of these hypothetical firms could claim is offered by Minnesota with Iowa second, except in the cases of the medium, in-state firm and the large, multi-state firm. Because the medium, in-state firm has a tax liability that is greater than the Iowa credit, the credits that could be claimed under the nonrefundable Indiana, California, and Ohio rules all exceed the Iowa credit. For the large, multi-state firm, Iowa offers the largest credit that can be claimed. This of course is not a function of the employment level of the firm or the location of its research, rather it reflects the high level of research expenditures reported by this firm relative to the other hypothetical firms.

This analysis suggests that Iowa's credit offers a subsidy that ranks in the middle to close to the top of the pack for most firms except for the large, multi-state firm, where the credit claimed under Iowa's rules would exceed all other credits by over 63 percent. Compared to the other hypothetical firms considered, the large, multi-state firm has a significantly higher level of qualified research expenditures, while its tax liability remains low. Therefore the refundability of the Iowa credit increases the credit's value to the firm compared to some of the other larger but nonrefundable research credits offered by other states. Iowa's credit exceeds Minnesota's refundable credit because Minnesota's 10 percent rate only applies to the first $2 million in qualified research, after which the lower 2.5 percent rate becomes effective. Additional focus on this hypothetical firm is warranted because, as noted above, a majority of research expenditures on which Iowa claims are made are reported by firms that match the characteristics of this hypothetical firm.

Would it be possible for Iowa to reduce the credit offered to large, multi-state research companies, possibly through a tiered tax credit like Minnesota, without seeing a reduction in research efforts by these firms who already have research facilities in other states? Because research activities are portable, at least compared to activities such as manufacturing, a reduction in the credit could drive research from the state, particularly for companies that already have research facilities in states other than Iowa. The survey results reveal that the state business tax climate is an important factor in companies' research decisions along with the cost of labor and other inputs. Wages comprise two-thirds of Iowa research expenditures; therefore, it is reasonable to consider the trade-offs between

[30] The Wisconsin credit amount does not include the credit for infrastructure as no data on such expenditures is available for these example firms. The super credit is also not included because none of the example firms would qualify.

labor inputs and research tax credits when further comparing the location decision for the hypothetical firm.

Using data from the Occupational Employment Statistics provided by the Bureau of Labor Statistics, the weighted average median hourly wages for nineteen research occupations in 2010 were compiled for Iowa, all its neighboring states, and the other top states in which Iowa companies are also conducting research (see Table 32).[31] Recall that the large, multi-state hypothetical firm has $13.7 million in research wage expenditures for tax year 2011. If that firm is located in Iowa, that amount of expenditures would purchase approximately 412,000 hours of research. If instead the firm is located in Minnesota, where research labor is $4.34 per hour more expensive, the firm would only be able to purchase 365,000 hours of labor. Thus the value of the foregone labor inputs when moving from Iowa to Minnesota would be nearly $1.8 million. The research credit under Iowa's rules exceeds the credit under Minnesota's rules by $0.3 million, for a net cost for the firm in research resources of $2.0 million if locating in Minnesota rather than in Iowa. With the slightly lower cost of research labor in Nebraska, the firm could purchase an estimated 4,000 additional hours of research, but that value does not exceed the higher credit it could earn under Iowa's rules, resulting in an estimated net cost for the firm in research resources of $0.2 million if locating in Nebraska rather than in Iowa. Note that for states with nonrefundable research credits, the credit difference accounts only for the amount of credit the firm could claim in the tax year and not the full credit earned. For the twelve states considered, including all of Iowa's neighbors and the top ten competitors for research activities as identified in the IDR survey, only South Dakota has positive net cost of foregone labor compared to Iowa. Of course, firms consider many other factors when making decisions about research locations, but this analysis captures two key factors, as identified by companies in their survey responses.

VIII. Conclusion

This evaluation of the Research Activities Tax Credit took advantage of the claim information captured via the IA 148 Tax Credits Schedule, introduced in tax year 2006, to provide a more complete picture of who claims the credit and what companies earn the credit. In tax year 2009, the most recent complete tax year, $45.9 million in credits were claimed, resulting in $43.5 million paid in refunds. Companies performing qualified research in Iowa reported over $1.17 billion in research expenditures in the state during tax year 2009, with wages paid to Iowans comprising two-thirds of those expenditures. However, an analysis of wages paid by companies with credit claims did not show those companies pay higher average wages to employees compared to companies in the same industry with no credit claims.

Other key results presented in this study reflected information gathered through the IDR Survey on Research Activities. For the 37 percent of companies that responded to the survey, three-fourths indicated their research activities were limited to Iowa, while the remaining one-fourth reported conducting 45 percent of U.S. research in Iowa. Companies reported that the state business tax climate is an important factor when making decisions about where to locate or expand research efforts; however, quality of the labor force, quality of life for employees, and low labor costs were also important. Survey respondents indicated that 65 percent had been successful in creating a new product line or service during the last four years as a result of their research activities in Iowa and 35

[31] Wages in each of the nineteen occupations were weighted by the number of employees in that occupation in the state in May 2010. The designated research occupations with data available for all states are the following: Computer Systems Analysts, Computer Programmers, Software Developers of Applications, Software Developers of Systems Software, Operations Research Analysts, Civil Engineers, Computer Hardware Engineers, Electrical Engineers, Environmental Engineers, Industrial Engineers, Mechanical Engineers, Food Scientists and Technologists, Microbiologists, Biological Scientists, All Other Conservation Scientists, Medical Scientists Except Epidemiologists, Chemists, Environmental Scientists and Specialists Including Health, and Geoscientists Except Hydrologists and Geographers.

percent reported receiving one or more patent. Of the companies identified as starting business in Iowa in 2006 or later, just over one percent were identified as making an RAC claim through tax year 2009 indicating that the credit is not heavily utilized by start-up companies.

Comparing Iowa's credit rules to neighbors and other states in which survey respondents indicated they were most likely to also perform research reveals that Iowa's credit rules offer the highest claim for the hypothetical large, multi-state research firm. This firm has the highest level of research expenditures of all the hypothetical firms considered and a relatively low state tax liability. Therefore, Iowa's refundable credit and the flat credit rate result in the highest credit of all states considered. Over 60 percent of research expenditures claimed in Iowa are reported by businesses that have the same characteristics of this large, multi-state research firm.

This evaluation study presents a large amount of information about RAC credits claimed by taxpayers and credits earned by taxpayers, much provided directly by the companies making those credit claims. Hopefully the study can inform future decisions about this credit for the State of Iowa.

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Tables and Figures

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Table 1. Summary of Research Tax Credits By State

State	Amount of Credit	Tax Year Effective	Sunset Date	Pre-Application	Refundable Credit	Credit Carry Forward	Additional R&D Credits
Alaska	18% of the amount of research credit determined for federal income tax purposes which is attributable to Alaska. One of many federal credits for which this provision applies.	1998	No	No	No	Yes - 15 Years	None
Arizona	24% of the first $2.5 million of incremental research expenditures conducted in the state and 15% of incremental research expenditures over $2.5 million. For tax year 2010 or later, if a taxpayer employs fewer than 150 people in the taxpayer's trade or business, the taxpayer may elect to receive a refund of the credit in the amount of 75% of the excess of the credit over tax liability up to $5 million. However, the remaining 25% is forfeited by the taxpayer.	1993	2022	No	No - Other than for the qualified small business provision	Yes - 15 Years	40% credit on qualified increased research and development costs over the federal base amount related to solar liquid fuel, effective tax year 2011. These expenditure cannot be used to claim the regular credit. Qualified research includes only research conducted in state, including research conducted at an Arizona university.
Arkansas	10% of incremental qualified research expenditures (not to exceed $10,000 per year) for up to five years for in-house research conducted in the state. Businesses can be granted a 33% credit per year for five years (not to exceed $50,000 per year) for research in a strategic research area or research through the Arkansas Science and Technology Authority. This credit may be carried forward for nine years. Targeted businesses, which are qualified emerging technology companies, may also be eligible for a 33% credit with a nine-year carry forward or credits can be transferred. Eligible businesses can apply for an additional five years of credits at the higher rate.	2003	No	Yes - Proof of eligible expenditures	No	Yes - 3 Years	An eligible business that contracts with one or more Arkansas colleges or universities in performing research may qualify for a 33% income tax credit for qualified research expenditures.
California	24% of basic research costs above a base amount, and 15% of incremental qualified research expenditures conducted in state. For tax years 2008 through 2010, total credits were limited to 50% of tax and the carryover period for any credit that was not allowed is increased by the number of taxable years the credit (or any portion thereof) was not allowed.	1988	No	No	No	Yes - 20 Years	Taxpayers are allowed to use the alternative incremental credit calculation method.
Colorado	3% of incremental research expenditures over the average of expenditures for the two prior taxable years conducted in an Enterprise Zone. No more than one-fourth of the allowable credit may be taken in any one tax year and the remaining amount is credited in the succeeding three taxable years.	1989	No	Yes - Proof of location in eligible Enterprise Zone	No	Yes - Until Utilized	None

Table 1 (continued). Summary of Research Tax Credits By State

State	Amount of Credit	Tax Year Effective	Sunset Date	Pre-Application	Refundable Credit	Credit Carry Forward	Additional R&D Credits
Connecticut	20% of the amount spent directly on research expenditures in the state that exceeds the amount spent in the preceding income year. The credit cannot reduce tax liability by more than 70%. A small business with prior year gross receipts less than $70 million with no tax liability may claim a refund equal to 65% of the value of the credit.	1993	No	Yes - Small business refundable piece only	No - Other than for the qualified small business provision	Yes - 15 Years	1% for qualified research expenditures under $50 million, 2% for expenditures between $50 and $100 million, 4% for expenditures between $100 and $200 million, and 6% for expenditures that exceed $200 million. Businesses with gross income below $100 million are eligible for a 6% credit on all qualified research expenditures. Businesses headquartered in an Enterprise Zone with more than 2,500 employees and $3 billion in gross revenues can qualify for a 3.5% credit. A third credit equals 25% of the incremental increase in qualifying grants to any institution of higher education in the state for the purposes of research and development related to advancements in technology. A particular expenditure cannot be used for more than one credit.
Delaware	10% of incremental qualified research expenditures conducted in the state over the average of qualified research expenditures over the immediately preceding four taxable years or 50% of Delaware's apportioned share of the taxpayer's federal research tax credit computed under the alternative incremental credit method. The amount of the tax credit claimed cannot exceed 50% of a company's tax liability.	2000	2013	Yes - State-wide $5 million cap (prorated)	No	Yes - 15 Years	None
Florida	10% of qualified research expenditures above the average of the four previous years of qualified research conducted in the state. For businesses less than four years old, the credit is reduced by 25% for each taxable year the business did not exist. Limited to 50% of tax liability after all other credits.	2012	No	Yes - State-wide $9 million cap (first come, first served)	No	Yes - 5 Years	None
Georgia	10% of qualified research expenditures above the computed base conducted in the state. In 2009 and later, the computed base amount is determined using Georgia gross receipts rather than taxable income. The credit taken in any taxable year cannot exceed 50% of the company's remaining tax liability after all other credits have been applied. Starting in 2009, the credit may be claimed against withholding taxes owed by a new business during the first five years of operation in the state.	1998	No	No	No	Yes - 10 Years	None
Hawaii	20% of incremental qualifed research expenditures conducted in the state. Beginning July 1, 2004, the credit could only be claimed by a "qualified high technology business," thus requiring taxpayers to receive certification prior to claim. The refundable credit was repealed January 1, 2011.	2001-2010	NA	No	Yes	No	None
Idaho	5% of the incremental qualified research expenditures conducted in the state.	2001	No	No	No	Yes - 14 Years	None

Table 1 (continued). Summary of Research Tax Credits By State

State	Amount of Credit	Tax Year Effective	Sunset Date	Pre-Application	Refundable Credit	Credit Carry Forward	Additional R&D Credits
Illinois	6.5% of the incremental qualified research expenditures conducted in the state. The nonrefundable credit was repealed January 1, 2011, including the expiration of any existing credit carry forwards.	1990-2010	NA	No	No	Yes - 5 Years	None
Indiana	15% of the first $1 million of incremental qualified research expenditures in the state. After the first $1 million, the credit is 10% of incremental qualifed research expenditures. Prior to 2008, the rate was a flat 10%.	1984	No	No	No	Yes - 10 Years	Taxpayers are allowed to use the alternative incremental credit calculation method using the federal parameters.
Iowa	6.5% of the incremental qualified research expenditures conducted in the state.	1985	No	No	Yes	No	Taxpayers are allowed to use the alternative simplified incremental credit calculation method beginning in 2010. A Supplemental Research Activities Credit is available to companies who qualify through Economic Development Authority programs. The amount of the Supplemental credit can be more than double the regular credit for companies with gross receipts below $20 million, but is smaller for companies with gross receipts above $20 million.
Kansas	6.5% of the excess of research expenditures in the state over the average of the current and past two years. In a tax year, the credit claimed may not exceed 25% of the credit generated in a given year, forcing the credit claim to be spread over at least four years.	2001	No	No	No	Yes - 99 Years	For tax years 2009 and 2010, tax credits earned in the current year or carried forward from a prior year cannot offset more than 90% of current year tax. For this credit and certain others, total credits that may be carried forward must be reduced by the lesser of 10% of the total amount of such credits available in the current year or 10% of current year tax before credits.
Kentucky	5% of the cost of constructing, remodeling, equipping, or expanding facilities located in the state for the purpose of conducting qualified research.	2002	No	No	No	Yes - 10 Years	None
Louisiana	8% of incremental qualified research expenditures conducted in the state if the taxpayer employs 100 or more Louisiana residents, 20% if the taxpayer employs less than 50 to 99 residents, or 40% for businesses with less than 50 residents. Taxpayers must pay a $250 fee as part of the pre-application to claim the credit.	2003	2019	Yes	Yes - 2009 and later	Yes - 10 Years	If the taxpayer claims the federal alternative incremental research credit, the state credit is limited to 25% of the federal claim. A high-tech incentives tax credit is also available to taxpayers engaged in research that enter into a contract with the State to establish or support a facility in a qualifying research and development park. That credit is limited to 30% of tax liability. A 35% research investment fund donation tax credit is available to taxpayers making a minimum $200,000 donation to a State-sponsored fund for biomedical and biotechnology research.
Maine	5% of the qualified research expenditures conducted in the state over the average qualified research expenditures for the three prior taxable years, along with 7.5% of basic research payments. The credit may be used against 100% of the first $25,000 in tax liability, plus 75% of any tax in excess of $25,000. All companies receiving $10,000 or more in credits must file an annual report on employment levels and changes.	1996	No	No	No	Yes - 15 Years	A taxpayer qualifying for the research tax credit may take an additional credit if the amount spent on qualified research expenditures by the taxpayer exceeds 150% of the base amount (the average amount spent on qualified research expenditures in the three preceding years prior to September 1997). The credit is limited to 50% of tax liability after the allowance of other credits and has a 5 year carry forward.

Table 1 (continued). Summary of Research Tax Credits By State

State	Amount of Credit	Tax Year Effective	Sunset Date	Pre-Application	Refundable Credit	Credit Carry Forward	Additional R&D Credits
Maryland	10% of qualified research expenditures conducted in the state that exceed the Maryland base amount and 3% of expenditures that fall below, where the base amount equals average annual gross receipts of the business for the four preceding tax years multiplied by the Maryland base percentage (usually the ratio of Maryland research expenditures for the preceding four tax years to total gross receipts for those years). Together, the two pieces of the credit cannot exceed $6 million per year.	2000	2020	Yes - State-wide $6 million cap (prorated)	No	Yes - 7 Years	10% of qualified cellulosic ethanol technology research expenditures. Application is required to keep claims within the annual $250,000 state-wide limit. This credit, first available in 2008, is not refundable and has a 15 year carry forward.
Massachusetts	10% of incremental qualified research expenditures conducted in the state, plus 15% of incremental qualifed basic research payments. The credit may be used against the first $25,000 in tax liability and 75% of any liability over $25,000. Credits that exceed this limitation, but do not exceed 100% of the tax, are converted to unlimited carry forward status. For tax years 2009 and later, a taxpayer may choose to receive a refund of 90% of the balance of the credit after applying the rules above.	1991	No	No	Yes at discounted rate	Yes - 15 Years, although some have unlimited carryforward	For tax years 2009 and later, a taxpayer who is a certified life science company and incurs qualified research expenditures not qualifying for the existing research credit that are authorized pursuant to the Life Sciences Tax Incentive Program can qualify for a 10% credit. The qualified research expenditures include activities performed both inside and outside of the state, to the extent they relate to legally mandated clinical trial activities. To qualify, the taxpayer must have Massachusetts research expenditures in excess of a base amount as defined for the purpose of the federal research credit. Companies engaged in research can also take a 3% credit for the cost of depreciable property used in carrying out that research.
Michigan	1.9% of qualified research expeditures conducted in the state, but limited to 75% of total tax liability.	2006	2012	No	No	No	30% credit for a minimum $350,000 contribution to an eligible company (fewer than 50 employees and gross receipts lower than $10 million) for the purpose of research, available in tax years 2008 through 2010. The credit was capped at $300,000 per taxpayer and was refundable. 3.9% tax credit against the compensation for services performed in a qualified facility and paid to employees at the facility in the tax year for research and development of a hybrid system the primary purpose of which is the propulsion of a motor vehicle. The credit is capped at $2 million per taxpayer per year and is refundable. Taxpayers must have made an agreement with the State prior to April 2007 to be eligible.

Table 1 (continued). Summary of Research Tax Credits By State

State	Amount of Credit	Tax Year Effective	Sunset Date	Pre-Application	Refundable Credit	Credit Carry Forward	Additional R&D Credits
Minnesota	10% of the first $2 million of incremental qualified research expenditures conducted in the state and 2.5% of any incremental qualified research expenditures above $2 million. Effective beginning in tax year 2008, the credit applies against regular corporate franchise tax and not the alternative minimum tax. Prior to 2010, the credit rates were 5% and 2.5%. Beginning in 2010, credits can be claimed against the individual income tax and the credit is refundable.	1981	No	No	Yes	Yes - 15 Years (prior to 2010)	None
Mississippi	None	NA	NA	NA	NA	NA	For businesses creating jobs that require R&D skills from professionals such as chemists and engineers, the credit is equal to $1,000 for each net new full-time employee for the first five years and is limited in aggregate to 50% of the taxpayer's state corporate income tax liability in a taxable year.
Missouri	6.5% of qualified research expenditures over the average amount of qualified research expenditures incurred in the state during the preceding three tax years. The credit expired on January 1, 2005.	1994-2004	NA	NA	NA	NA	None
Montana	5% of incremental qualified research expenditures conducted in the state. The nonrefundable credit expired December 31, 2010.	1987-2010	No	Yes	No	No	New firms to Montana approved as research and development firms are exempt from the corporate tax on income earned from research and development activities for the first 5 years.
Nebraska	15% of the federal credit apportioned for research done within the state. The credit can also be used to obtain a refund of state sales and use taxes paid. The credit is allowed only for five consecutive years as long as federal credits continued to be claimed. All new employees hired after October 1, 2009 at a firm claiming the credit must be verified as eligible to work in the U.S. using the E-Verify system.	2006	2016	No	Yes for businesses; No for shareholders	No	Beginning in 2009, a credit equal to 35% of the apportioned federal credit can be claimed by businesses that make eligible research expenditures at a Nebraska college or university or at a facility owned by the college or university for only those research expenditures. A 15% credit can also be claimed for other research expenditures. This credit can be claimed for up to five years beginning in 2009.
New Hampshire	10% of manufacturing research expenditures in the state over a base amount, up to a maximum credit of $50,000. Eligible expenditures include only wages paid in New Hampshire for research activities.	2007	2013	Yes - State-wide $1 million cap (prorated)	No	No	None
New Jersey	10% on incremental qualified research expenditures conducted in the state.	1994	No	No	No	Yes - 7 Years	None
New Mexico	4% of qualifying technological research expenditures conducted in the state and applies against the gross receipts, compensating, or withholding tax. An additional 4% credit of qualifiying technological research expenditures in the state can be claimed against the income tax if the business has an increase of at least $75,000 in annual payroll as compared with the prior year, has an increase of at least $75,000 in annual payroll per $1 million in qualifying expenditures claimed for the taxable year and is located in a rural area.	2000	No	No	No	Yes - 99 Years	None

Table 1 (continued). Summary of Research Tax Credits By State

State	Amount of Credit	Tax Year Effective	Sunset Date	Pre-Application	Refundable Credit	Credit Carry Forward	Additional R&D Credits
New York	9% of qualified research expenditures by qualified companies conducting research on "emerging technology" in the state. Companies must have annual sales of less than $10 million, have 100 full-time employees or less, with at least 75% of those employees employed in the state, have a ratio of research to net sales which equals or exceeds 6%, have gross revenues that did not exceed $20 million for the immediately preceding tax year. The credit is capped at $250,000 per eligible taxpayer per year and a taxpayer is limited to claiming the credit for four consecutive taxable years. Research and development property acquired by the taxpayer by purchase and placed in service during the taxable year is eligible for an 18% credit. A taxpayer may also claim a 100% credit for qualified high techonology training expenditures paid or incurred by the taxpayer, up to $4,000 per employee per taxable year. The credit is refundable, although total business incentive tax credit claims above $2 million will be deferred to future tax years for 2010 through 2012.	2005	2012	Yes - Proof of eligible research expenditures	Yes	Yes - 100 Years	10% of the federal research credit attributed to research expenditures conducted in the state for companies that participate in the Excelsior Jobs Program and operate in New York predominantly: (a) as a financial services data center or financial services back office (must create at least 100 net new jobs); (b) in manufacturing (must create at least 25 net new jobs); (c) in software development and new media (must create at least ten net new jobs); (d) in scientific research and development (must create at least ten net new jobs); (e) in agriculture (must create at least ten net new jobs); (f) in the creation of back office operations or a distribution center (must create at least 150 net new jobs); or (g) in an industry with significant potential for private sector economic growth and development in the state. A business operating in a qualified industry but not meeting the job requirements above must have at least 150 full-time job equivalents and must demonstrate a benefit-cost ratio of at least ten to one. The program's credits are subject to a state-wide cap.
North Carolina	5% of incremental qualified research expenditures conducted in the state. Expired January 1, 2006.	1996-2005	NA	No	No	Yes - 5 Years	None
	1.25% of qualified research expenditures conducted in the state for companies with receipts under $50 million, 2.25% for companies with receipts between $50 million and $200 million, and 3.25% for companies with receipts more than $200 million. If a taxpayer is a business with receipts of $1 million or less, or the research is performed in an economically distressed area of the state, then the applicable credit is 3.25%. The credit is 20% for any North Carolina University research expenditures. The credit claim is limited to 50% of tax liability.	2007	2014	No	No	Yes - 15 Years	
North Dakota	25% on the first $100,000 of incremental qulified research expenditures conducted in the state. For expenditures over $100,000, the applicable percentage for tax years 2007 through 2016 differs based on the start date for research: if qualified research in the state first begins after 2010, 8%; if qualified research in the state first begins between 2007 and 2010, 20%; or if qualified research in the state began before 2007, 7½% for 2007, 11% for 2008, 14½% for 2009, and 18% for 2010 through 2016. For tax years after 2016, the credit is 8% for all taxpayers on incremental research expenditures over $100,000. Small businesses with gross receipts less than $750,000 may transfer up to $100,000 in credits if they fall in a "primary sector" industry classification and had claimed the credit prior to 2007.	1988	No	No	No	Yes - 15 Years or 3 Year Carry Back	None

Table 1 (continued). Summary of Research Tax Credits By State

State	Amount of Credit	Tax Year Effective	Sunset Date	Pre-Application	Refundable Credit	Credit Carry Forward	Additional R&D Credits
Ohio	7% of qualified research expenditures conducted in the state over the average of qualified research expenditures for the three prior tax years.	2001	No	No	No	Yes - 7 Years	Businesses granted a loan from the Ohio Research & Development Loan fund are eligible for a nonrefundable credit, not to exceed $150,000, equal to a taxpayer's R&D loan payments made during the calendar year immediately prior to the tax period in which the credit is claimed.
Oklahoma	None	NA	NA	NA	NA	NA	Businesses with a net increase in the number of full-time equivalent emloyees engaged in computer services, data processing, or R&D in the state are eligible for a nonrefundable $500 tax credit for each new employee for up to eight years, limited to a maximum of 50 new employees per year. The credit is not available during FY 2010 through 2012. 50% credit is available for donations up to $2,000 per taxpayer made to an independent biomedical or cancer research institute; the credit is capped state-wide at $2 million.
Oregon	5% of incremental qualified research expenditures conducted in the state. Claims are limited to $2 million per taxpayer per year.	1989	2012	No	No	Yes - 5 Years	An alternative credit equal to 5% of qualified research expenditures in excess of 10% of Oregon sales is also allowed. The alternative credit is limited to $10,000 multiplied by the number of percentage points by which qualified research expenditures exceed 10% of Oregon sales. The alternative credit claim also may not exceed $2 million per taxpayer per year. Taxpayers can also claim a nonrefundable, 10% credit for qualified donations to a higher learning institute for research purposes.
Pennsylvania	10% of the excess of qualified research expenditures conducted in the state over the ratio of the four prior year's research expenditures to gross receipts. 20% for small businesses. The credit is transferable, but purchasers can offset only 75% of liability and cannot carry forward unused credits.	1997	No	Yes - State-wide $55 million cap, $11 million reserved for small businesses (prorated)	No	Yes - 15 Years	None
Rhode Island	22.5% of the first $25,000 in incremental qualified research expenditures conducted in the state and 16.9% above $25,000.	1994	No	No	No	Yes - 7 Years	10% of depreciable, tangible property purchased, constructed, or acquired in the state, is allowed in the year the property is placed in service, where the property is to be used primarily (more than 50%) in research and development with a useful life of over 3 years. The credit is in lieu of expensing the property costs.

Table 1 (continued). Summary of Research Tax Credits By State

State	Amount of Credit	Tax Year Effective	Sunset Date	Pre-Application	Refundable Credit	Credit Carry Forward	Additional R&D Credits
South Carolina	5% of qualified research expenditures conducted in the state. The annual credit is capped at 50% of a taxpayer's state tax liability net of all other applied credits.	2001	No	No	No	Yes - 10 Years	25% of research expenditures related to the development and processes for cellulosic ethanol and algae-derived biodiesel, not to exceed $100,000, or 10% of research expenditures related to the development and processes of waste grease derived biodiesel. This credit expires after 2011. Tax credits as part of a job program are also available for companies specializing in research and development.
Texas	5% of incremental qualified research expenditures conducted in the state. Claims limited to 50% of taxpayers's state tax liability. Repealed January 1, 2008.	2001-2008	NA	No	No	Yes - 20 Years	None
Utah	None	1999-2010	NA	NA	NA	NA	5% of qualified research expenditures over the base period amount conducted in the state. 9.2% of qualified research expenditures other than those over the base period amount (5% for 2008, 6.3% for 2009). 6% of the purchase price of machinery used in research that is not exempt from the sales tax is also available. Both nonrefundable credits expired in 2011.
Vermont	10% of incremental qualified research expenditures was replaced by a cash incentive program in 2007.	1998-2006	NA	No	No	Yes - 5 Years	None
	30% of the federal credit for qualified research expenditures conducted in the state.	2011	No	No	No	Yes - 10 Years	
Virginia	50% of qualified research expenditures, up to a maximum credit of $500,000 per year, in a technology related area that are incurred at a place of business in a tobacco dependent locality. Qualifying technology related research included advanced computing, advanced materials, biotechnology, electronic device technology, environmental technology, medical device technology, or other technology fields. If a taxpayer had no state tax liability for two consecutive years for which this credit was allowed, the tax commissioner could refund the credit the credit to the taxpayer at 75% of face value. If the credit was not refunded, the taxpayer could transfer the credit by sale. The credit expired January 1, 2010	2000-2010	NA	Yes - State-wide cap limited to annual appropriation (prorated)	No	Yes - 10 Years	None
	15% of the first $167,000 in incremental qualified research expenditures conducted in the state or 20% of the first $175,000 in incremental qualified research expenditures if the research was conducted with a Virginia public or private college or univeristy.	2011	2015	Yes - State-wide $5 million cap (prorated)	Yes	No	

Table 1 (continued). Summary of Research Tax Credits By State

State	Amount of Credit	Tax Year Effective	Sunset Date	Pre-Application	Refundable Credit	Credit Carry Forward	Additional R&D Credits
Washington	The greater of the taxpayer's average tax rate or 1.5% (increasing from 0.75% in 2007) multiplied by qualified research expenditures conducted in the state in excess of 0.92% of taxable income. Credits are capped at $2 million per company. The research must be carried out in one of the five high technology fields: advanced computing, advanced materials, biotechnology, electronic device technology, and environmental technology. Claimants are required to complete an annual survey providing details on research, employment, and resulting new product lines or patents.	1995	2015	No	No	No	None
West Virginia	The greater of 3% of qualified research expenditures conducted in the state or 10% of incremental qualified research expenditures over a three-year base period. The credit may be refundable for companies with annual gross receipts of less than $20 million and annual payroll of less than $2.5 million.	2003	No	Yes	No - Other than for the small business provision	Yes - 10 Years	None
Wisconsin	5% of incremental qualified research expenditures conducted in the state. 10% for research expenditures incurred in qualified research related to internal combustion engines and certain energy efficient products. Credits are only available to corporations.	1986	No	No	No	Yes - 15 Years	Also allows a 5% credit for qualifying expenditures to construct and equip a research facility property. Offers a 10% credit for qualified research and facility expenses for designing engines and energy efficient products. Effective 2011, companies can claim a credit equal to 100% of qualified expenditures during the year that exceed 125% of the average of the qualified expenditures paid or incurred in the three taxable years before the current year.

Sources: TaxCreditResearch.com, http://www.taxcreditresearch.com/, Outlaw Consulting, udpated April 2011.

NA=Not applicable

Table 2. Research Expenditures by State, 2007

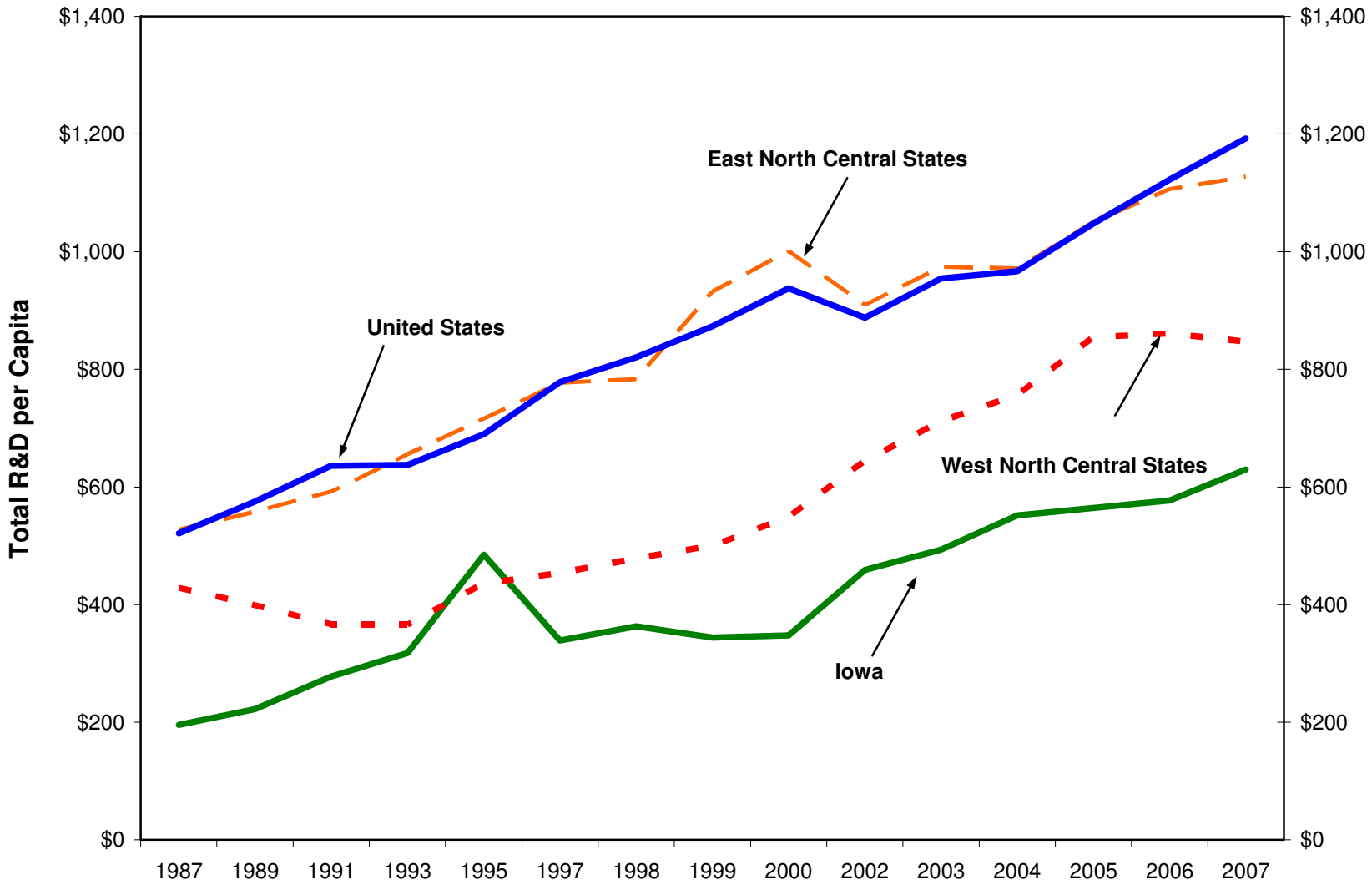
State	Business Millions	Business Rank	Academia Millions	Academia Rank	Federal Millions	Federal Rank	FFRDC Millions	Other Non-Profit Millions	State Millions	Total Millions	Total Rank
Alabama	$1,771	25	$655	23	$823	7	$0	$36	$4	$3,289	27
Alaska	$58	50	$160	45	$70	31	$0	$15	$8	$311	49
Arizona	$3,846	18	$783	20	$290	16	$54	$27	$7	$5,007	20
Arkansas	$339	42	$240	39	$42	38	$0	$10	*	$631	44
California	$64,187	1	$6,734	1	$1,703	4	$3,946	$1,028	$11	$77,609	1
Colorado	$5,223	14	$873	18	$320	15	$335	$70	$7	$6,828	17
Connecticut	$9,444	10	$691	22	$30	40	$0	$49	$14	$10,228	11
Delaware	$1,472	28	$126	47	$3	51	$0	$4	$2	$1,607	33
District of Columbia	$379	40	$333	35	$2,854	3	$6	$289	$2	$3,863	24
Florida	$4,569	17	$1,558	10	$941	6	$0	$82	$9	$7,159	16
Georgia	$2,788	22	$1,389	12	$195	19	$0	$53	*	$4,425	22
Hawaii	$218	46	$274	38	$69	32	$0	$23	$8	$592	45
Idaho	$726	33	$114	49	$25	43	$248	$1	$1	$1,115	35
Illinois	*$11,362*	*7*	*$1,867*	*8*	*$125*	*23*	*$827*	*$88*	*$18*	*$14,287*	*8*
Indiana	*$4,939*	*15*	*$894*	*17*	*$109*	*27*	*$0*	*$2*	*$36*	*$5,980*	*18*
Iowa	**$1,202**	**31**	**$587**	**26**	**$51**	**35**	**$25**	**$16**	*	**$1,882**	**31**
Kansas	*$1,304*	*30*	*$376*	*33*	*$13*	*46*	*$0*	*$2*	*$2*	*$1,697*	*32*
Kentucky	$890	32	$503	29	$9	47	$0	$2	$1	$1,405	34
Louisiana	$373	41	$604	25	$82	30	$0	$10	$4	$1,073	37
Maine	$265	44	$137	46	$6	49	$0	$77	*	$485	47
Maryland	$3,665	19	$2,542	4	$7,345	1	$340	$222	$17	$14,131	9
Massachusetts	$19,488	2	$2,172	6	$964	5	$618	$1,314	$1	$24,557	2
Michigan	*$15,736*	*4*	*$1,510*	*11*	*$113*	*25*	*$0*	*$43*	*$1*	*$17,403*	*5*
Minnesota	*$6,636*	*13*	*$637*	*24*	*$57*	*34*	*$0*	*$200*	*$3*	*$7,533*	*15*
Mississippi	$279	43	$411	31	$144	22	$0	$3	$1	$838	41
Missouri	*$2,736*	*23*	*$941*	*16*	*$48*	*36*	*$0*	*$19*	*$10*	*$3,754*	*25*
Montana	$134	47	$179	42	$537	11	$0	$8	$1	$859	40
Nebraska	*$489*	*37*	*$365*	*34*	*$41*	*39*	*$0*	*$5*	*	*$900*	*39*
Nevada	$567	35	$192	41	$30	40	$0	$5	*	$794	42
New Hampshire	$1,814	24	$307	36	$22	44	$0	$2	*	$2,145	30
New Jersey	$17,892	3	$865	19	$695	9	$76	$23	$2	$19,553	3
New Mexico	$568	34	$410	32	$544	10	$4,078	$62	$1	$5,663	19
New York	$10,916	8	$3,964	2	$160	20	$510	$357	$32	$15,939	6
North Carolina	$6,829	12	$1,885	7	$363	14	$0	$99	$27	$9,203	14
North Dakota	*$126*	*49*	*$169*	*43*	*$28*	*42*	*$0*	*$3*	*$1*	*$327*	*48*
Ohio	*$7,265*	*11*	*$1,807*	*9*	*$788*	*8*	*$0*	*$180*	*	*$10,040*	*12*
Oklahoma	$527	36	$299	37	$65	33	$0	$30	*	$921	38
Oregon	$3,629	20	$575	27	$84	29	$0	$43	$3	$4,334	23
Pennsylvania	$10,387	9	$2,438	5	$218	17	$81	$383	$4	$13,511	10
Rhode Island	$411	39	$230	40	$365	13	$0	$75	*	$1,081	36
South Carolina	$1,426	29	$569	28	$114	24	$115	$40	$27	$2,291	29
South Dakota	*$132*	*48*	*$82*	*50*	*$18*	*45*	*$0*	*$5*	*$3*	*$240*	*50*
Tennessee	$1,638	27	$761	21	$89	28	$1,084	$87	$1	$3,660	26
Texas	$13,889	5	$3,417	3	$374	12	$17	$151	$5	$17,853	4
Utah	$1,764	26	$415	30	$154	21	$0	$3	$1	$2,337	28
Vermont	$413	38	$115	48	$4	50	$0	$2	$1	$535	46
Virginia	$4,840	16	$971	15	$3,098	2	$468	$87	$8	$9,472	13
Washington	$12,687	6	$981	14	$202	18	$852	$327	$12	$15,061	7
West Virginia	$233	45	$167	44	$111	26	$129	$7	$2	$649	43
Wisconsin	*$3,411*	*21*	*$1,067*	*13*	*$48*	*36*	*$0*	*$24*	*$5*	*$4,555*	*21*
Wyoming	$37	51	$80	51	$8	48	$0	*	$5	$130	51
Total for all states	$265,919		$49,421		$24,591		$13,809	$5,693	$308	$359,742	
Percent of total	73.9%		13.7%		6.8%		3.8%	1.6%	0.1%		

Source: National Center for Science and Engineering Statistics, National Science Foundation, http://www.nsf.gov/statistics/nsf10314/content.cfm?pub_id=4000&id=1 Accessed May 2011.

Notes: FFRDC stands for federally funded research and development centers. Midwest states are in italics.

*=Represents an amount less than $0.5 million

Figure 1. Total Research Expenditures per Capita in Iowa Compared to the United States and Midwest States



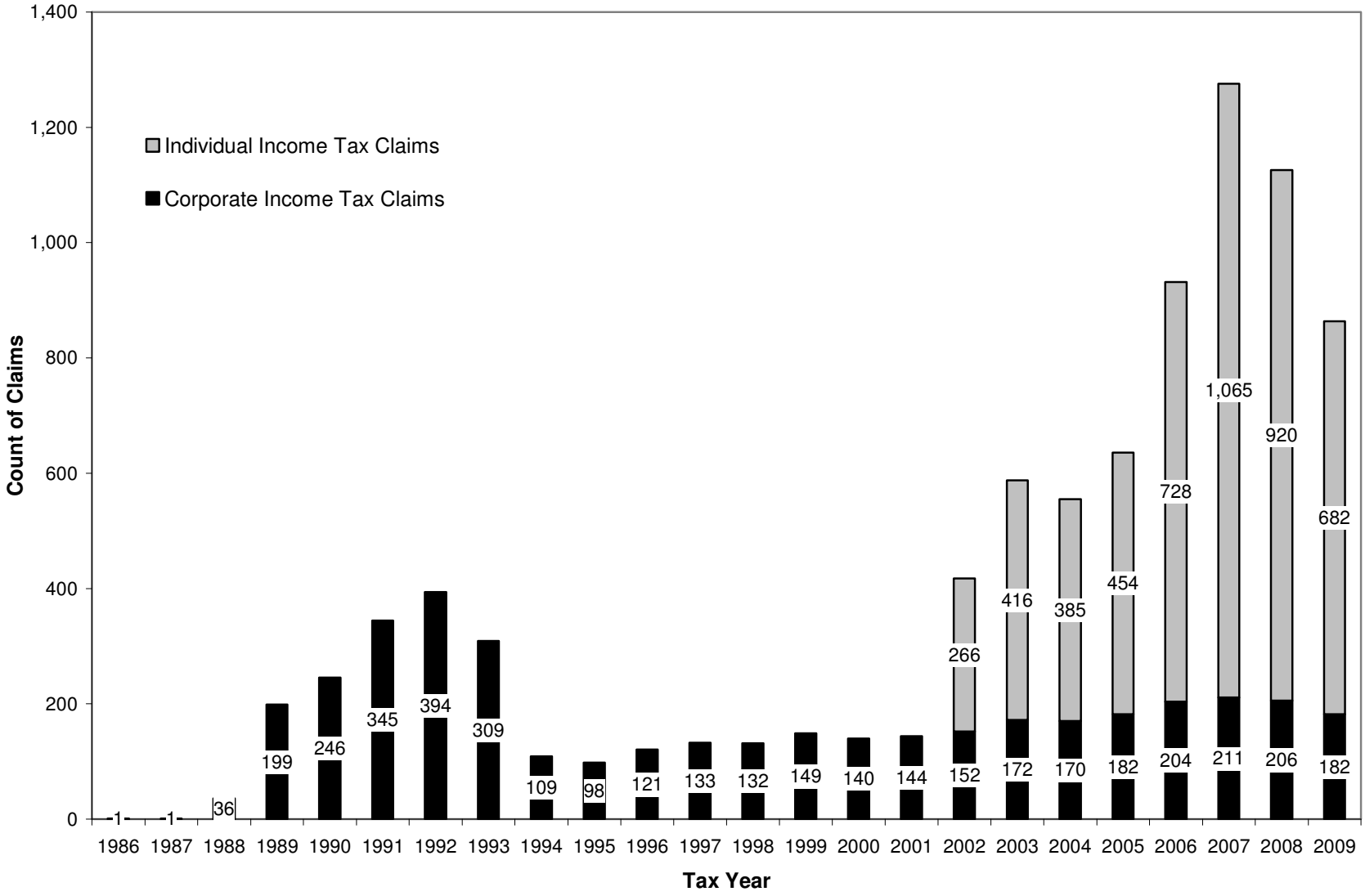
Source: National Science Foundation Division of Science Resources Statistics; U.S. Census Bureau
Note: From 1997-2000 & 2002-2007 chart portrays one-year increments; all other years are in two-year increments.

Table 3. Historical Research Expenditures in Iowa

Year	Total R&D (Millions)	Percent Change Since 1987	Percent Change Since 2002	R&D per Capita	State Rank: R&D per Capita*	Percent Change Since 1987	Percent Change Since 2002	R&D as Share of State GDP	State Rank: R&D as Share of GDP*	Percent Change Since 1987	Percent Change Since 2002
1987	$540.2			$195	31			1.20%	31		
1989	$616.4	14.1%		$222	27	14.0%		1.17%	27	-2.6%	
1991	$777.1	43.9%		$278	24	42.3%		1.35%	24	12.4%	
1993	$902.1	67.0%		$318	31	62.9%		1.44%	30	20.0%	
1995	$1,391.0	157.5%		$485	23	148.5%		1.93%	21	61.4%	
1997	$979.7	81.4%		$339	31	73.6%		1.20%	32	-0.2%	
1998	$1,053.7	95.1%		$363	31	85.9%		1.26%	31	5.0%	
1999	$979.7	81.4%		$344	34	76.1%		1.15%	33	-4.2%	
2000	$1,017.3	88.3%		$347	33	77.9%		1.09%	34	-9.0%	
2002	$1,346.3	149.2%		$459	33	135.0%		1.37%	33	14.0%	
2003	$1,451.0	168.6%	7.8%	$493	35	152.6%	7.5%	1.39%	35	15.8%	1.6%
2004	$1,624.7	200.8%	20.7%	$551	32	182.5%	20.2%	1.40%	34	16.8%	2.5%
2005	$1,669.0	209.0%	24.0%	$565	32	189.3%	23.1%	1.39%	33	15.8%	1.6%
2006	$1,715.0	217.5%	27.4%	$577	32	195.5%	25.8%	1.38%	34	15.1%	1.0%
2007	$1,882.0	248.4%	39.8%	$630	32	222.6%	37.3%	1.40%	35	16.6%	2.3%

Source: National Science Foundation/Division of Science Resources Statistics; U.S. Census Bureau;
Bureau of Economic Analysis, U.S. Department of Commerce
*=State research data is missing for eight states in 1989 and 11 states in 1991, explaining the jump in Iowa's rank for those years.

Figure 2. Count of Research Activities Tax Credit Claims for Tax Years 1986 through 2009



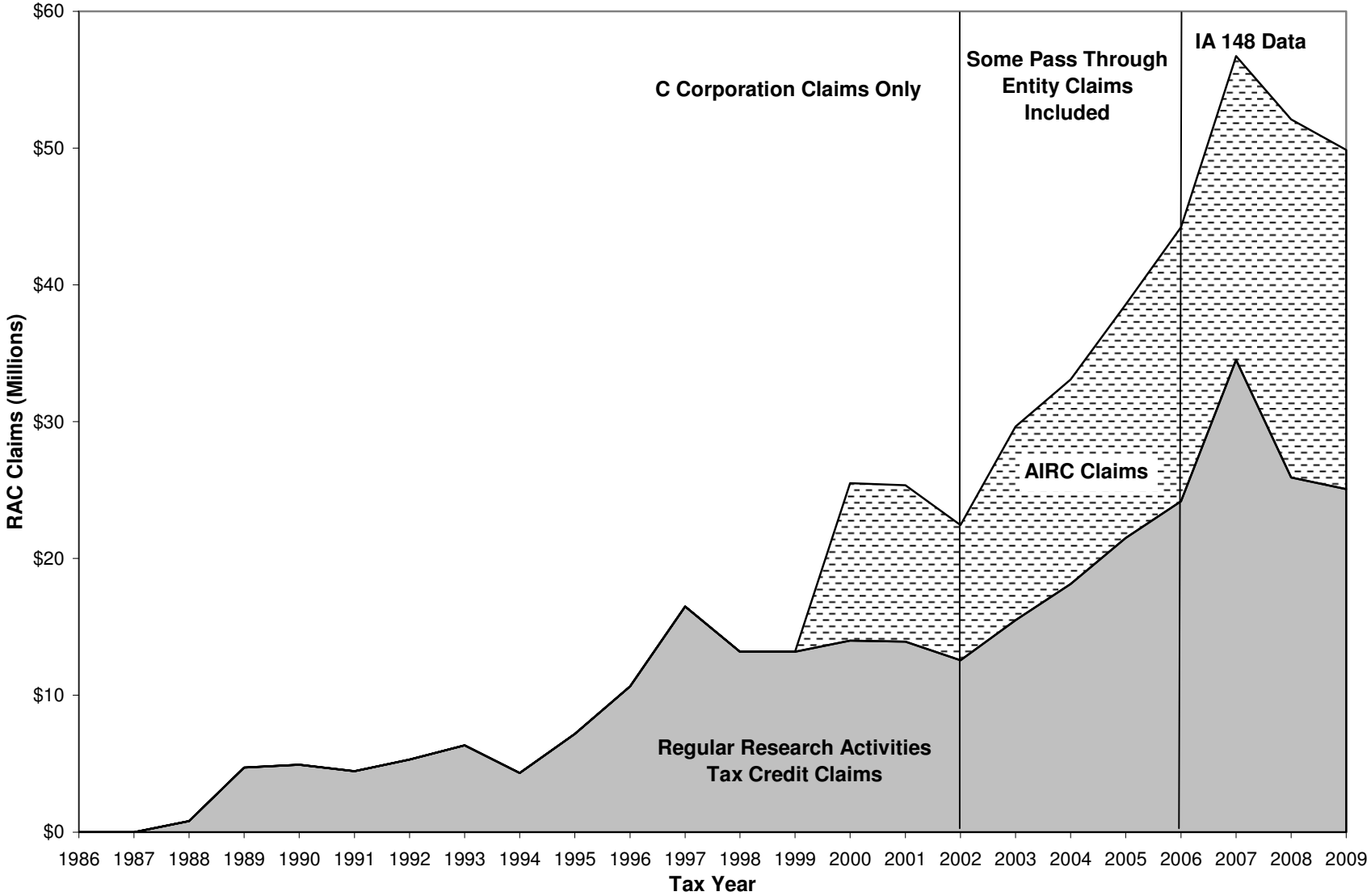
Source: Iowa corporate and individual income tax returns, where data collection on individual claims began with the 2002 tax year.

Table 4. Research Activities Tax Credit Claims by Tax Type for Tax Years 1986 through 2009

Tax Year	Credits Claimed by C Corporations			Credits Claimed by Individuals			Total[a]		Corporate Claims Share	
	RAC Count	Average RAC Claim	Total RAC Claims	RAC Count	Average RAC Claim	Total RAC Claims	Counts	Total RAC Claims	Counts	Total RAC Claims
1986	1	$245	$245				1	$245	100.0%	100.0%
1987	1	$1,975	$1,975				1	$1,975	100.0%	100.0%
1988	36	$22,563	$812,260				36	$812,260	100.0%	100.0%
1989	199	$23,763	$4,728,789				199	$4,728,789	100.0%	100.0%
1990	246	$20,024	$4,925,893				246	$4,925,893	100.0%	100.0%
1991	345	$12,888	$4,446,291				345	$4,446,291	100.0%	100.0%
1992	394	$13,481	$5,311,686				394	$5,311,686	100.0%	100.0%
1993	309	$20,527	$6,342,955				309	$6,342,955	100.0%	100.0%
1994	109	$39,648	$4,321,632				109	$4,321,632	100.0%	100.0%
1995	98	$73,208	$7,174,362				98	$7,174,362	100.0%	100.0%
1996	121	$88,135	$10,664,326				121	$10,664,326	100.0%	100.0%
1997	133	$123,989	$16,490,546				133	$16,490,546	100.0%	100.0%
1998	132	$99,841	$13,178,968				132	$13,178,968	100.0%	100.0%
1999	149	$88,519	$13,189,280				149	$13,189,280	100.0%	100.0%
2000	140	$182,096	$25,493,388				140	$25,493,388	100.0%	100.0%
2001	144	$176,062	$25,352,969				144	$25,352,969	100.0%	100.0%
2002	152	$184,893	$28,103,671	266	$6,161	$1,638,700	418	$29,742,371	36.4%	94.5%
2003	172	$178,694	$30,735,403	416	$7,492	$3,116,701	588	$33,852,104	29.3%	90.8%
2004	170	$195,774	$33,281,636	385	$4,807	$1,850,524	555	$35,132,160	30.6%	94.7%
2005	182	$216,673	$39,434,412	454	$5,928	$2,691,091	636	$42,125,503	28.6%	93.6%
2006	204	$198,833	$40,561,862	728	$4,513	$3,285,236	932	$43,847,098	21.9%	92.5%
2007	211	$249,911	$52,731,161	1,065	$3,150	$3,354,718	1,276	$56,085,879	16.5%	94.0%
2008	206	$234,614	$48,330,529	920	$3,587	$3,300,315	1,126	$51,630,844	18.3%	93.6%
2009	182	$249,142	$45,343,892	682	$4,809	$3,279,477	864	$48,623,369	21.1%	93.3%

Source: Iowa 148 Tax Credits Schedule filed with individual and corporate income tax returns. All claims are reported in nominal dollars.
a. Data on individual income taxpayers claims to the RAC are not available prior to tax year 2002, so only corporate claims are included in the totals.

Figure 3. Research Activities Tax Credit Claims by Method for Tax Years 1986 through 2009



Source: Iowa corporate and individual income tax returns. AIRC claims for tax years 2000 and 2001 are estimated using data from 2002-2009. Supplemental claims are included.

Table 5. Research Activities Tax Credit Claims Paid as Refunds for Tax Years 1986 through 2009

	Corporate				Individual				Total
Tax Year	Total RAC Claims	RAC Claims Paid as Refunds	Refunds as Share of Total RAC Claims	Share of RAC Filers Receiving Some Refund	Total RAC Claims	RAC Claims Paid as Refunds	Refunds as Share of Total RAC Claims	Share of RAC Filers Receiving Some Refund	RAC Claims Paid as Refunds
2002	$28,103,671	$25,726,240	91.5%	85.2%	$943,961	$537,353	56.9%	20.5%	$26,263,593
2003	$30,735,403	$28,084,232	91.4%	81.3%	$1,329,220	$577,497	43.4%	22.3%	$28,661,729
2004	$33,281,636	$30,231,300	90.8%	79.2%	$1,763,952	$777,006	44.0%	20.8%	$31,008,306
2005	$39,434,412	$32,836,203	83.3%	77.9%	$2,302,023	$1,020,923	44.3%	23.4%	$33,857,126
2006	$40,561,862	$37,898,939	93.4%	70.6%	$3,285,236	$1,266,067	38.5%	26.8%	$39,165,006
2007	$52,731,161	$49,840,516	94.5%	78.4%	$3,354,718	$1,482,773	44.2%	25.4%	$51,323,289
2008	$48,330,529	$44,862,363	92.8%	70.6%	$3,300,315	$1,376,107	41.7%	27.7%	$46,238,470
2009	$45,343,892	$42,198,627	93.1%	61.8%	$3,279,477	$1,392,984	42.5%	28.3%	$43,591,611
Average			91.4%	75.6%			44.5%	24.4%	

Source: Iowa corporate and individual income tax returns, where data collection on individual claims began with the 2002 tax year. All claims are reported in nominal dollars.

Table 6. Research Activities Tax Credit Claims by Tax Year and Fiscal Year for Corporate and Individual Income Taxpayers

Corporate Income Tax Credit Claims

Total RAC Tax Year Corporate Claims by Fiscal Year that Return was Received

Tax Year	2006	2007	2008	2009	2010	2011	2012
2006	$0	$728,028	$15,177,732	$24,636,855	$22,780	$0	$0
2007	$0	$0	$376,257	$49,725,575	$2,681,193	$0	$0
2008	$0	$0	$0	$402,696	$14,495,108	$33,796,797	$0
2009	$0	$0	$0	$0	$350,679	$29,288,518	$15,694,028

Share of Total RAC Tax Year Corporate Claims by Fiscal Year that Return was Received

Tax Year	2006	2007	2008	2009	2010	2011	2012
2006	0.0%	1.8%	37.4%	60.7%	0.1%	0.0%	0.0%
2007	0.0%	0.0%	0.7%	94.2%	5.1%	0.0%	0.0%
2008	0.0%	0.0%	0.0%	0.8%	29.8%	69.4%	0.0%
2009	0.0%	0.0%	0.0%	0.0%	0.8%	64.6%	34.6%

Average Distribution of RAC Tax Year Corporate Claims by Fiscal Year that Return was Received

Fiscal Year =	Tax Year	Tax Year + 1	Tax Year + 2	Tax Year + 3	Tax Year + 4
	0.0%	1.1%	43.9%	54.9%	0.0%

Individual Income Tax Credit Claims

Total RAC Tax Year Individual Claims by Fiscal Year that Return was Received

Tax Year	2006	2007	2008	2009	2010	2011	2012
2006	$0	$2,304,689	$960,473	$18,981	$0	$2,508	$0
2007	$0	$0	$2,503,044	$844,439	$0	$0	$0
2008	$0	$0	$0	$2,482,414	$795,782	$2,948	$0
2009	$0	$0	$0	$0	$2,479,183	$794,761	$0

Share of Total RAC Tax Year Individual Claims by Fiscal Year that Return was Received

Tax Year	2006	2007	2008	2009	2010	2011	2012
2006	0.0%	70.1%	29.2%	0.6%	0.0%	0.1%	0.0%
2007	0.0%	0.0%	74.8%	25.2%	0.0%	0.0%	0.0%
2008	0.0%	0.0%	0.0%	75.7%	24.3%	0.1%	0.0%
2009	0.0%	0.0%	0.0%	0.0%	75.7%	24.3%	0.0%

Average Distribution of RAC Tax Year Individual Claims by Fiscal Year that Return was Received

Fiscal Year =	Tax Year	Tax Year + 1	Tax Year + 2	Tax Year + 3	Tax Year + 4
	0.0%	74.1%	25.7%	0.2%	0.0%

Source: Iowa corporate and individual income tax returns and Iowa Department of Revenue returns processing data. All claims are reported in nominal dollars. The different timing of tax year 2007 filings is believed to be a result of a reporting requirement that became effective in fiscal year 2010.

Table 7. Example Timing of a Hypothetical Research Activities Tax Credit Change Effective for Tax Year 2012

		Average Share of Claims
Forecasted Change in Tax Year 2012 Total Claims	-$10,000,000	
		Corporate
Change in Corporate Tax Year 2012 Claims	-$9,340,952	93.4%
Change in Individual Tax Year 2012 Claims	-$659,048	Individual
		6.6%

Estimated Change in RAC Claims

	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Corporate Claims	$0	-$105,734	-$4,104,952	-$5,128,518	-$1,749
Individual Claims	$0	-$488,154	-$169,669	-$1,100	$0
Total Claims	$0	-$593,888	-$4,274,620	-$5,129,618	-$1,749
Share of Forecasted Change	0.0%	-5.9%	-42.7%	-51.3%	0.0%

Table 8. Automatic and Supplemental Research Activities Tax Credit Claims by Method and Tax Type for Tax Years 2006 through 2009

All Research Activities Tax Credit Claims, Automatic and Supplemental Split Based on IA 148 Claim Data

	RAC Count		Automatic RAC Claims		Total Automatic	Supplemental Count		Supplemental RAC Claims		Total Supplemental	Supplemental Claims Share	
Tax Year	Corporate	Individual	Corporate	Individual	RAC Claims	Corporate	Individual	Corporate	Individual	RAC Claims	Counts	RAC Claims
2006	199	663	$28,122,507	$2,506,431	$30,628,938	28	161	$12,436,344	$702,464	$13,138,808	21.9%	30.0%
2007	210	1,025	$34,095,786	$2,607,345	$36,703,131	32	465	$18,635,368	$718,148	$19,353,516	40.2%	34.5%
2008	202	867	$31,949,472	$2,573,088	$34,522,560	23	104	$16,364,060	$697,519	$17,061,579	11.9%	33.1%
2009	176	622	$30,125,166	$2,416,177	$32,541,343	18	122	$14,897,129	$766,428	$15,663,557	17.5%	32.5%
											Average	
Average	197	794		Total	$134,395,972				Total	$65,217,460	22.9%	32.5%

Regular Research Credit Claims Filed on Form IA 128

	RAC Count		Automatic RAC Claims		Total Automatic	Supplemental Count		Supplemental RAC Claims		Total Supplemental	Supplemental Claims Share	
Tax Year	Corporate	Individual	Corporate	Individual	RAC Claims	Corporate	Individual	Corporate	Individual	RAC Claims	Counts	RAC Claims
2006	173	603	$17,402,401	$2,168,525	$19,570,926	21	131	$3,664,199	$521,780	$4,185,979	19.6%	17.6%
2007	167	622	$21,523,275	$2,196,774	$23,720,049	19	120	$9,983,410	$516,353	$10,499,763	17.6%	30.7%
2008	150	535	$17,228,709	$2,168,689	$19,397,398	15	35	$5,719,677	$620,902	$6,340,579	7.3%	24.6%
2009	124	480	$16,317,433	$1,966,376	$18,283,809	12	104	$5,090,801	$641,508	$5,732,309	19.2%	23.9%
											Average	
											15.9%	24.2%

Alternative Incremental Research Credit Claims Filed on Form IA 128A

	RAC Count		Automatic RAC Claims		Total Automatic	Supplemental Count		Supplemental RAC Claims		Total Supplemental	Supplemental Claims Share	
Tax Year	Corporate	Individual	Corporate	Individual	RAC Claims	Corporate	Individual	Corporate	Individual	RAC Claims	Counts	RAC Claims
2006	26	60	$10,720,106	$337,906	$11,058,012	7	30	$8,772,145	$180,684	$8,952,829	43.0%	44.7%
2007	43	403	$12,572,511	$410,571	$12,983,082	13	345	$8,651,958	$201,795	$8,853,753	80.3%	40.5%
2008	52	332	$14,720,763	$404,399	$15,125,162	8	69	$10,644,383	$76,617	$10,721,000	20.1%	41.5%
2009	52	142	$13,807,733	$449,801	$14,257,534	6	18	$9,806,328	$124,920	$9,931,248	12.4%	41.1%
											Average	
											38.9%	42.0%

AIRC as Share of Total Claims

	RAC Count		Automatic RAC Claims		Total Automatic	Supplemental Count		Supplemental RAC Claims		Total Supplemental	AIRC Share of Total RAC Claims	
Tax Year	Corporate	Individual	Corporate	Individual	RAC Claims	Corporate	Individual	Corporate	Individual	RAC Claims	Counts	RAC Claims
2006	13.1%	9.0%	38.1%	13.5%	36.1%	25.0%	18.6%	70.5%	25.7%	68.1%	10.0%	45.7%
2007	20.5%	39.3%	36.9%	15.7%	35.4%	40.6%	74.2%	46.4%	28.1%	45.7%	36.1%	39.0%
2008	25.7%	38.3%	46.1%	15.7%	43.8%	34.8%	66.3%	65.0%	11.0%	62.8%	35.9%	50.1%
2009	29.5%	22.8%	45.8%	18.6%	43.8%	33.3%	14.8%	65.8%	16.3%	63.4%	24.3%	50.2%
Average	22.2%	27.4%	41.7%	15.9%	39.8%	33.4%	43.5%	62.0%	20.3%	60.0%	26.6%	46.2%

Source: IA 148 Research Activities Tax Credit Claims matched to IA 128 and 128A RAC forms. Only claims that could be matched to RAC forms are presented here.
All claims are reported in nominal dollars.

Table 9. Earned Research Activities Tax Credits by Iowa Employment Size for Tax Years 2002 through 2009

Group by Employment Count	Number of Claims	Percent of Claims	Number of Businesses	Total RAC Claims	Percent of Total	Average RAC Claim	Average Iowa Employment
2002-2009							
Micro (<10)	240	11.1%	90	$2,625,823	0.8%	$10,941	5
Small (10-99)	960	44.5%	256	$25,953,756	7.9%	$27,035	44
Medium (100-499)	610	28.3%	148	$34,609,684	10.6%	$56,737	229
Large (500+)	239	11.1%	47	$260,217,321	79.6%	$1,088,775	2,004
Unknown	110	5.1%	59	$3,692,727	1.1%	$33,570	--
Total	2,159		600	$327,099,311		$151,505	
2002-2005							
Micro (<10)	55	7.4%	28	$781,917	0.6%	$14,217	5
Small (10-99)	301	40.7%	132	$7,598,330	6.1%	$25,244	44
Medium (100-499)	230	31.1%	94	$11,621,704	9.4%	$50,529	238
Large (500+)	105	14.2%	33	$102,231,349	82.4%	$973,632	2,252
Unknown	49	6.6%	23	$1,773,947	1.4%	$36,203	--
Total	740		310	$124,007,247		$167,577	
2006-2009							
Micro (<10)	185	13.0%	77	$1,843,906	0.9%	$10,941	5
Small (10-99)	659	46.4%	236	$18,355,426	9.0%	$27,035	44
Medium (100-499)	380	26.8%	129	$22,987,980	11.3%	$56,737	223
Large (500+)	134	9.4%	42	$157,985,972	77.8%	$1,088,775	1,809
Unknown	61	4.3%	42	$1,918,780	0.9%	$33,570	--
Total	1,419		526	$203,092,064		$143,123	

Source: Iowa IA 128 and IA 128A forms matched to Iowa Workforce Development employment count data.
All claims are reported in nominal dollars.

Table 10. Earned Research Activities Tax Credits by Top Twenty Industries for Tax Years 2002 through 2009

Rank	NAICS code	Industry Classification	Number of Claims	Percent of Claims	Number of Businesses	Total Earned RAC Credit	Percent of Total	Average Earned RAC Credit	Average Iowa Employment
1	333	Machinery Manufacturing	350	17.6%	82	$112,240,618	35.7%	$320,687	335
2	336	Transportation Equipment Manufacturing	152	7.6%	32	$92,212,781	29.3%	$606,663	896
3	325	Chemical Manufacturing	126	6.3%	30	$45,450,348	14.5%	$360,717	358
4	311	Food And Kindred Product Manufacturing	108	5.4%	26	$8,370,087	2.7%	$77,501	840
5	522	Credit Intermediation And Related Activities	21	1.1%	5	$6,085,416	1.9%	$289,782	139
6	337	Furniture And Related Product Manufacturing	34	1.7%	6	$5,757,094	1.8%	$169,326	165
7	424	Merchant Wholesalers, Nondurable Goods	71	3.6%	16	$5,670,841	1.8%	$79,871	91
8	334	Computer And Electronic Product Manufacturing	93	4.7%	19	$5,026,405	1.6%	$54,047	62
9	541	Professional, Scientific, And Technical Services	192	9.6%	64	$4,774,315	1.5%	$24,866	35
10	335	Electrical Equipment, Appliances, And Component Manufacturing	54	2.7%	13	$4,746,048	1.5%	$87,890	607
11	332	Fabricated Metal Product Manufacturing	203	10.2%	53	$4,402,838	1.4%	$21,689	153
12	423	Merchant Wholesalers, Durable Goods	88	4.4%	22	$3,473,848	1.1%	$39,476	86
13	321	Wood Products Manufacturing	24	1.2%	6	$3,326,520	1.1%	$138,605	1,539
14	221	Utilities	8	0.4%	*	$2,690,635	0.9%	$336,329	1,447
15	551	Management Of Companies And Enterprises	20	1.0%	*	$2,292,949	0.7%	$114,647	40
16	326	Plastics And Rubber Product Manufacturing	75	3.8%	18	$1,457,788	0.5%	$19,437	167
17	111	Crop Production	14	0.7%	*	$1,153,300	0.4%	$82,379	94
18	511	Newspapers, Books & Other Published Matter	42	2.1%	12	$769,400	0.2%	$18,319	64
19	518	Internet Service Providers, Web Search Portals,	19	1.0%	6	$597,962	0.2%	$31,472	903
20	238	Specialty Trade Contractors	44	2.2%	13	$595,244	0.2%	$13,528	57
		All Others	254	12.8%	85	$4,332,948	1.4%		
		Overall: Manufacturing in the Top 20	1,219	61.2%	285	$282,990,527	90.0%		
		Overall: All Other Industries in the Top 20	519	26.1%	138	$28,103,910	8.9%		

Source: IA 128 and IA 128A claims matched to Iowa Workforce Development employment and industry data. All claims are reported in nominal dollars.
NAICS stands for the North American Industry Classification System as specified by the U.S. Census Bureau.
*=Designates industries with less than five companies earnings RAC claims during tax years 2006 through 2009

Table 11. Concentration of Earned Research Activities Tax Credits for Tax Years 2002 through 2009

Total Earned Research Activities Tax Credits					*Iowa Research Expenditures*		
Tax Year	Claim Count	Total Earned Claims	Total of Top Ten Earned Claims	Top Ten Share of Total RAC	Total Iowa Research Expenditures	Top Ten Research Expenditures	Top Ten Share of Expenditures
2002	132	$22,437,410	$17,627,970	78.6%	$607,612,407	$428,648,997	70.5%
2003	157	$29,627,318	$22,905,667	77.3%	$742,395,224	$515,891,219	69.5%
2004	197	$33,073,870	$26,600,419	80.4%	$793,122,624	$572,538,834	72.2%
2005	248	$38,580,092	$30,379,901	78.7%	$894,759,086	$624,681,258	69.8%
2006	341	$44,220,974	$32,404,571	73.3%	$1,080,628,510	$721,044,560	66.7%
2007	368	$56,712,577	$42,951,599	75.7%	$1,289,950,519	$893,591,799	69.3%
2008	372	$52,091,726	$40,335,930	77.4%	$1,217,489,855	$863,556,503	70.9%
2009	333	$49,876,193	$38,854,873	77.9%	$1,180,169,763	$837,026,136	70.9%
Average 2002-2009	269	$40,827,520	$31,507,616	77.4%	$975,765,998	$682,122,413	70.0%
Average 2006-2009	354	$50,725,368	$38,636,743	76.1%	$1,192,059,662	$828,804,750	69.5%

Automatic Earned Research Activities Tax Credits					*Breakdown of Total Earned RAC*			
					Share Supplemental		Share AIRC	
Tax Year	Claim Count	Total Earned Automatic Claims	Automatic Claims for the Top Ten	Top Ten Share of Automatic RAC	All	Top Ten	All	Top Ten
2002	132	$17,186,193	$12,546,426	73.0%	23.6%	28.8%	44.1%	51.4%
2003	157	$21,541,553	$15,160,860	70.4%	27.4%	33.8%	47.8%	58.2%
2004	197	$22,887,978	$16,916,634	73.9%	31.0%	36.4%	45.3%	53.1%
2005	248	$25,754,432	$18,445,873	71.6%	33.4%	39.3%	44.4%	49.8%
2006	341	$30,873,641	$21,354,577	69.2%	30.2%	34.1%	45.3%	53.5%
2007	368	$37,429,279	$26,480,139	70.7%	34.0%	38.3%	39.1%	43.9%
2008	372	$34,834,137	$25,023,017	71.8%	33.1%	38.0%	50.2%	56.8%
2009	333	$33,990,955	$24,799,802	73.0%	31.9%	36.2%	49.7%	54.5%
Average 2002-2009	269	$28,062,271	$20,090,916	71.7%	30.6%	35.6%	45.7%	52.6%
Average 2006-2009	354	$34,282,003	$24,414,384	71.2%	32.3%	36.6%	46.1%	52.2%

Source: IA 128 and IA 128A data covering all entities for 2002 through 2009. All values are reported in nominal dollars.

Table 12. Business Research Expenditures and Earned Research Activities Tax Credits Reported on Forms IA 128 and IA 128A for Tax Years 2002 through 2009

Distribution of U.S. Research Expenditures Reported on Form IA 128 for 2002-2009

Wages	Supplies	Computers	Contract
57.5%	22.1%	0.0%	20.3%

Distribution of Iowa Research Expenditures Reported on Form IA 128 for 2002-2009

Wages	Supplies	Computers	Contract
67.7%	20.6%	0.1%	11.6%

Research Expenditures and Regular Research Activities Tax Credits Reported on Form IA 128

Tax Year	Count	Total U.S. Expenditures	IA Share of U.S. Expenditures	Total Iowa Expenditures	Regular Research Activities Credits	Credits Per Research Dollar
2002	117	$4,318,979,027	9.3%	$403,375,689	$12,570,240	$0.031
2003	142	$5,403,369,203	8.5%	$459,468,524	$15,499,081	$0.034
2004	177	$10,126,971,731	4.8%	$490,879,362	$18,127,064	$0.037
2005	223	$11,779,050,494	4.6%	$546,607,435	$21,504,580	$0.039
2006	304	$12,982,087,199	5.1%	$660,249,713	$24,183,650	$0.037
2007	305	$12,555,426,205	6.3%	$785,078,389	$34,531,372	$0.044
2008	292	$12,587,792,683	5.0%	$623,098,042	$25,920,363	$0.042
2009	246	$9,879,307,474	6.1%	$604,862,796	$25,079,012	$0.041
Total	1,806	$79,632,984,016	5.7%	$4,573,619,950	$177,415,362	$0.039

Distribution of Iowa Research Expenditures Reported on Form IA 128A for 2002-2009

Wages	Supplies	Computers	Contract
65.9%	25.1%	0.4%	8.6%

Research Expenditures and Alternative Incremental Research Activities Tax Credits Reported on Form IA 128A

Tax Year	Count	Total Iowa Expenditures	Alternative Incremental Research Credits	Credits Per Research Dollar
2002	15	$204,236,718	$9,867,170	$0.048
2003	15	$282,926,700	$14,128,237	$0.050
2004	20	$302,243,262	$14,946,806	$0.049
2005	25	$348,151,651	$17,075,512	$0.049
2006	37	$420,378,797	$20,037,324	$0.048
2007	63	$504,872,130	$22,181,205	$0.044
2008	80	$594,391,813	$26,171,363	$0.044
2009	87	$575,306,967	$24,797,181	$0.043
Total	342	$3,232,508,038	$149,204,798	$0.046

Distribution of Total Iowa Research Expenditures Reported for 2002-2009

Wages	Supplies	Computers	Contract
67.0%	22.4%	0.2%	10.4%

Research Expenditures and Total Research Activities Tax Credits Reported on Forms IA 128 and IA 128A

Tax Year	Count	Total Iowa Expenditures	Total Credits	Credits Per Research Dollar
2002	132	$607,612,407	$22,437,410	$0.037
2003	157	$742,395,224	$29,627,318	$0.040
2004	197	$793,122,624	$33,073,870	$0.042
2005	248	$894,759,086	$38,580,092	$0.043
2006	341	$1,080,628,510	$44,220,974	$0.041
2007	368	$1,289,950,519	$56,712,577	$0.044
2008	372	$1,217,489,855	$52,091,726	$0.043
2009	333	$1,180,169,763	$49,876,193	$0.042
Total	2,148	$7,806,127,988	$326,620,160	$0.042

Source: Iowa 128 and 128A tax forms filed with C corporation, S corporation, LLCs, and individual income tax returns. Collection of data beginning in 2006 is more complete with the IA 148 Tax Credits Schedule available in that year to identify pass-throughs. All claims are reported in nominal dollars.

Table 13. Geographical Location of Qualified Research Activities Within Iowa for Tax Year 2009

Iowa District	Counties with Research	Count of Companies Conducting Research	Research Expenditures Amount	Research Expenditures Share	Research Wages Amount	Research Wages Share	Earned RAC Amount	Earned RAC Share
Northeast	17	118	$686,776,532	59.7%	$470,731,440	60.0%	$29,658,269	61.5%
Southeast	15	78	$134,794,593	11.7%	$94,717,469	12.1%	$4,712,550	9.8%
Southwest	10	53	$208,641,219	18.1%	$135,958,994	17.3%	$10,028,440	20.8%
Northwest	32	96	$120,091,991	10.4%	$82,497,073	10.5%	$3,859,206	8.0%
Total	74	345	$1,150,304,335		$783,904,976		$48,258,465	

County Population Group	Counties with Research	Count of Companies Conducting Research	Research Expenditures Amount	Research Expenditures Share	Research Wages Amount	Research Wages Share	Earned RAC Amount	Earned RAC Share
Metropolitan	18	196	$955,067,253	83.0%	$649,863,337	82.9%	$41,579,968	86.2%
Micropolitan	31	85	$118,839,497	10.3%	$84,095,489	10.7%	$3,600,209	7.5%
Rural	25	64	$76,397,584	6.6%	$49,946,150	6.4%	$3,078,288	6.4%

Top Ten Research Counties	Count of Companies Conducting Research	Research Expenditures Amount	Research Expenditures Share	Research Wages Amount	Research Wages Share	Earned RAC Amount	Earned RAC Share
Linn	41	$375,903,640	32.7%	$271,935,150	34.7%	$16,319,033	33.8%
Black Hawk	16	$187,314,271	16.3%	$117,949,723	15.0%	$9,675,549	20.0%
Polk	38	$176,303,307	15.3%	$115,472,881	14.7%	$8,810,201	18.3%
Dubuque	24	$91,214,107	7.9%	$61,691,232	7.9%	$2,562,051	5.3%
Story	24	$42,687,920	3.7%	$27,660,429	3.5%	$1,642,626	3.4%
Marion	6	$33,569,668	2.9%	$23,562,667	3.0%	$931,969	1.9%
Dallas	5	$26,369,575	2.3%	$16,218,432	2.1%	$1,051,825	2.2%
Scott	14	$21,628,181	1.9%	$14,843,531	1.9%	$624,839	1.3%
Johnson	14	$16,876,964	1.5%	$11,566,937	1.5%	$481,895	1.0%
Wapello	4	$13,284,137	1.2%	$7,623,031	1.0%	$723,846	1.5%
Total for Top Ten Counties	53.9%		85.6%		85.3%		88.7%

Source: IA 128 and IA 128A data for Tax Year 2009.
Note: RAC Claims were matched to counties and regions first using the distribution of research by Zip Codes reported on the IDR Survey on Research Activities, second Zip Code of IWD data on facility location, or third Zip Code of tax return mailing address; one percent of claims could not be matched to an Iowa Zip Code.

Iowa districts are the following split of counties:

Northeast: Allamakee, Benton, Black Hawk, Bremer, Buchanan, Clayton, Delaware, Dubuque, Fayette, Howard, Iowa, Jackson, Jones, Linn, Marshall, Mitchell, Poweshiek, Tama, Winneshiek, and Worth

Southeast: Appanoose, Cedar, Clarke, Clinton, Davis, Des Moines, Henry, Jasper, Jefferson, Johnson, Keokuk, Lee, Louisa, Lucas, Mahaska, Marion, Monroe, Muscatine, Scott, Van Buren, Wapello, Washington, and Wayne

Southwest: Adair, Adams, Cass, Clarke, Dallas, Fremont, Guthrie, Madison, Mills, Montgomery, Page, Polk, Pottawattamie, Ringgold, Taylor, Union, and Warren

Northwest: Audubon, Boone, Buena Vista, Butler, Calhoun, Carroll, Cherokee, Chickasaw, Clay, Crawford, Dickinson, Emmet, Floyd, Franklin, Greene, Grundy, Hamilton, Hancock, Hardin, Harrison, Humboldt, Ida, Kossuth, Lyon, Monona, O'Brien, Osceola, Palo Alto, Plymouth, Pocahontas, Sac, Shelby, Sioux, Story, Webster, Winnebago, Woodbury, and Wright

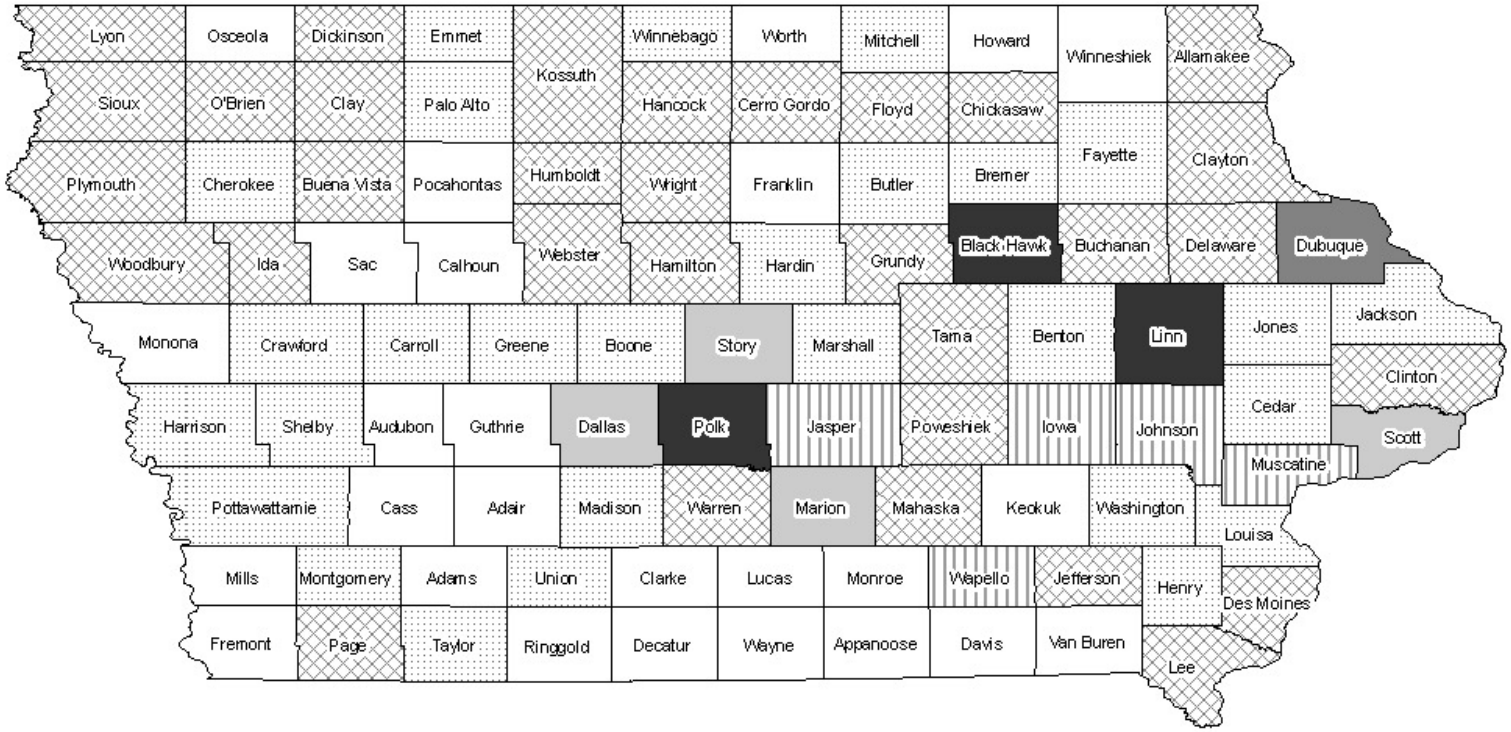
County population groups are based on the USDA Rural-Urban Continnuum for 2003. Counties are designated in one of nine categories which are grouped accordingly:

Metropolitan: 1=County in metro area of 1 million+ population, 2=County in metro area of 250,000 to 1 million population, 3=County in metro area of fewer than 250,000 population

Micropolitan: 4=Nonmetro county with urban population of 20,000 or more, adjacent to a metro area, 6=Nonmetro county with urban population of 2,500-19,999, adjacent to a metro area, 8=Nonmetro county completely rural or less than 2,500 urban population, adjacent to metro area

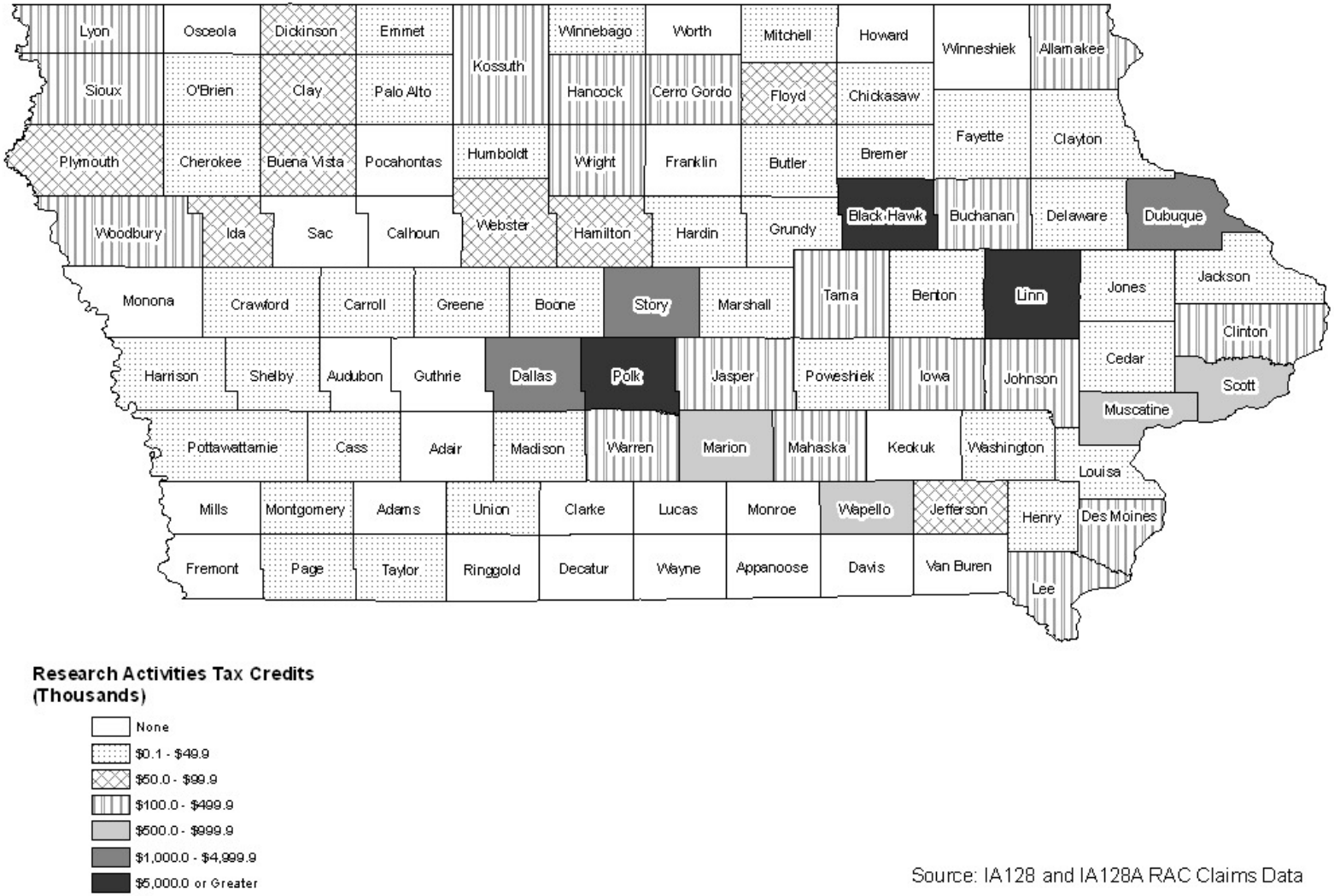
Rural: 5=Nonmetro county with urban population of 20,000 or more, not adjacent to a metro area, 7=Nonmetro county with urban population of 2,500-19,999, not adjacent to a metro area, 9=Nonmetro county completely rural or less than 2,500 urban population, not adjacent to metro area

Figure 4. Qualified Research Expenditures by County, IA 128 and IA 128A Data for Tax Year 2009



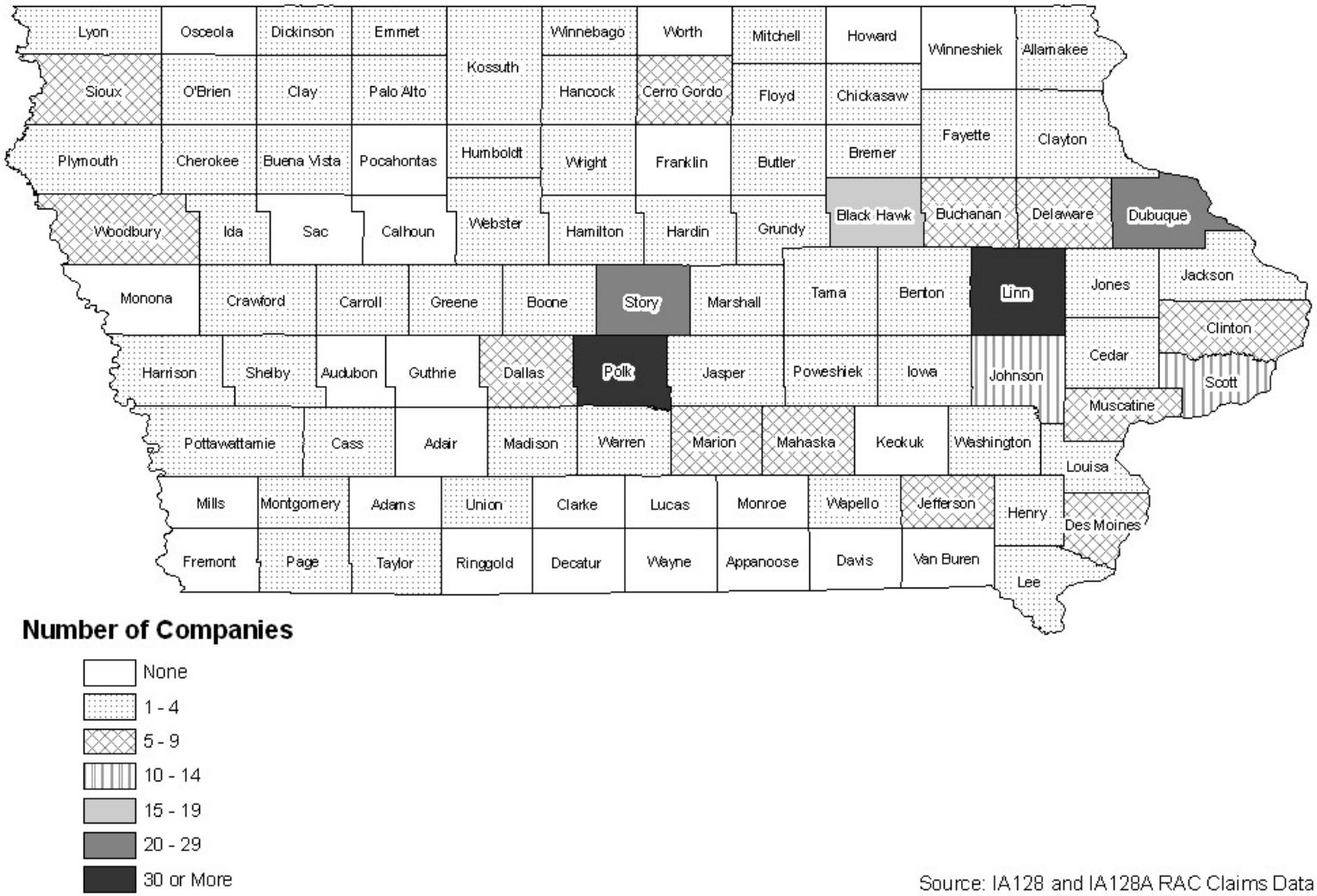
Source: IA128 and IA128A RAC Claims Data

Figure 5. Research Activities Tax Credits Earned by County, IA 128 and IA 128A Data for Tax Year 2009



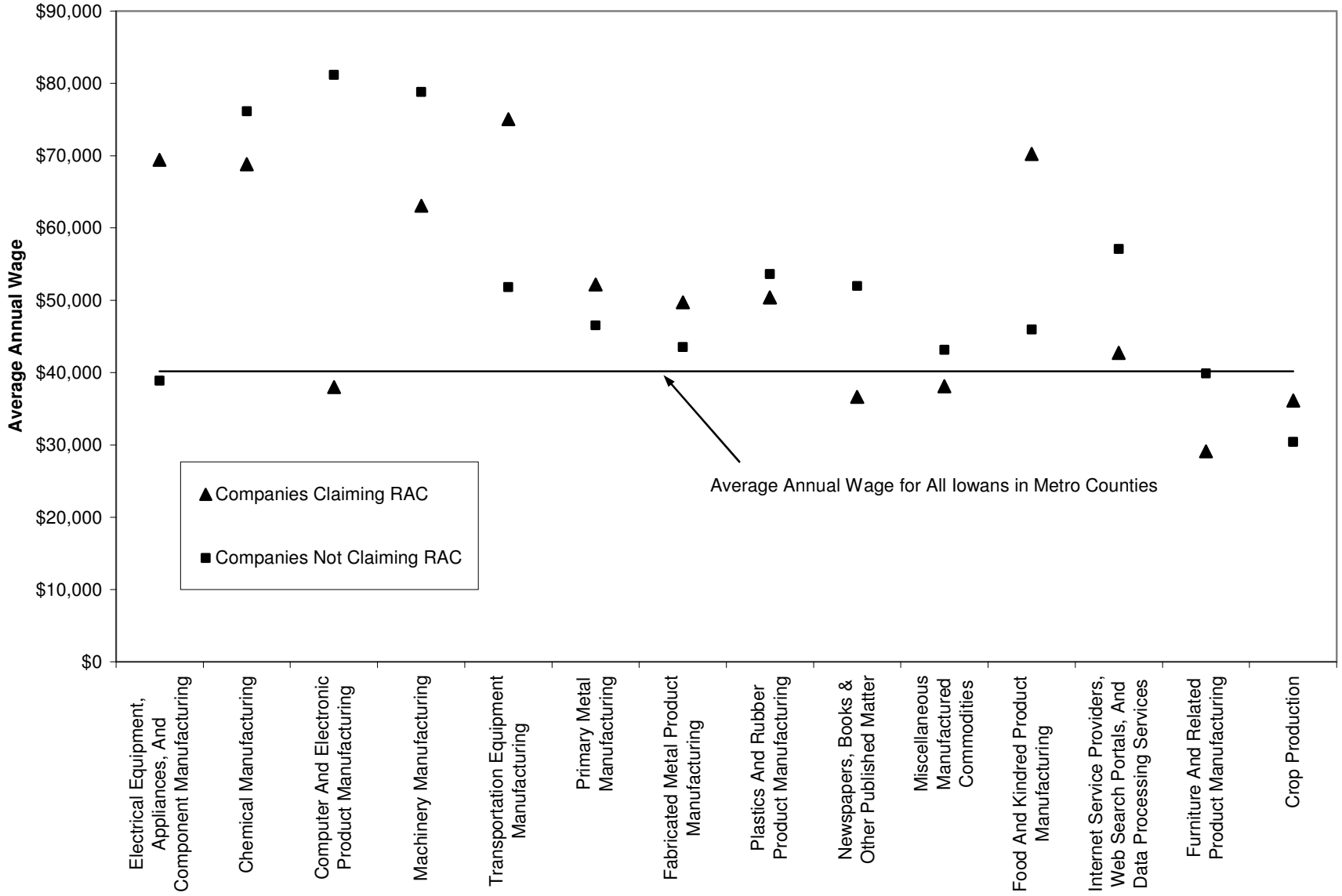
Source: IA128 and IA128A RAC Claims Data

Figure 6. Number of Companies Earning Research Activities Tax Credits by County, IA 128 and IA 128A Data for Tax Year 2009



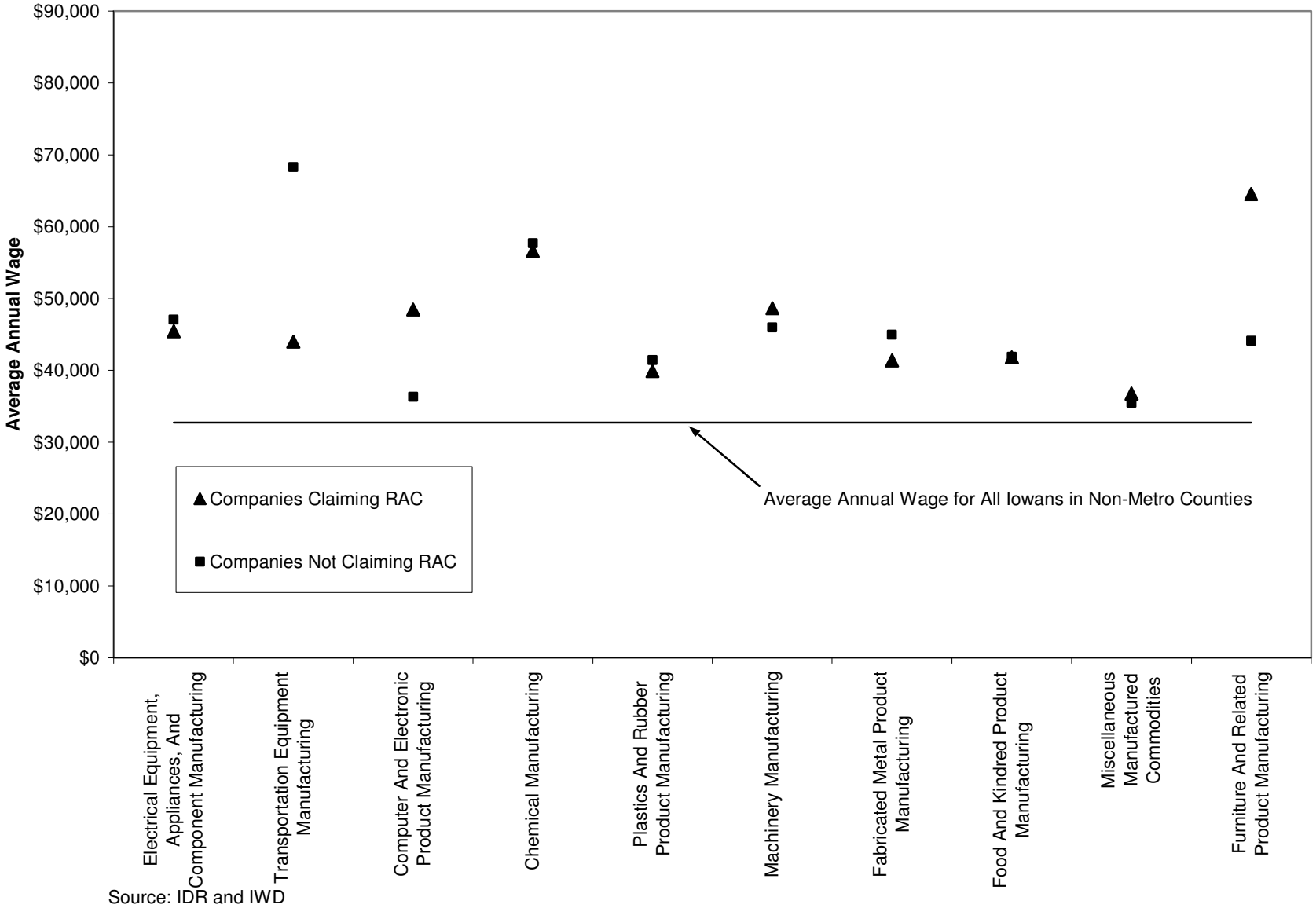
Source: IA128 and IA128A RAC Claims Data

Figure 7. Comparison of Average Wages for Companies Claiming the RAC and Companies Not Claiming the RAC in Metro Counties by Industry



Source: IDR and IWD

Figure 8. Comparison of Average Wages for Companies Claiming the RAC and Companies Not Claiming the RAC in Non-Metro Counties by Industry



Source: IDR and IWD

Table 14. Characteristics of Respondents to IDR Survey on Research Activities

	RAC Claim in TY 2006 or Later				No RAC Claim in TY 2006 or Later			
	Companies with Gross Revenues Greater than $20 million	Companies with Gross Revenues $20 million or less	Companies with Unavailable Gross Revenues	Total	Companies with Gross Revenues Greater than $20 million	Companies with Gross Revenues $20 million or less	Companies with Unavailable Gross Revenues	Total
Count of Respondents	89	99	6	194	47	135	38	220
Distribution of Respondents	45.9%	51.0%	3.1%	100.0%	21.4%	61.4%	17.3%	100.0%
Company Started in 2002 or Later	9	23	0	32	10	20	9	39
Share of Respondents Started in 2002 or Later	10.1%	23.2%	0.0%	16.5%	21.3%	14.8%	23.7%	17.7%
Average Iowa Production Share	74.3%	94.3%	0.0%	85.0%	61.2%	85.9%	79.3%	79.5%
Average Iowa Sales Share	24.3%	38.8%	0.0%	31.9%	29.4%	52.5%	77.5%	47.8%
Count of Respondents Performing Research in Iowa in Most Recent Tax Year	85	85	3	173	8	21	5	34
Share of Respondents Performing Research in Iowa in Most Recent Tax Year	95.5%	85.9%	50.0%	89.2%	17.0%	15.6%	13.2%	15.5%
Count of Respondents with No RAC Claim in Most Recent Tax Year	14	19	3	36				
Share of Respondents with No RAC Claim in Most Recent Tax Year	15.7%	19.2%	50.0%	18.6%				
Reasons for No RAC Claim:								
No Qualified Research in Iowa	3	10	2	15	1	1	0	2
Not Eligible for Credit	8	8	0	16	1	5	0	6
Administrative Burden Too High	5	0	0	5	4	3	1	8
Not Aware of Credit	0	0	1	1	2	5	2	9
Unsure if Research Qualifies	0	0	0	0	4	8	0	12
Other	2	1	0	3	1	7	2	10

Source: All respondents to the IDR Survey on Research Activities, 2011

Table 15. Representativeness of Survey Respondents Matched to All RAC Claimants by Size for Tax Years 2006 through 2009

Group by Employment Count	Research Activities Tax Credit Claimants			Survey Responses Matched to RAC Claimants			Respondents' Share of RAC Population	Respondents' Share of Total RAC
	Number of Companies	Distribution of Companies by Employment	Total of Average Earned RAC Claims	Number of Companies	Distribution of Companies by Employment	Total of Average Earned RAC Claims		
Micro (<10)	77	14.7%	$697,586	28	14.5%	$262,020	36.4%	37.6%
Small (10-99)	234	44.7%	$6,155,865	89	46.1%	$1,412,501	38.0%	22.9%
Medium (100-499)	130	24.9%	$6,889,314	54	28.0%	$2,436,188	41.5%	35.4%
Large (500+)	39	7.5%	$38,940,161	18	9.3%	$37,340,998	46.2%	95.9%
Unknown	43	8.2%	$1,446,546	4	2.1%	$34,734	9.3%	2.4%
Total	523		$54,129,472	193		$41,486,439	36.9%	76.6%

Source: Iowa IA 128 and IA 128A forms matched to Iowa Workforce Development industry data, and respondents with RAC claims on the IDR Survey on Research Activities, 2011. All claims are reported in nominal dollars.

Table 16. Representativeness of Survey Respondents Matched to All RAC Claimants by Industry for Tax Years 2006 through 2009

			Research Activities Tax Credit Claimants			Survey Responses Matched to RAC Claimants				
Rank	NAICS code	Industry Classification	Number of Companies	Distribution of Companies by Industry	Total of Average Earned RAC Credits	Number of Companies	Distribution of Companies by Industry	Total of Average Earned RAC Credits	Respondents' Share of RAC Population	Respondents' Share of Total RAC
1	333	Machinery Manufacturing	83	15.9%	$16,936,423	37	19.2%	$15,688,508	44.6%	92.6%
2	336	Transportation Equipment Manufacturing	33	6.3%	$15,246,448	16	8.3%	$14,592,734	48.5%	95.7%
3	325	Chemical Manufacturing	30	5.7%	$7,819,848	10	5.2%	$6,575,688	33.3%	84.1%
4	424	Merchant Wholesalers, Nondurable Goods	16	3.1%	$1,760,663	4	2.1%	$336,873	25.0%	19.1%
5	311	Food And Kindred Product Manufacturing	26	5.0%	$1,506,611	13	6.7%	$280,729	50.0%	18.6%
6	522	Credit Intermediation And Related Activities	5	1.0%	$1,492,552	0	0.0%	$0	0.0%	0.0%
7	541	Professional, Scientific, And Technical Services	65	12.4%	$1,310,733	20	10.4%	$591,257	30.8%	45.1%
8	334	Computer And Electronic Product Manufacturing	19	3.6%	$1,047,676	8	4.1%	$234,155	42.1%	22.3%
9	332	Fabricated Metal Product Manufacturing	53	10.1%	$1,007,054	30	15.5%	$712,559	56.6%	70.8%
10	335	Electrical Equipment, Appliances, And Component Manufacturing	13	2.5%	$995,514	7	3.6%	$397,607	53.8%	39.9%
11	337	Furniture And Related Product Manufacturing	6	1.1%	$893,343	1	0.5%	$17,283	16.7%	1.9%
12	321	Wood Products Manufacturing	6	1.1%	$712,576	4	2.1%	$697,250	66.7%	97.8%
13	423	Merchant Wholesalers, Durable Goods	22	4.2%	$620,615	7	3.6%	$436,573	31.8%	70.3%
14	221	Utilities	*	*	$415,660	*	*	$415,660	100.0%	100.0%
15	551	Management Of Companies And Enterprises	*	*	$343,173	*	*	$34,095	25.0%	9.9%
16	326	Plastics And Rubber Product Manufacturing	20	3.8%	$260,671	7	3.6%	$150,314	35.0%	57.7%
17	561	Administrative And Support Services	*	*	$201,249	0	0.0%	$0	0.0%	0.0%
18	111	Crop Production	*	*	$192,131	*	*	$10,956	25.0%	5.7%
19	511	Newspapers, Books & Other Published Matter	12	2.3%	$178,672	2	1.0%	$49,661	16.7%	27.8%
20	518	Internet Service Providers, Web Search Portals, And Data Processing Services	6	1.1%	$172,930	0	0.0%	$0	0.0%	0.0%
		All Others	95	2.5%	$1,014,931	24	12.4%	$264,541	25.3%	26.1%
		Manufacturing in the Top 20	289	55.3%	$46,426,163	133	68.9%	$39,346,826	46.0%	84.8%
		Total	523		$54,129,472	193		$41,486,439	36.9%	76.6%

Source: Iowa IA 128 and IA 128A forms matched to Iowa Workforce Development industry data, and respondents with RAC claims on the IDR Survey on Research Activities, 2011.
All claims are reported in nominal dollars.
Note: North American Industrial Classification System (NAICS) code is based on the 6-digit NAICS reported on the survey when available.
* designates industries with less than five companies earning RAC claims during tax years 2006 through 2009.

Table 17. Qualified Research Expenditures Reported by Survey Respondents for Tax Years 2006 through 2010

	All Respondents					
	TY 2006	TY 2007	TY 2008	TY 2009	TY 2010	Average 2006-2009
Count	147	161	165	164	86	159
Total U.S. QRE (Millions)	$3,232.6	$3,761.8	$3,585.8	$3,468.5	$125.0	$3,512.2
Average U.S. QRE (Millions)	$22.0	$23.4	$21.7	$21.1	$1.5	$22.1
Total Iowa QRE (Millions)	$780.5	$936.1	$975.7	$920.7	$75.9	$903.3
Average Iowa QRE (Millions)	$5.3	$5.8	$5.9	$5.6	$0.9	$5.7

	Respondents with Iowa-Only Research					
	TY 2006	TY 2007	TY 2008	TY 2009	TY 2010	Average 2006-2009
Count	107	122	125	124	69	120
Share of All Respondents	72.8%	75.8%	75.8%	75.6%	80.2%	75.0%
Total Iowa QRE (Millions)	$182.7	$212.6	$205.5	$165.7	$47.1	$191.6
Average Iowa QRE (Millions)	$1.7	$1.7	$1.6	$1.3	$0.7	$1.6

	Respondents with Multi-State Research					
	TY 2006	TY 2007	TY 2008	TY 2009	TY 2010	Average 2006-2009
Count	40	39	40	40	17	40
Share of All Respondents	27.2%	24.2%	24.2%	24.4%	19.8%	25.0%
Total U.S. QRE (Millions)	$3,049.9	$3,549.2	$3,380.3	$3,302.8	$77.9	$3,320.5
Average U.S. QRE (Millions)	$76.2	$91.0	$84.5	$82.6	$4.6	$83.6
Total Iowa QRE (Millions)	$597.8	$723.5	$770.2	$754.9	$28.8	$711.6
Average Iowa QRE (Millions)	$14.9	$18.6	$19.3	$18.9	$1.7	$17.9
Average Iowa QRE Share	46.4%	45.4%	45.0%	42.4%	58.8%	44.8%

Source: All respondents performing research from the IDR Survey on Research Activities, 2011
Note: Excludes respondents reporting zero research expenditures in the tax year.

Table 18. Growth in Aggregate Qualified Research Expenditures Reported by Survey Respondents for Tax Years 2007 through 2009

	All Respondents		
	TY 2007	TY 2008	TY 2009
Change in Total U.S. QRE	16.4%	-3.1%	-4.0%
Change in Average U.S. QRE	6.6%	-5.9%	-2.8%
Change in Total Iowa QRE	19.5%	5.4%	-6.6%
Change in Average Iowa QRE	9.4%	2.4%	-5.4%
	Respondents with Iowa Only Research		
	TY 2007	TY 2008	TY 2009
Change in Total Iowa QRE	16.3%	-3.3%	-19.3%
Change in Average Iowa QRE	2.4%	-5.6%	-18.6%
	Respondents with Multi-State Research		
	TY 2007	TY 2008	TY 2009
Change in Total U.S. QRE	16.4%	-3.0%	-3.1%
Change in Average U.S. QRE	19.3%	-7.5%	-0.8%
Change in Total Iowa QRE	20.4%	8.0%	-3.2%
Change in Average Iowa QRE	23.3%	3.0%	-0.9%

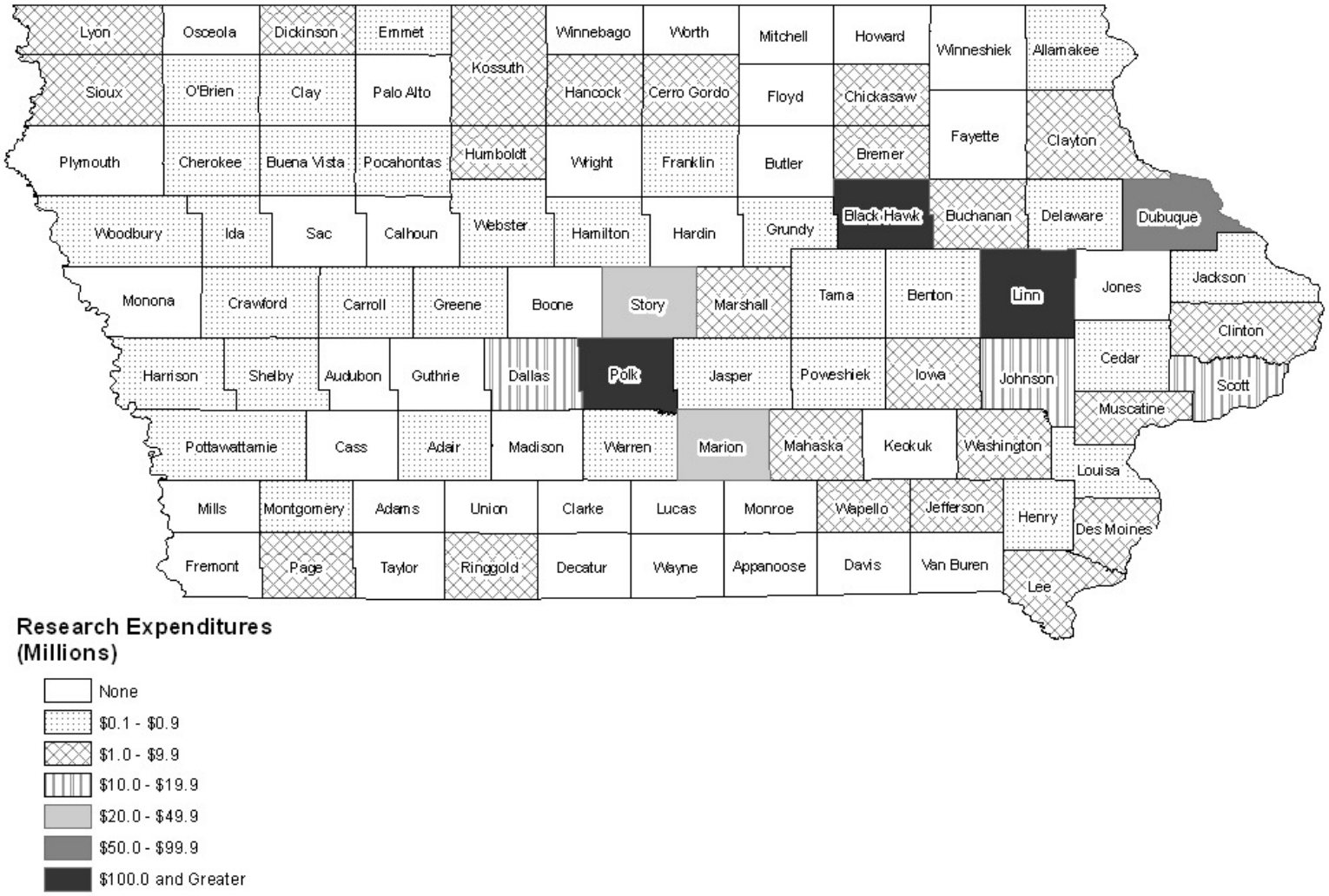
Source: All respondents performing research from the IDR Survey on Research Activities, 2011
Note: Excludes respondents reporting zero research expenditures in the tax year.

Table 19. Iowa Research Employment Reported by Survey Respondents Performing Research in Most Recent Tax Year

	Companies with Gross Revenues Greater than $20 million	Companies with Gross Revenues $20 million or less	Companies with Unavailable Gross Revenues	Total
Count of Respondents Performing Research	93	106	8	207
Share of Respondents Performing Research by Gross Revenues	44.9%	51.2%	3.9%	100.0%
Count Reporting Research FTEs	88	93	3	184
Share Reporting Research FTEs	94.6%	87.7%	37.5%	88.9%
Total Research FTEs	12,610	752	16	13,378
Distribution of Research FTEs	94.3%	5.6%	0.1%	100.0%
Average Research FTEs	143	8	5	73
Average Research Wages per FTE	$65,026	$57,955	$17,253	$60,877
Count Reporting Research MA+[1]	74	87	3	164
Share Reporting Research MA+	79.6%	82.1%	37.5%	79.2%
Total Research MA+	2,781	92	5	2,878
Distribution of Research MA+ FTEs	96.6%	3.2%	0.2%	100.0%
Share of FTEs at Same Companies	23.7%	13.3%	50.0%	23.1%
Count Reporting Fringe Benefit Information	89	92	4	185
Share Reporting Fringe Benefit Information	95.7%	86.8%	50.0%	89.4%
	Count of Companies Offering the Listed Fringe Benefit to Research Employees			
Fringe Benefits				*Share Providing*
Health Insurance	87	86	4	95.7%
Dental Insurance	80	52	3	73.0%
Disability	80	47	2	69.7%
Defined benefit retirement plan	18	9	0	14.6%
401k or similar plan available	86	73	4	88.1%
401k matching	82	54	1	74.1%
Vacation	81	80	3	88.6%
Sick leave	58	46	1	56.8%
Paid time off	59	54	3	62.7%
Daycare	4	1	0	2.7%
Tuition reimbursement	61	25	3	48.1%
Job training	61	38	3	55.1%

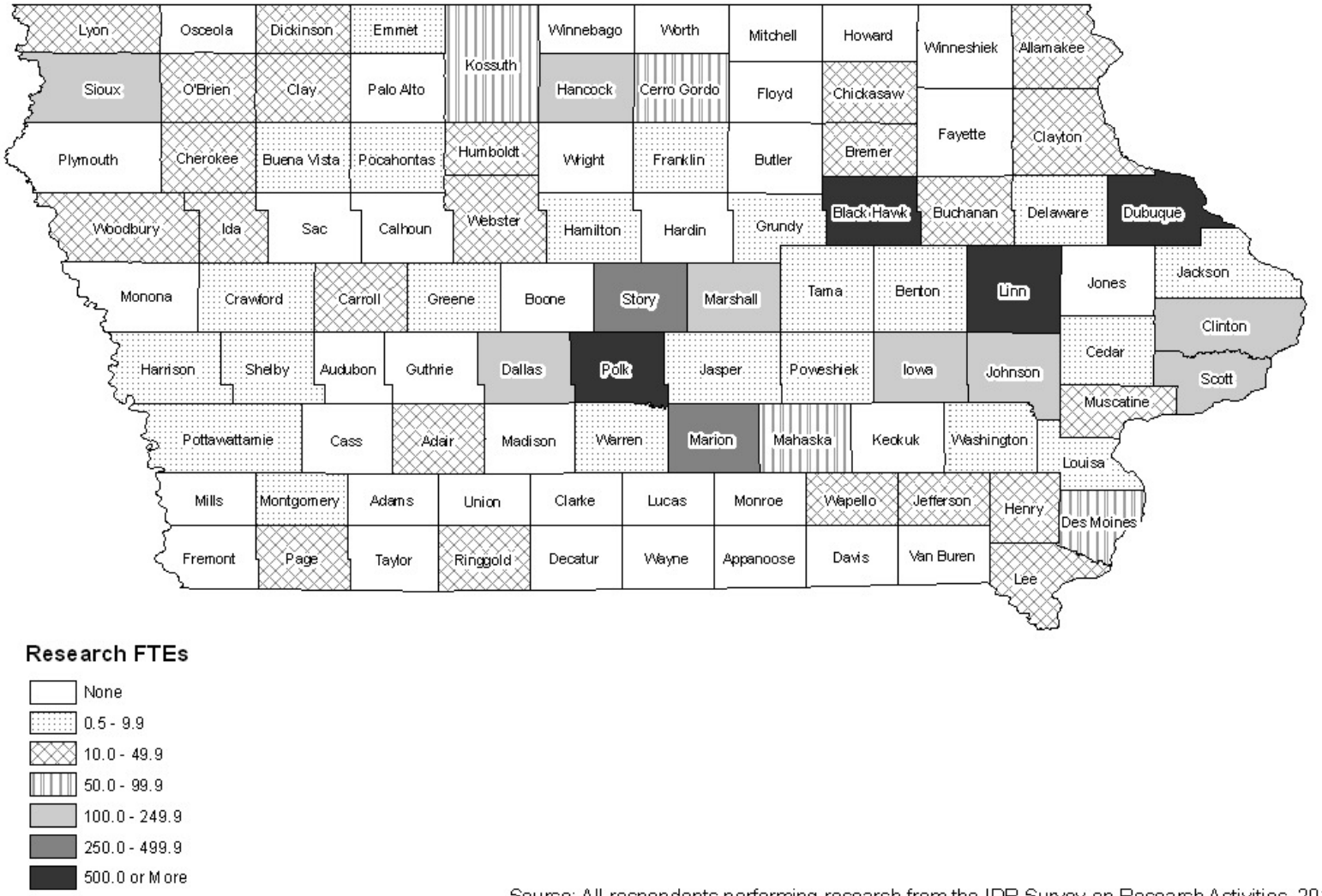
Source: All respondents performing research from the IDR Survey on Research Activities, 2011
Note: FTEs=full-time equivalent employees; MA+=Master's degree or higher
1. This count includes companies that indicated zero research employees with a Master's degree or higher but excludes companies that left that question blank or indicated data was not available.

Figure 9. Research Expenditures by County, Survey Data for Most Recent Tax Year



Source: All respondents performing research from the IDR Survey on Research Activities, 2011

Figure 10. Full-Time Equivalent Research Employees by County, Survey Data for Most Recent Tax Year



Source: All respondents performing research from the IDR Survey on Research Activities, 2011

Table 20. Importance of Various Factors in Research Location Decisions

Factor	Not at all Important	Not Important	Somewhat Important	Important	Very Important	Share Responding Important	Total Responses
Quality of the workforce	11	5	17	77	88	91.9%	198
State business tax climate	11	7	36	70	72	90.8%	196
Quality of life for employees	10	9	50	80	48	90.4%	197
Low cost of labor and other research inputs	9	11	66	85	25	89.8%	196
Regional infrastructure	14	28	74	60	19	78.5%	195
Proximity to manufacturing or supply chain operations	17	26	47	67	39	78.1%	196
Existing research facility	16	28	46	52	53	77.4%	195
Low energy costs	18	30	70	57	20	75.4%	195
Proximity to primary markets	19	35	57	62	23	72.4%	196
Proximity to academic research institutions	26	47	61	43	20	62.9%	197
Local density of similar technology companies	61	48	69	12	7	44.7%	197

Source: All respondents performing research from the IDR Survey on Research Activities, 2011

Table 21. Out-of-State Research Reported by Survey Respondents by Census Division for Most Recent Tax Year

Companies with Out-of-State Research	44	Average Number of Other States	4.7

		Research Expenditures (Millions)			Full-Time Equivalent Research Employees		
Census Division	Companies Conducting Research Summed by State	Companies Reporting Expenditures	Total Expenditures for Division	Average Expenditures by State	Companies Reporting FTEs	Total FTEs for Division	Average FTEs by State
West North Central	36	33	$256.6	$7.8	27	957	35
East North Central	32	29	$195.5	$6.7	22	542	25
South Atlantic	28	26	$459.5	$17.7	16	1,928	120
Pacific	21	20	$183.3	$9.2	16	582	36
Middle Atlantic	15	15	$17.8	$1.2	9	96	11
East South Central	14	12	$42.4	$3.5	12	373	31
Mountain	13	11	$15.4	$1.4	9	115	13
West South Central	13	12	$54.1	$4.5	7	58	8
New England	5	5	$10.3	$2.1	3	21	7
Not Specified	6	4	$44.7	$11.2	4	2,620	655
Total	183	167	$1,279.7	$7.2	125	7,291	41

Source: All respondents performing research from the IDR Survey on Research Activities, 2011
Note: Many companies reported a research presence in more than one state. "Not specified" companies indicated they conduct research in multiple states but did not provide specific state information. Not all companies provided research expenditures and employee counts for out-of-state research locations.

States by Division:

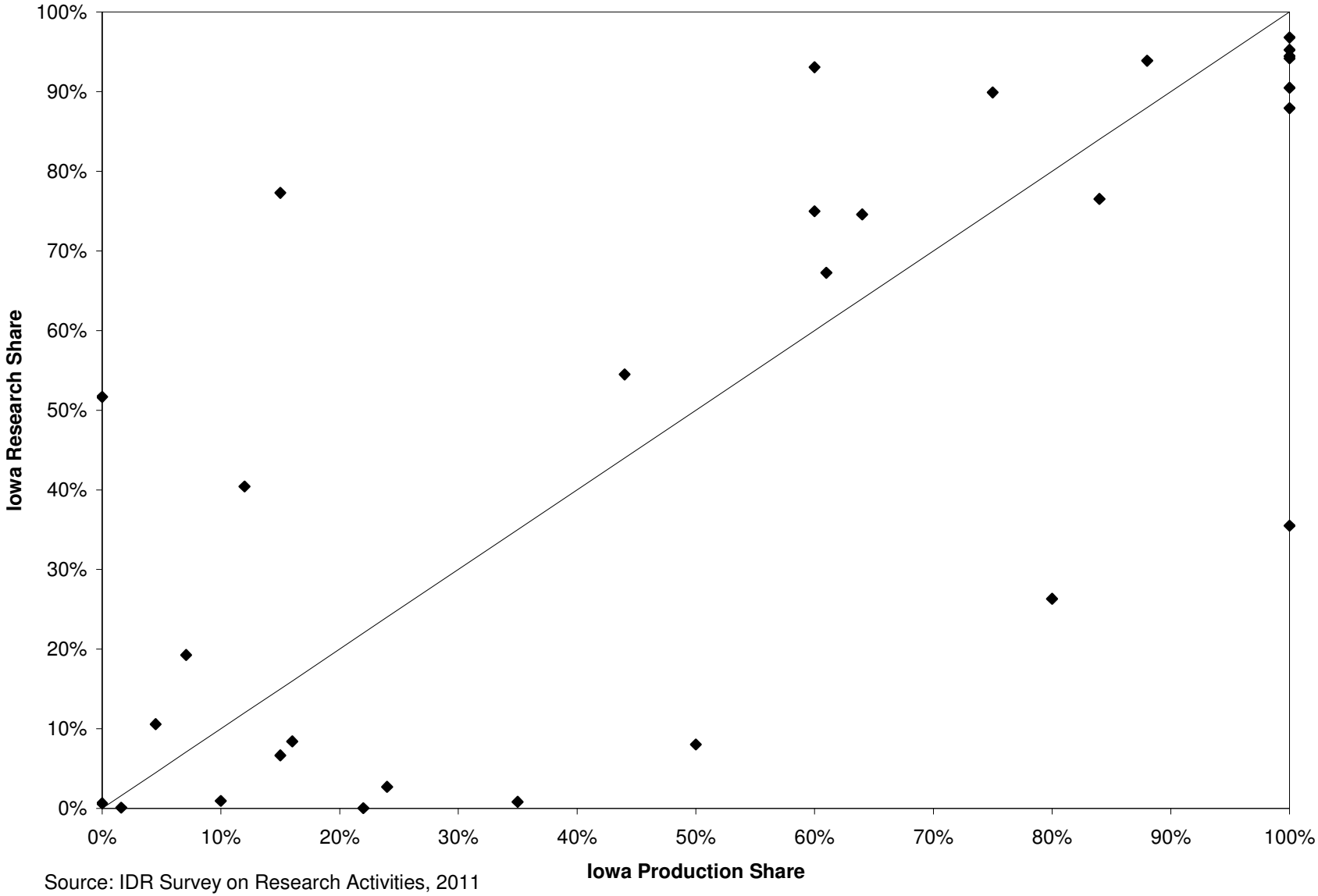
West North Central	Minnesota, Missouri, Nebraska, North Dakota, South Dakota, (Iowa data excluded)
East North Central	Illinois, Indiana, Michigan, Ohio, Wisconsin
Middle Atlantic	New Jersey, New York, Pennsylvania
New England	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
East South Central	Alabama, Kentucky, Mississippi, Tennessee
South Atlantic	D.C., Delaware, Florida, Georgia, Maryland, North Carolina, Sourth Carolina, Virginia, West Virginia
West South Central	Arkansas, Lousiana, Oklahoma, Texas
Mountain	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming
Pacific	Alaska, California, Hawaii, Oregon, Washington

Table 22. Importance of Various Factors in Research Location Decisions for Multi-State Research Firms

Factor	Not at all Important	Not Important	Somewhat Important	Important	Very Important	Share Responding Important	Total Responses
Quality of the workforce	3	0	1	17	20	92.7%	41
Existing research facility	2	1	7	13	17	92.5%	40
Quality of life for employees	2	2	10	19	8	90.2%	41
Low cost of labor and other research inputs	2	2	18	16	2	90.0%	40
State business tax climate	2	4	5	23	6	85.0%	40
Proximity to primary markets	2	4	14	15	5	85.0%	40
Regional infrastructure	3	4	12	19	2	82.5%	40
Proximity to manufacturing or supply chain operations	1	6	8	13	12	82.5%	40
Proximity to academic research institutions	3	5	15	12	5	80.0%	40
Low energy costs	2	7	15	14	2	77.5%	40
Local density of similar technology companies	5	14	16	2	3	52.5%	40

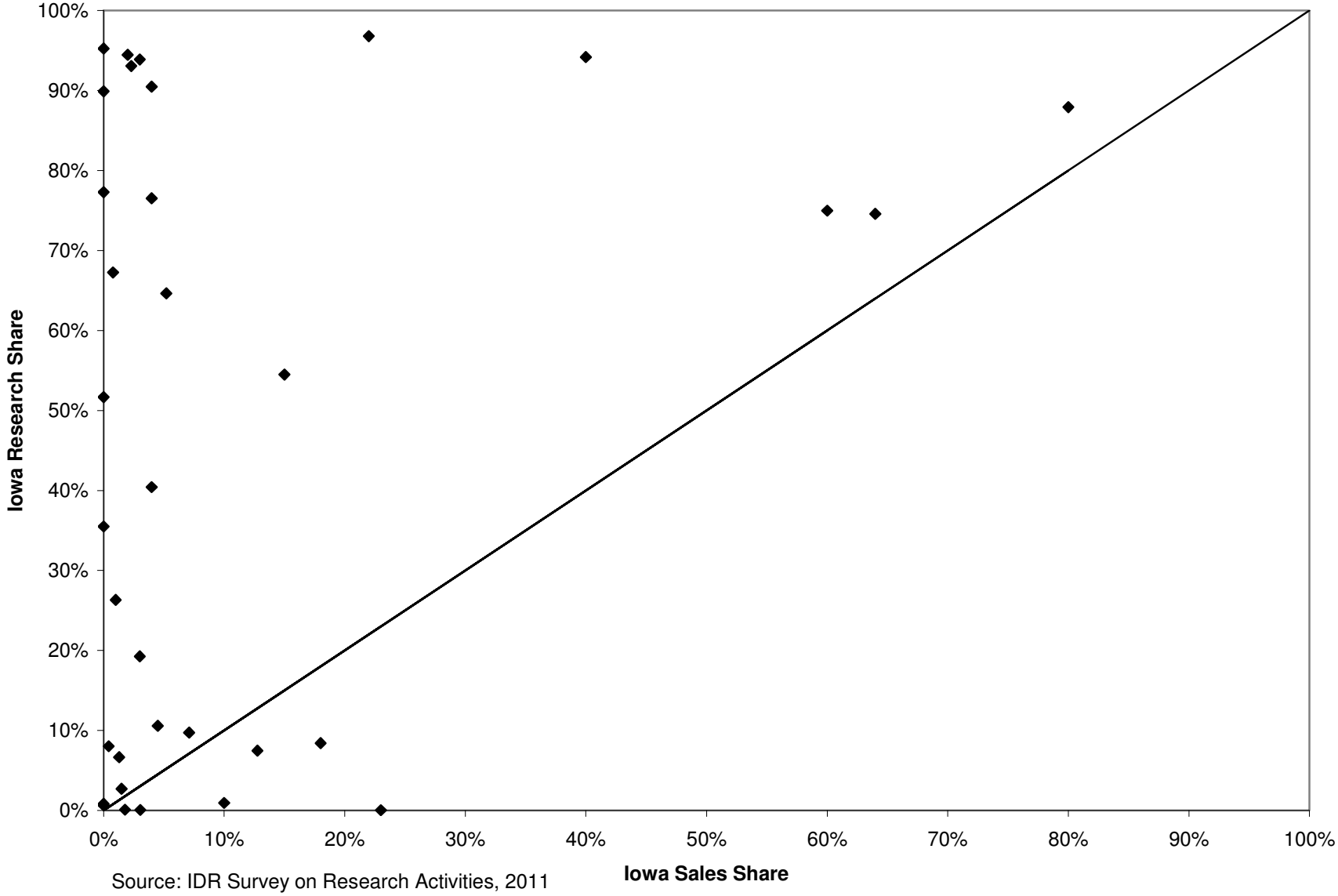
Source: All respondents performing research from the IDR Survey on Research Activities, 2011

Figure 11. Iowa Research Expenditure Share and Iowa Production Share for Survey Respondents Conducting Multi-State Research



Source: IDR Survey on Research Activities, 2011

Figure 12. Iowa Research Expenditure Share and Iowa Sales Share for Survey Respondents Conducting Multi-State Research



Source: IDR Survey on Research Activities, 2011

Table 23. Types of Research Conducted in Iowa for Most Recent Tax Year

	Yes	No	Missing
		Counts	
Basic scientific research	35	134	37
Product invention and/or development	189	7	11
Manufacturing process design	161	33	13
		Share of Responses	
Basic scientific research	20.7%	79.3%	
Product invention and/or development	96.4%	3.6%	
Manufacturing process design	83.0%	17.0%	

Source: All respondents performing research from the IDR Survey on Research Activities, 2011

Table 24. Success of Research Activities in Iowa Reported by Survey Respondents, New Products and Patents in the Last Four Years

	Companies with Gross Revenues Greater than $20 Million	Companies with Gross Revenues $20 Million or Less	Companies with Unavailable Gross Revenues	Total
Count of Respondents Reporting a New Product Line or Service in Iowa	61	71	3	135
Count Reporting Data on New Production Jobs	52	64	2	118
Estimated New Production Jobs	1,764	638	5	2,407
Average New Production Jobs	34	10	3	20
Reported New Product Line(s) by Industry:				
Machinery Manufacturing	13	14	0	27
Fabricated Metal Product Manufacturing	10	8	0	18
Transportation Equipment Manufacturing	10	5	0	15
Professional, Scientific, And Technical Services	0	11	0	11
Computer And Electronic Product Manufacturing	3	4	0	7
Electrical Equipment, Appliances, And Component Manufacturing	4	3	0	7

	Companies with Gross Revenues Greater than $20 Million	Companies with Gross Revenues $20 Million or Less	Companies with Unavailable Gross Revenues	Total
Count of Respondents Reporting Patents	45	31	1	77
New U.S. Patents	6,381	79	5	6,465
New Patents Awarded Based on Iowa Research	1,977	61	5	2,043
Share of U.S. Patents Based on Iowa Research	31.0%	77.2%	100.0%	31.6%
Average Number of Patents Awarded Based on Iowa Research	44	2	5	27

Source: All respondents performing research from the IDR Survey on Research Activities, 2011

Table 25. Geographical Location of New Products as a Result of Research Within Iowa During the Last Four Tax Years

Iowa District	Count of Companies Reporting Research in This Location	Count of Companies Reporting At Least One New Product in This Location	Share of Companies Reporting At Least One New Product in This Location	Reported New FTEs to Produce All New Products in This Location	Reported Research Expenditures in This Location in Most Recent Tax Year		Average Earned RAC Attributed to This Location	
					Amount	Share	Amount	Share
Northeast	71	41	31.5%	751	$625,595,084	66.0%	$27,616,621	67.6%
Southeast	53	33	25.4%	382	$96,002,904	10.1%	$3,289,871	8.1%
Southwest	33	12	9.2%	73	$159,570,509	16.8%	$7,392,666	18.1%
Northwest	70	44	33.8%	704	$66,379,570	7.0%	$2,553,388	6.3%
Total	227	130		1,909	$947,548,067		$40,852,545	
County Population Group								
Metropolitan	116	68	52.3%	1,048	$826,657,433	87.2%	$36,002,309	88.1%
Micropolitan	56	31	23.8%	311	$75,981,872	8.0%	$3,053,480	7.5%
Rural	55	31	23.8%	551	$44,908,762	4.7%	$1,796,757	4.4%
Top Counties with New Products								
Linn		14	10.8%	618	$329,390,063	34.8%	$14,530,471	35.6%
Story		12	9.2%	129	$37,150,599	3.9%	$1,376,280	3.4%
Dubuque		9	6.9%	36	$85,708,996	9.0%	$2,847,904	7.0%
Scott		9	6.9%	35	$11,306,462	1.2%	$357,136	0.9%
Polk		8	6.2%	54	$141,165,296	14.9%	$6,739,476	16.5%

Source: All respondents performing research from the IDR Survey on Research Activities, 2011 matched to IA 128 and IA 128A data averaged over tax years 2006 through 2009.
Note: RAC Claims were matched to counties and regions using the distribution of research by zip codes reported on the IDR Survey on Research Activities.
Each research location reported by a company is counted separately in this table, explaining why the total count of companies performing research in this location exceeds the total count of companies performing research in Iowa as seen on Table 14.

Iowa districts are the following split of counties:

Northeast: Allamakee, Benton, Black Hawk, Bremer, Buchanan, Clayton, Delaware, Dubuque, Fayette, Howard, Iowa, Jackson, Jones, Linn, Marshall, Mitchell, Poweshiek, Tama, Winneshiek, and Worth

Southeast: Appanoose, Cedar, Clarke, Clinton, Davis, Des Moines, Henry, Jasper, Jefferson, Johnson, Keokuk, Lee, Louisa, Lucas, Mahaska, Marion, Monroe, Muscatine, Scott, Van Buren, Wapello, Washington, and Wayne

Southwest: Adair, Adams, Cass, Clarke, Dallas, Fremont, Guthrie, Madison, Mills, Montgomery, Page, Polk, Pottawattamie, Ringgold, Taylor, Union, and Warren

Northwest: Audubon, Boone, Buena Vista, Butler, Calhoun, Carroll, Cherokee, Chickasaw, Clay, Crawford, Dickinson, Emmet, Floyd, Franklin, Greene, Grundy, Hamilton, Hancock, Hardin, Harrison, Humboldt, Ida, Kossuth, Lyon, Monona, O'Brien, Osceola, Palo Alto, Plymouth, Pocahontas, Sac, Shelby, Sioux, Story, Webster, Winnebago, Woodbury, and Wright

County population groups are based on the USDA Rural-Urban Continuum for 2003. Counties are designated in one of nine categories which are grouped accordingly:

Metropolitan: 1=County in metro area of 1 million+ population, 2=County in metro area of 250,000 to 1 million population, 3=County in metro area of fewer than 250,000 population

Micropolitan: 4=Nonmetro county with urban population of 20,000 or more, adjacent to a metro area, 6=Nonmetro county with urban population of 2,500-19,999, adjacent to a metro area, 8=Nonmetro county completely rural or less than 2,500 urban population, adjacent to metro area

Rural: 5=Nonmetro county with urban population of 20,000 or more, not adjacent to a metro area, 7=Nonmetro county with urban population of 2,500-19,999, not adjacent to a metro area, 9=Nonmetro county completely rural or less than 2,500 urban population, not adjacent to metro area

Table 26. Survey Respondents by Business Start Date

Year Business Began in Iowa	Count of Survey Respondents	Count Performing Research in Most Recent Tax Year	Share Performing Research in Most Recent Tax Year	Average Years Before Starting Research	Share Performing Research Ever Claiming RAC
Prior to 1986	181	95	52.5%	16.5	87.4%
1986-1990	39	19	48.7%	2.8	89.5%
1991-1995	36	22	61.1%	2.6	77.3%
1996-2000	35	20	57.1%	2.0	70.0%
2001-2005	48	24	50.0%	1.6	79.2%
2006-2010	33	16	48.5%	0.3	81.3%
Not Specified	26	11	42.3%		90.9%
		Average Share	52.0%		83.6%
Began Research 2006 and Later					
Count of Companies	16				
Count Making RAC Claim by 2010	9				
Average Years Before Claiming RAC	0.6				
Average First Year RAC Claim	$14,678				
Total RAC Claims Since 2006	$355,721				

Source: All respondents to the IDR Survey on Research Activities, 2011

Table 27. RAC Claim Incidence for Iowa Start-Ups by Industry

Industry	Count Starting Business in Iowa in 2006 or Later	Share Claiming RAC any Tax Year, 2006 to 2009
Food And Kindred Product Manufacturing	106	0.9%
Apparel And Accessories Manufacturing	11	0.0%
Wood Products Manufacturing	40	0.0%
Chemical Manufacturing	52	5.8%
Plastics And Rubber Product Manufacturing	22	4.5%
Nonmetallic Mineral Product Manufacturing	42	0.0%
Fabricated Metal Product Manufacturing	116	3.4%
Machinery Manufacturing	85	4.7%
Computer And Electronic Product Manufacturing	19	15.8%
Electrical Equipment, Appliances, And Component Manufacturing	5	0.0%
Transportation Equipment Manufacturing	38	5.3%
Furniture And Related Product Manufacturing	55	1.8%
Miscellaneous Manufactured Commodities	69	0.0%
Merchant Wholesales, Durable Goods	343	0.6%
Merchant Wholesales, Nondurable Goods	230	0.4%
Internet Service Providers, Web Search Portals, And Data Processing Services	16	0.0%
Credit Intermediation And Related Activities	94	0.0%
Professional, Scientific, And Technical Services	2,058	1.1%
Total for Selected Industries	3,401	1.3%

Source: IWD data on newly created businesses matched to IA 128 and IA 128A claims.

Table 28. Iowa Contract Research of Survey Respondents, Most Recent Tax Year

Companies with Contract Research	40	
	Count of Contracts	Total Contract Amount (Millions)
Private Business	29	$4.87
Public University or College		
Iowa State University	13	$2.18
University of Iowa	6	$0.25
Private University or College	0	$0.00
Government Agency	2	$1.28
Other	5	$3.66
Total	55	$12.24
Location by Iowa District		
Northeast	4	$0.06
Southeast	11	$1.02
Southwest	10	$1.22
Northwest	20	$4.80
Location by County Population Group		
Metropolitan	36	$5.44
Micropolitan	3	$0.42
Rural	6	$1.23

Source: All respondents performing research from the IDR Survey on Research Activities, 2011
Note: In cases where contract research was reported but an amount was not provided, the contract is included in the count but not reflected in the total contract amount column. Location by district and county population group is based on the limited zip codes provided for private business contract research entities and the location of listed public universities.

Iowa districts are the following split of counties:

Northeast: Allamakee, Benton, Black Hawk, Bremer, Buchanan, Clayton, Delaware, Dubuque, Fayette, Howard, Iowa, Jackson, Jones, Linn, Marshall, Mitchell, Poweshiek, Tama, Winneshiek, and Worth

Southeast: Appanoose, Cedar, Clarke, Clinton, Davis, Des Moines, Henry, Jasper, Jefferson, Johnson, Keokuk, Lee, Louisa, Lucas, Mahaska, Marion, Monroe, Muscatine, Scott, Van Buren, Wapello, Washington, and Wayne

Southwest: Adair, Adams, Cass, Clarke, Dallas, Fremont, Guthrie, Madison, Mills, Montgomery, Page, Polk, Pottawattamie, Ringgold, Taylor, Union, and Warren

Northwest: Audubon, Boone, Buena Vista, Butler, Calhoun, Carroll, Cherokee, Chickasaw, Clay, Crawford, Dickinson, Emmet, Floyd, Franklin, Greene, Grundy, Hamilton, Hancock, Hardin, Harrison, Humboldt, Ida, Kossuth, Lyon, Monona, O'Brien, Osceola, Palo Alto, Plymouth, Pocahontas, Sac, Shelby, Sioux, Story, Webster, Winnebago, Woodbury, and Wright

County population groups are based on the USDA Rural-Urban Continnuum for 2003.
Counties are designated in one of nine categories which are grouped accordingly:

Metropolitan: 1=County in metro area of 1 million+ population, 2=County in metro area of 250,000 to 1 million population, 3=County in metro area of fewer than 250,000 population

Micropolitan: 4=Nonmetro county with urban population of 20,000 or more, adjacent to a metro area,
6=Nonmetro county with urban population of 2,500-19,999, adjacent to a metro area,
8=Nonmetro county completely rural or less than 2,500 urban population, adjacent to metro area

Rural: 5=Nonmetro county with urban population of 20,000 or more, not adjacent to a metro area,
7=Nonmetro county with urban population of 2,500-19,999, not adjacent to a metro area,
9=Nonmetro county completely rural or less than 2,500 urban population, not adjacent to metro area

Table 29. Comparison of Research Expenditures and Other Characteristics of Survey Respondents With and Without Supplemental Research Activities Tax Credit Claims for Tax Years 2006 through 2010

	Companies with Gross Revenues Greater than $20 Million		Companies with Gross Revenues $20 Million or Less		Companies with Unavailable Gross Revenues	
	Supplemental	No Supplemental	Supplemental	No Supplemental	Supplemental	No Supplemental
Count	65	310	19	322	0	17
Average US research expenditures (millions)	$113.9	$10.7	$1.4	$0.5	$0.0	$256.6
Average Iowa research expenditures (millions)	$44.3	$2.3	$1.4	$0.4	$0.0	$0.8
Average Iowa research FTEs	589	50	16	9	0	6
Average Iowa research wages per FTEs	$54,562	$53,896	$64,745	$58,727	$0	$32,856
Average US gross revenues (millions)	$4,244.6	$891.6	$8.2	$7.0	$0.0	NA
Average share of production	71.8%	78.5%	100.0%	94.0%	0.0%	NA
Average share of sales	15.7%	27.3%	31.7%	37.8%	0.0%	NA

Source: All respondents performing research with RAC Claim from the IDR Survey on Research Activities, 2011
Note: Data includes multiple observations per company for tax years 2006 through 2010, but only includes a company when positive Iowa research expenditures are reported for the tax year. All dollar amounts are presented in nominal values.

Table 30. Hypothetical Research Firms by Iowa Employment Size and Research Locations

	In-State Research Firms			
	Micro (<10)	Small (10-99)	Medium (100-499)	Large (500+)
In-State Research Expenditures (Millions)	$0.22	$0.47	$1.23	$12.40
In-State Research Wages (Millions)	$0.16	$0.38	$0.98	$7.46
In-State Gross Revenues (Millions)	$1.03	$10.14	$55.97	$528.94
In-State Research Expenditures Share of In-State Gross Revenues	21.1%	4.6%	2.2%	2.3%
In-State Corporate Tax Liability	$1,723	$8,582	$43,542	$0
Share of Iowa Research Expenditures	1.2%	7.4%	7.7%	6.1%
	Multi-State Research Firms			
	Micro (<10)	Small (10-99)	Medium (100-499)	Large (500+)
U.S. Research Expenditures (Millions)	$4.43	$11.09	$54.87	$64.48
In-State Research Expenditures (Millions)	$0.22	$1.31	$1.61	$20.43
In-State Share of Research Expenditures	5.0%	11.8%	2.9%	31.7%
In-State Research Wages (Millions)	$0.07	$1.10	$1.09	$13.65
U.S. Gross Revenues (Millions)	$57.62	$342.11	$1,341.44	$4,863.20
In-State Gross Revenues (Millions)	$1.29	$62.61	$74.82	$1,021.92
In-State Share of Gross Revenues	2.2%	18.3%	5.6%	21.0%
In-State Research Expenditures Share of In-State Gross Revenues	17.4%	2.1%	2.1%	2.0%
In-State Corporate Tax Liability	$282	$22,699	$129,494	$72,990
Share of Iowa Research Expenditures	0.4%	7.8%	8.5%	60.8%

Source: Example firms are based on data from RAC claimants for tax year 2008.

Table 31. Comparison of Research Tax Credits Calculated Under Various State Rules for Hypothetical Firms by Employment Size and Research Locations for Tax Year 2011

Micro (1 to 9 Employees)

Hypothetical Firm - In-State Research				Hypothetical Firm - Multi-State Research			
State	Total	Claimed	Carried Forward	State	Total	Claimed	Carried Forward
Indiana	$16,339	$1,723	$14,616	Indiana	$17,007	$282	$16,725
California	$16,339	$1,723	$14,616	California	$13,089	$282	$12,807
Minnesota	$10,893	$10,893	NA	Ohio	$11,905	$282	$11,622
Wisconsin	$7,697	$1,723	$5,974	Minnesota	$8,726	$8,726	NA
Iowa	$7,080	$7,080	NA	Wisconsin	$7,793	$282	$7,510
Ohio	$6,543	$1,723	$4,820	Iowa	$7,738	$7,738	NA
Nebraska	$3,596	$3,596	NA	Nebraska	$4,330	$4,330	NA
New York	$2,179	$2,179	NA	Kansas	$2,764	$282	$2,481
Kansas	$1,519	$1,519	$0	New York	$1,745	$1,745	NA

Small (10 to 99 Employees)

Hypothetical Firm - In-State Research				Hypothetical Firm - Multi-State Research			
State	Total	Claimed	Carried Forward	State	Total	Claimed	Carried Forward
Indiana	$22,842	$8,582	$14,260	Indiana	$63,944	$22,699	$41,245
Ohio	$15,989	$8,582	$7,408	Ohio	$44,761	$22,699	$22,061
Wisconsin	$12,879	$8,582	$4,297	Minnesota	$34,653	$34,653	NA
Minnesota	$11,593	$11,593	NA	Iowa	$29,094	$29,094	NA
Iowa	$10,393	$10,393	NA	California	$22,699	$22,699	$0
California	$8,582	$8,582	$0	Wisconsin	$20,610	$20,610	$0
Nebraska	$3,786	$3,786	NA	Nebraska	$10,816	$10,816	NA
Kansas	$3,712	$3,712	$0	Kansas	$10,391	$10,391	$0
New York	$2,319	$2,319	NA	New York	$6,931	$6,931	NA

Table 31 (cont). Comparison of Research Tax Credits Calculated Under Various State Rules for Hypothetical Firms by Employment Size and Research Locations for Tax Year 2011

Medium (100 to 499 Employees)

	Hypothetical Firm - In-State Research				Hypothetical Firm - Multi-State Research		
State	Total	Claimed	Carried Forward	State	Total	Claimed	Carried Forward
Indiana	$91,957	$43,542	$48,415	Indiana	$120,584	$120,584	$0
California	$91,957	$43,542	$48,415	California	$120,584	$120,584	$0
Minnesota	$61,305	$61,305	NA	Minnesota	$80,389	$80,389	NA
Ohio	$48,796	$43,542	$5,254	Iowa	$52,253	$52,253	NA
Iowa	$39,848	$39,848	NA	Ohio	$40,537	$40,537	$0
Wisconsin	$30,652	$30,652	$0	Wisconsin	$40,195	$40,195	$0
Nebraska	$20,628	$20,628	NA	Nebraska	$28,188	$28,188	NA
New York	$12,261	$12,261	NA	New York	$16,078	$16,078	NA
Kansas	$11,328	$11,328	$0	Kansas	$9,410	$9,410	$0

Large (500 or More Employees)

	Hypothetical Firm - In-State Research				Hypothetical Firm - Multi-State Research		
State	Total	Claimed	Carried Forward	State	Total	Claimed	Carried Forward
Indiana	$404,821	$0	$404,821	California	$1,532,567	$72,990	$1,459,576
California	$373,917	$0	$373,917	Indiana	$1,071,711	$72,990	$998,721
Ohio	$283,375	$0	$283,375	Iowa	$664,112	$664,112	NA
Wisconsin	$223,070	$0	$223,070	Ohio	$500,791	$72,990	$427,801
Minnesota	$212,320	$212,320	NA	Wisconsin	$510,856	$72,990	$437,865
Iowa	$184,194	$184,194	NA	Minnesota	$405,428	$405,428	NA
Nebraska	$75,388	$75,388	NA	Nebraska	$345,406	$345,406	NA
Kansas	$65,783	$0	$65,783	New York	$204,342	$204,342	NA
New York	$49,856	$49,856	NA	Kansas	$116,255	$72,990	$43,265

Source: Hypothetical firms are based on data from RAC claimants for tax year 2008. Tax credit calculations made using research tax credit claim forms downloaded from various state Web sites or information on the credit found at www.taxcreditresearch.com. Comparison states include states with credits that are Iowa's neighbors or in the top ten states in which survey respondents indicated they were also conducting research.

Table 32. Comparison of Research Wage Expenditures and Research Tax Credits Between States for the Large, Multi-State Hypothetical Firm for Tax Year 2011

State	Average, Median Hourly Wage for Research Occupations, 2010	Estimated Research Hours for $13.7 Million in Wage Expenditures	Foregone Labor Inputs Compared to Iowa	Difference from Iowa in Research Credits Claimed in Tax Year[1]	Net Cost of Foregone Labor Inputs and Difference in Research Credits
Iowa	$33.10	412,000	(Millions)	(Millions)	(Millions)
Minnesota	$37.44	365,000	-$1.76	-$0.26	-$2.02
Nebraska	$32.86	416,000	$0.13	-$0.32	-$0.19
New York	$38.93	351,000	-$2.37	-$0.46	-$2.83
California	$44.21	309,000	-$4.55	-$0.59	-$5.14
Indiana	$33.12	412,000	$0.00	-$0.59	-$0.59
Ohio	$35.35	386,000	-$0.92	-$0.59	-$1.51
Wisconsin	$33.34	410,000	-$0.07	-$0.59	-$0.66
Kansas	$33.99	402,000	-$0.34	-$0.59	-$0.93
Illinois	$37.31	366,000	-$1.72	-$0.66	-$2.38
Texas	$39.48	346,000	-$2.61	-$0.66	-$3.27
Missouri	$35.21	388,000	-$0.84	-$0.66	-$1.51
South Dakota	$29.43	464,000	$1.53	-$0.66	$0.87

Source: Occupational Employment Statistics from the Bureau of Labor Statistics, example firm is based on data from RAC claimants for tax year 2008. Comparison states include all Iowa's neighbors and the top ten states in which survey respondents indicated they were also conducting research

1. Value of -$0.59 million reflects a comparison between Iowa's credit and a nonrefundable credit that exceed the firm's tax liability. Value of -$0.66 million reflects a comparison between Iowa's credit and a state with no credit.

Appendix A. Tax Credit Claim Forms

IA 128 – TY 2010
IA 128S – TY 2010
IA 128A – TY 2009

Iowa Department of Revenue
www.state.ia.us/tax

2010 IA 128

Iowa Research Activities Credit

Name(s)	SSN or FEIN

PART I: COMPUTATION OF CREDIT FOR INCREASING RESEARCH ACTIVITIES

1. Certain amounts paid or incurred to energy consortia ..... 1. _____
2. Basic research payments paid or incurred to qualified organizations 2. _____
3. Qualified organizations base amount ..... 3. _____
4. Subtract line 3 from line 2. If zero or less, enter zero. ..... 4. _____
5. Wages for services used in qualifying research ..... 5. _____
6. Cost of supplies used in conducting qualified research ..... 6. _____
7. Rental or lease costs of computers used in conducting qualified research ..... 7. _____
8. Applicable portion of contract expenses ..... 8. _____
9. Add lines 5 through 8. ..... 9. _____
10. Enter fixed-base percentage, but not more than 16%. ..... 10. _____ %
11. Enter average annual gross receipts. ..... 11. _____
12. Base amount. Multiply line 11 by the percentage on line 10. ..... 12. _____
13. Subtract line 12 from line 9. ..... 13. _____
14. Multiply line 9 by 50%. ..... 14. _____
15. Enter the smaller of line 13 or line 14. ..... 15. _____
16. Total allowable expenses. Add lines 1, 4, and 15. ..... 16. _____

PART II: PERCENTAGE OF RESEARCH ACTIVITIES OCCURRING WITHIN IOWA

17. Certain amounts paid or incurred to energy consortia in Iowa ..... 17. _____
18. Basic research payments paid or incurred to qualified organizations in Iowa during tax year ..... 18. _____
19. Iowa apportioned qualified organizations base amount ..... 19. _____
20. Subtract line 19 from line 18. If zero or less, enter zero. ..... 20. _____
21. Wages for qualifying research services performed in Iowa ..... 21. _____
22. Cost of supplies used in conducting qualifying research in Iowa ..... 22. _____
23. Rental or lease costs of computers used in conducting qualified research in Iowa ..... 23. _____
24. Applicable portion of contract expenses for qualifying research performed in Iowa ..... 24. _____
25. Add lines 21 through 24. ..... 25. _____
26. Total Iowa qualified research expenses. Add lines 17, 18, and 25. ..... 26. _____
27. Total current-year qualified research expenses. Add lines 1, 2, and 9. ..... 27. _____
28. Divide line 26 by line 27 and enter percentage to 3 decimals. ..... 28. _____ %
29. Expenses allocable to Iowa. Multiply line 16 by line 28. ..... 29. _____
30. Credit for increasing research activities. Multiply line 29 by 6.5% and enter on IA 148. ..... 30. _____
31. Supplemental Research Activities Credit. See instructions. Enter on IA 148. ..... 31. _____
32. Pass-through Iowa Research Activities Credit received from partnership, S corporation, estate, or trust. Enter on IA 148. ..... 32. _____
33. Pass-through Supplemental Research Activities Credit Received from partnership, S corporation, estate, or trust. Enter on IA 148. ..... 33. _____
34. Total allowable Iowa Research Activities Credit. Add lines 30 through 33. ..... 34. _____

Trades or Businesses that are under Common Control

For a group of trades or businesses under common control (whether or not incorporated), the credit for increasing research activities is figured as if all the organizations are one trade or business. The credit figured for the group must then be shared among the members of the group on the basis of each member's proportionate contribution to the increase in research expenses.

Adjustments for Certain Acquisitions and Dispositions

If a major portion of a trade or business is acquired or disposed of, adjustments must be made to research expenses for the period before or after the acquisition or disposition.

Short Tax Year

For any short tax year, qualified research expenses are annualized.

Apportionment of Credit

The credit figured on lines 1 through 34 by a partnership, S corporation, estate, or trust are apportioned to the individual partners, shareholders, or beneficiaries, respectively. This apportioned credit is entered on line 32 of a separate form IA 128 to determine the allowed credit to be entered on their tax returns.

Supplemental Research Activities Credit

If research activities are conducted by eligible businesses under the New Jobs and Income Program, New Capital Investment Program, High Quality Jobs Program, or the Enterprise Zone Program, a Supplemental Research Activities Credit may be allowed. The maximum amount of the Supplemental Research Activities Credit is shown in the contract entered into between the eligible business and the Iowa Department of Economic Development. The amount of the supplemental credit cannot exceed the credit amount shown on line 30 for awards issued by the Iowa Department of Economic Development prior to July 1, 2010. For awards made by the Iowa Department of Economic Development on or after July 1, 2010, the supplemental credit cannot exceed 10% of line 29 for businesses with gross receipts of $20 million or less. The supplemental credit cannot exceed 3% for businesses with gross receipts exceeding $20 million.

Note: If you are a shareholder, partner, or beneficiary with a credit from two sources, such as from a sole proprietorship and a partnership, figure the credit of the proprietorship on form IA 128, lines 1 through 31, if you are claiming the research credit. Then enter the pass-through credit from the partnership on lines 32 and 33, if applicable, and complete the rest of the form to determine the credit to be entered on your tax return.

Any individual, estate, trust, organization, or corporation claiming an Iowa credit for increasing research activities or any S corporation, partnership, estate, or trust that shares the credit among its shareholders, partners, or beneficiaries should attach this form to its Iowa income tax return.

S corporations, partnerships, estates, and trusts that share the credit among their shareholders, partners, or beneficiaries must show on Schedule K-1, or on an attachment to Schedule K-1, the credit for each shareholder, partner, or beneficiary.

Innovative Renewable Energy Generation

Effective July 1, 2009, research activities under the High Quality Jobs Program or under the Enterprise Zone Program include the development and deployment costs of innovative renewable energy generations components manufactured or assembled in Iowa. This cannot include components with more than 200 megawatts of installed effective nameplate capacity. These costs are not eligible for the federal research credit. A separate form IA 128 must be completed to account for these costs, which can be included on lines 5 and 21 of the separate form IA 128. The amount of the additional credit relating to these costs is not eligible for the Supplemental Research Activities Credit.

Example: An eligible business computes an Iowa Research Activities Credit of $50,000 excluding any costs relating to innovative renewable energy generation components. When the costs relating to innovative renewable energy generation components are included on lines 5 and 21, the Iowa credit is $75,000. The business is allowed a supplemental credit of $50,000 under the original claim, which would result in an Iowa credit of $100,000. This can be added to the additional credit relating to the innovative renewable energy generation components of $25,000, resulting in a total Iowa Research Activities Credit of $125,000.

Note: Effective July 1, 2009, the High Quality Job Creation Program changed its name to High Quality Jobs Program.

PART I: Computation of Credit for Increasing Research Activities

Line 1. Enter the amounts you paid or incurred to energy research consortia. In general, an energy research consortium is any organization described in section 501(c)(3) exempt from tax under section 501(a), organized and operated primarily to conduct energy research, and not a private foundation.

Line 2. Corporations other than S corporations, personal holding companies, and service organizations enter cash payments to a qualified university or scientific research organization pursuant to a written contract.

Line 3. Enter the base period amount as defined in section 41(c) of the Internal Revenue Code. A portion of this amount not to exceed the amount on line 2 can also be treated as a contract research expense on line 8 of this form subject to the 65% or 75% limitation.

Line 4. If line 2 is greater than line 3, enter the difference. If line 3 is greater than line 2, enter zero.

Line 5. Enter any wages paid or incurred to an employee for qualified services performed by such employee.

Line 6. Enter the amounts paid or incurred for supplies used in the conduct of qualified research.

Line 7. Enter the amount paid or incurred to another person for the right to use computers in the conduct of qualified research. This entry must be reduced by any amount you receive or accrue from any other person for the right to use substantially identical personal property.

Line 8. Include 65% of any amount paid or incurred for qualified research performed on your behalf. Also, include 65% of that portion of line 3 that does not exceed line 2. Use 75% in place of 65% for payments made to a qualified research consortium.

Line 10. Enter the fixed-base percentage, not to exceed 16%. See section 41 (c) of the Internal Revenue Code.

Line 11. Enter the average annual gross receipts for the four tax years preceding the tax year for which the credit is being determined. For any short year you may be required to annualize gross receipts. See IRC sections 41(c)(1)(b) and 41(f)(4) for details.

PART II: Percentage of Research Activities Occurring within Iowa

Lines 17, 18, 21, 22, and 23. For these lines, enter only that portion of lines 1, 2, 5, 6, and 7 respectively that are for qualifying expenses occurring in Iowa.

Line 19. Enter the amount on line 3 that is attributable to Iowa sources. For purposes of apportionment, the amount on line 3 should be prorated by the amount on line 18 divided by the amount on line 2.

Line 24. Enter the amount on line 8 that is attributable to Iowa sources. For purposes of apportionment, the amount on line 8 should be prorated by the ratio of contract services performed in Iowa to total qualifying contract expenses. Do not include any expenses that are already reflected in line 2 or line 18.

Line 30. Enter this figure on the IA 148 Tax Credits Schedule under Part II using tax credit code 58.

Line 31. Enter this figure on the IA 148 Tax Credits Schedule under Part II using tax credit code 59.

Line 32. If you received pass-through Research Activities Credit(s) from a partnership, S corporation, estate, or trust, enter the amount of the credit(s) on this line. Enter each credit on the IA 148 Tax Credits Schedule under Part II using tax credit code 58 and provide the pass-through information under Part IV.

Line 33. If you received pass-through Supplemental Research Activities Credit(s) from a partnership, S corporation, estate, or trust, enter the amount of the credit(s) on this line and enter each credit on the IA 148 Tax Credits Schedule under Part II using tax credit code 59 and provide the pass-through information under Part IV.

Line 34. Add lines 30 through 33 and enter the sum. This is the total allowable Iowa Research Activities Credit. The IA 148 must be completed and attached to the tax return.

Iowa Department of Revenue
www.iowa.gov/tax

2010 IA 128S

Iowa Alternative Simplified Research Activities Credit

Name(s)	SSN or FEIN

Part I - Background Information - Enter Information from Federal Form 6765

1. Certain amounts paid or incurred to energy consortia ..... 1. _____
2. Basic research payments paid or incurred to qualified organizations ..... 2. _____
3. Qualified organizations base amount ..... 3. _____
4. Wages for services used in qualified research ..... 4. _____
5. Cost of supplies used in conducting qualified research ..... 5. _____
6. Rental or lease costs of computers used in conducting qualified research ..... 6. _____
7. Applicable portion of contract expenses ..... 7. _____
8. Enter average U.S. annual gross receipts for tax years 2006 through 2009 ..... 8. _____

Part II - Calculation of Credit

9. Certain amounts paid or incurred to energy consortia in Iowa ..... 9. _____
10. Basic research payments paid or incurred to qualified organizations in Iowa ..... 10. _____
11. Iowa apportioned qualified organizations base amount ..... 11. _____
12. Subtract line 11 from line 10. If zero or less, enter zero. ..... 12. _____
13. Add lines 9 and 12 . ..... 13. _____
14. Multiply line 13 by 20% (0.20) ..... 14. _____
15. Wages for qualified research services performed in Iowa ..... 15. _____
16. Cost of supplies used in conducting qualified research in Iowa ..... 16. _____
17. Rental or lease costs of computers used in conducting qualified research in Iowa ..... 17. _____
18. Applicable portion of contract expenses for qualified research performed in Iowa ..... 18. _____
19. Total Iowa qualified research expenses. Add lines 15 through 18 ..... 19. _____
20. Enter total qualified research expenses in Iowa for the prior three years. If you had no qualified research expenses in Iowa for any one of those years, enter zero and skip lines 21 and 22 ..... 20. _____
21. Divide line 20 by 6.0 ..... 21. _____
22. Subtract line 21 from line 19. If zero or less, enter zero . ..... 22. _____
23. Multiply line 22 by 4.55% (0.0455) ..... 23. _____
    If you skipped lines 21 and 22, multiply line 19 by 1.95% (0.0195)
24. Iowa Alternative Simplified Research Activities Credit. Add lines 14 and 23. Enter on IA 148 ..... 24. _____
25. Supplemental Alternative Simplified Research Activities Credit. See instructions. Enter on IA 148. ..... 25. _____
26. Pass-through Alternative Simplified Research Activities Credit received from partnership, S corporation, estate, or trust. Enter on IA 148 ..... 26. _____
27. Pass-through Supplemental Alternative Simplified Research Activities Credit received from partnership, S corporation, estate, or trust. Enter on IA 148. ..... 27. _____
28. Total allowable Alternative Simplified Research Activities Credit. Add lines 24 through 27. ..... 28. _____

2010 IA 128S Special Instructions and Line Instructions

Form IA 128S is used *only* if the taxpayer elects to use the Alternative Simplified Research Activities Credit. The alternative credit is available for tax years beginning on or after January 1, 2010. Form IA 128 should be used if the regular research activities credit is claimed. The taxpayer may elect to use this alternative method regardless of the method used in computing the federal research activities credit. This option is for Iowa purposes and is effective only for the current tax year. The taxpayer is not required to use this alternative method in computing the research activities credit for subsequent years.

Innovative Renewable Energy Generation

Effective July 1, 2009, research activities under the High Quality Jobs Program or under the Enterprise Zone Program include the development and deployment costs of innovative renewable energy generation components manufactured or assembled in Iowa. This cannot include components with more than 200 megawatts of installed effective nameplate capacity. These costs are not eligible for the federal research credit. A separate form IA 128S must be completed to account for these costs, which can be included on line 15 of the separate form IA 128S. The amount of the additional credit relating to these costs is not eligible for the Supplemental Alternative Simplified Research Activities Credit.

Example: An eligible business computes an Iowa Alternative Simplified Research Activities Credit of $50,000 excluding any costs relating to innovative renewable energy generation components. When the costs relating to innovative renewable energy generation components are included on line 15, the Iowa credit is $75,000. The business is allowed a supplemental credit of $50,000 under the original claim, which would result in an Iowa credit of $100,000. This can be added to the additional credit relating to the innovative renewable energy generation components of $25,000, resulting in a total Iowa Alternative Simplified Research Activities Credit of $125,000.

2010 IA 128S Line Instructions

Lines 1 through 8 - Enter the total amounts from the federal credit for increasing research activities, form 6765.

Lines 9, 10, 11, 15, 16, 17, & 18 - Enter only the portion of qualified research expenses that occurred in Iowa.

Line 20 - Enter the total qualified research expenses in Iowa for the three years before the year in which the credit is being determined.

Line 24 - Enter this amount on IA 148 Tax Credits Schedule under Part II using tax credit code 58.

Line 25 - If research activities are conducted by eligible businesses under the New Jobs and Income Program, New Capital Investment Program, High Quality Job Creation Program, High Quality Jobs Program, or the Enterprise Zone Program, a Supplemental Alternative Simplified Research Activities Credit may be allowed. The amount of the supplemental credit is shown in the contract entered into between the eligible business and the Iowa Department of Economic Development (Iowa DED). For awards made by the Iowa DED prior to July 1, 2010, the amount of the supplemental credit cannot exceed the amount shown on line 24. For awards made by the Iowa DED on or after July 1, 2010, the maximum supplemental credit is calculated by multiplying line 22 by 7%, or line 19 by 3%, for businesses with gross receipts of $20 million or less. For businesses with gross receipts exceeding $20 million, the maximum supplemental credit is calculated by multiplying line 22 by 2.1%, or line 19 by 0.9%. Enter this amount on IA 148 Tax Credits Schedule under Part II using tax credit code 59.

Line 26 - If you received pass-through Alternative Simplified Research Activities Credit(s) from a partnership, S corporation, estate, or trust, enter the amount of the credit(s) on this line. Enter each credit on IA 148 Tax Credits Schedule under Part II using tax credit code 58 and provide the pass-through information under Part IV.

Line 27 - If you received pass-through Supplemental Alternative Simplified Research Activities Credit(s) from a partnership, S corporation, estate, or trust, enter the amount of the credit(s) on this line and enter each credit on IA 148 Tax Credits Schedule under Part II using tax credit code 59 and provide the pass-through information under Part IV.

Line 28 - Add lines 24 through 27 and enter the sum. This is the total allowable Iowa Alternative Simplified Research Activities Credit. The IA 148 must be completed and attached to the tax return.

Iowa Department of Revenue
www.state.ia.us/tax

2009 IA 128A

Iowa Alternative Incremental Research Activities Credit

Name(s)	SSN or FEIN

1. Certain amounts paid or incurred to energy consortia ..... 1. _____
2. Basic research payments paid or incurred to qualified organizations in Iowa ..... 2. _____
3. Iowa apportioned qualified organizations base amount ..... 3. _____
4. Subtract line 3 from line 2. If zero or less, enter zero. ..... 4. _____
5. Multiply line 4 by 20%. ..... 5. _____
6. Wages for qualifying research services performed in Iowa ..... 6. _____
7. Cost of supplies used in conducting qualifying research in Iowa ..... 7. _____
8. Rental or lease costs of computers used in conducting qualifying research in Iowa ..... 8. _____
9. Applicable portion of contract expenses for qualifying research performed in Iowa ..... 9. _____
10. Total Iowa qualified research expenses. Add lines 6 through 9. ..... 10. _____
11. Enter average annual gross receipts.
    Add year 1, year 2, year 3, and year 4:_____+_____+_____+_____= ..... Subtotal _____ ÷ 4
    ..... 11. _____
12. Multiply line 11 by 1%. ..... 12. _____
13. Subtract line 12 from line 10. If zero or less, enter zero. ..... 13. _____
14. Multiply line 11 by 1.5%. ..... 14. _____
15. Subtract line 14 from line 10. If zero or less, enter zero. ..... 15. _____
16. Subtract line 15 from line 13. ..... 16. _____
17. Multiply line 11 by 2%. ..... 17. _____
18. Subtract line 17 from line 10. If zero or less, enter zero. ..... 18. _____
19. Subtract line 18 from line 15. If zero or less, enter zero. ..... 19. _____
20. Multiply line 16 by 1.65%. ..... 20. _____
21. Multiply line 19 by 2.2%. ..... 21. _____
22. Multiply line 18 by 2.75%. ..... 22. _____
23. Iowa Alternative Incremental Research Activities Credit. Add lines 1, 5, 20, 21, and 22. Enter on IA 148. ..... 23. _____
24. Supplemental Alternative Incremental Research Activities Credit. See instructions. Enter on IA 148. ..... 24. _____
25. Pass-through Alternative Incremental Research Activities Credit received from partnership, S corporation, estate, or trust. Enter on IA 148. ..... 25. _____
26. Pass-through Supplemental Alternative Incremental Research Activities Credit received from partnership, S corporation, estate, or trust. Enter on IA 148. ..... 26. _____
27. Total allowable Alternative Incremental Research Activities Credit. Add lines 23 through 26. ..... 27. _____

2009 IA 128A Special Instructions

Form IA 128A is used *only* if the taxpayer elects to use the Alternative Incremental Research Activities Credit. The alternative credit is available for tax years beginning on or after January 1, 2000. Form IA 128 should be used if the regular research activities credit is claimed. The taxpayer may elect to use this alternative method regardless of the method used in computing the federal research activities credit and may be used even though the alternative incremental credit is no longer available for federal purposes. This option is for Iowa purposes and is effective only for the current tax year. The taxpayer is not required to use this alternative method in computing the research activities credit for subsequent years.

Innovative Renewable Energy Generation

Effective July 1, 2009, research activities under the High Quality Jobs Program or under the Enterprise Zone Program include the development and deployment costs of innovative renewable energy generation components manufactured or assembled in Iowa. This cannot include components with more than 200 megawatts of installed effective nameplate capacity. These costs are not eligible for the federal research credit. A separate form IA 128A must be completed to account for these costs, which can be included on line 6 of the separate form IA 128A. The amount of the additional credit relating to these costs is not eligible for the Supplemental Alternative Incremental Research Activities Credit.

Example: An eligible business computes an Iowa Alternative Incremental Research Activities Credit of $50,000 excluding any costs relating to innovative renewable energy generation components. When the costs relating to innovative renewable energy generation components are included on line 6, the Iowa credit is $75,000. The business is allowed a supplemental credit of $50,000 under the original claim, which would result in an Iowa credit of $100,000. This can be added to the additional credit relating to the innovative renewable energy generation components of $25,000, resulting in a total Iowa Alternative Incremental Research Activities Credit of $125,000.

2009 IA 128A Line Instructions

Lines 1, 2, 3, 6, 7, 8, and 9 - Enter only that portion of the qualifying research expenses that occurred in Iowa.

Line 11 - Enter the average annual Iowa gross receipts for the four tax years before the year in which the credit is being determined. You may be required to annualize gross receipts for any short tax year.

Line 23 - Enter this figure on the IA 148 Tax Credits Schedule under Part II using tax credit code 58.

Line 24 - If research activities are conducted by eligible businesses under the New Jobs and Income Program, New Capital Investment Program, High Quality Job Creation Program, High Quality Jobs Program, or the Enterprise Zone Program, a Supplemental Alternative Incremental Research Activities Credit may be allowed. The amount of the Supplemental Research Activities Credit is shown in the contract entered into between the eligible business and the Iowa Department of Economic Development. The amount of the Supplemental Alternative Incremental Research Activities Credit cannot exceed the sum of the credit amounts shown on lines 20 through 22. Enter this figure on the IA 148 Tax Credits Schedule under Part II using tax credit code 59.

Line 25 - If you received pass-through Alternative Incremental Research Activities Credit(s) from a partnership, S corporation, estate, or trust, enter the amount of the credit(s) on this line. Enter each credit on the IA 148 Tax Credits Schedule under Part II using tax credit code 58 and provide the pass-through information under Part IV.

Line 26 - If you received pass-through Supplemental Alternative Incremental Research Activities Credit(s) from a partnership, S corporation, estate, or trust, enter the amount of the credit(s) on this line and enter each credit on the IA 148 Tax Credits Schedule under Part II using tax credit code 59 and provide the pass-through information under Part IV.

Line 27 - Add lines 23 through 26 and enter the sum. This is the total allowable Iowa Alternative Incremental Research Activities Credit. The IA 148 must be completed and attached to the tax return.

Appendix B. First RAC Survey Sent to Companies Claiming the RAC

IOWA Department of REVENUE

Survey on Research Activities in Iowa

Part 1: Company Information

Company Name:

Address:

Company 6-digit NAICS code: _____ Most recent tax year: _____

Contact person for survey responses: _____

Phone number: (_____)_____ e-mail: _____

Part 2: Research Expenditures and Employment

1. Provide your company's total U.S. qualified research expenditures during:

Tax Year 2006 _____ Tax Year 2007 _____

Tax Year 2008 _____ Tax Year 2009 _____

2. Provide your company's qualified research expenditures in Iowa during:

Tax Year 2006 _____ Tax Year 2007 _____

Tax Year 2008 _____ Tax Year 2009 _____

3. During what year did your company start conducting business in Iowa? _____

4. During what year did your company begin performing research activities in Iowa? _____

If your company did not conduct any in-house research during the most recent tax year, please skip to Part 3, Question 3.

5. How many total U.S. employees in your company, measured in full-time equivalents (FTEs), were directly involved in research during the most recent tax year? _____

a. How much in wages and salaries were paid to those employees for qualified research services?_____

6. How many of your employees, measured in full-time equivalents (FTEs), who were located in Iowa were directly involved in research during the most recent tax year? _____

a. How many of those employees have advanced degrees (Master's degree or higher)? _____

b. How much in wages and salaries were paid to those employees for qualified research services? _____

c. Circle fringe benefits offered to those employees:

i. health insurance	ii. dental insurance	iii. disability
iv. defined benefit retirement plan	v. 401k or similar available	vi. 401k matching
vii. vacation	viii. sick leave	ix. paid time off
x. daycare	xi. tuition reimbursement	xii. job training

Part 3: Research Locations and Types of Research

1. Please list the zip code of your location(s) in Iowa where research expenditures (other then contract expenses) were made, total employees (FTEs) directly involved in research, and total research expenditures at each location in the most recent tax year:

Location One Zip Code: _____ FTEs: _____ Research expenditures: _____

Location Two Zip Code: _____ FTEs: _____ Research expenditures: _____

Location Three Zip Code: _____ FTEs: _____ Research expenditures: _____

(If more than three, please provide on a separate paper)

2. If your company also carried out research outside of Iowa (other than contract expenses), please provide the name(s) of the state(s), total employees (FTEs) directly involved in research, and the total research expenditures in the most recent tax year:

State One: _____ FTEs: _____ Research expenditures: _____

State Two: _____ FTEs: _____ Research expenditures: _____

State Three: _____ FTEs: _____ Research expenditures: _____

(If more than three, please provide on a separate paper)

3. Rate the importance of the following items for why you would expand your research efforts in one state versus another (Please circle the correct number: 1=not at all important, 2=not important, 3=somewhat important, 4=important, 5= very important)

a. Local density of similar technology companies	1	2	3	4	5
b. Quality of workforce	1	2	3	4	5
c. State business tax climate	1	2	3	4	5
d. Existing research facility	1	2	3	4	5
e. Proximity to academic research institutions	1	2	3	4	5
f. Low energy costs	1	2	3	4	5
g. Regional infrastructure	1	2	3	4	5
h. Proximity to manufacturing or supply chain operations	1	2	3	4	5
i. Quality of life for employees	1	2	3	4	5
j. Proximity to primary markets	1	2	3	4	5
k. Low cost of labor and other research inputs	1	2	3	4	5

If there is a factor your company considers very important that is missing from the above list, please describe:

_____

If your company did not fund any contract research during the most recent tax year, please skip to Question 6.

4. If your company had contract expenses in Iowa, what organization(s) carried out the research on your behalf, and what were the contract amounts in the most recent tax year?

a. Private business: _____ Contract amount: _____

Zip Code of that business: _____

b. Private college/university: _____ Contract amount: _____

c. Public college/university: _____ Contract amount: _____

d. Government agency: _____ Contract amount: _____

e. Other: _____ Contract amount: _____

(If more than one in any category, please provide on a separate paper)

5. If your company has a long-term research relationship (three or more years) with any of the above organizations, please provide the name of the organization:

_____

6. What type(s) of research is your company undertaking in Iowa? (Please circle)

a. Basic scientific research: Yes / No

b. Product invention and/or development: Yes / No

c. Manufacturing process design: Yes / No

d. Other (please describe): _____

7. Has your company developed a new product line or service in the last four years as a result of your research expenditures in Iowa? Yes / No

If you answered No to Question 7, please skip to Question 9

8. If that new product line or service is produced or delivered in Iowa, please provide the following information:

a. General description of the product line or service: _____

_____

b. Year that the new product line or service began. _____

c. Zip Code of that facility: _____

d. Number of employees, measured in full-time equivalents (FTEs), added in Iowa for the new product line or service over the last four years _____

e. Of that number, the number of FTEs who have advanced degrees (Master's degree or higher) _____

f. Circle fringe benefits offered to those employees:

i. health insurance	ii. dental insurance	iii. disability
iv. defined benefit retirement plan	v. 401k or similar available	vi. 401k matching
vii. vacation	viii. sick leave	ix. paid time off
x. daycare	xi. tuition reimbursement	xii. job training

(If more than one product or service line, please provide answers to Question 8 for others on a separate paper)

9. What is the total number of patents awarded to your company nationally during the last four years? _____

10. Has your company received any patents as a result of your research expenditures in Iowa during the last four years? Yes / No If so, how many? _____

11. What is the average share of your company's production occurring in Iowa for the last four tax years?_____

12. What is the average share of your company's sales occurring in Iowa for the last four tax years? _____

13. What were gross revenues for your company in the most recent tax year? _____

Part 4: Research Tax Credit Claims

1. Did your company claim the federal research tax credit in any of the last four tax years? If so, please circle the method used for those claims in the applicable tax year (AIRC= Alternative Incremental Research Credit, ASIC = Alternative Simplified Incremental Credit)?

Tax Year 2006: Regular / AIRC / ASIC

Tax Year 2007: Regular / AIRC / ASIC

Tax Year 2008: Regular / AIRC / ASIC

Tax Year 2009: Regular / ASIC

2. If your company has ever claimed the federal regular credit, what was your most recent fixed base percentage? _____

3. If your company did not claim the Iowa Research Activities Tax Credit in the most recent tax year, please indicate why not? (Please check all that apply)

___ a. No eligible research expenditures in Iowa

___ b. Not eligible for credit based on levels of current and past research expenditures

___ c. Administrative burden of credit exceeds benefits

___ d. Other (please explain) _____

4. If your company qualified for a Supplemental Research Activities Tax Credit in any of the last four tax years, please circle the Department of Economic Development (DED) program under which that Supplemental credit was awarded and provide the DED agreement number (EZ= Enterprise Zone, HQJ= High Quality Jobs or High Quality Job Creation Program, NJIP = New Jobs & Income Program, NCIP = New Capital Investment Program)

Tax Year 2006: EZ / HQJ / NJIP / NCIP DED agreement number: _____

Tax Year 2007: EZ / HQJ / NJIP / NCIP DED agreement number: _____

Tax Year 2008: EZ / HQJ / NJIP / NCIP DED agreement number: _____

Tax Year 2009: EZ / HQJ / NJIP / NCIP DED agreement number: _____

Thank you for your participation in this survey. Please share any additional information or comments regarding the topics raised in this survey below:

Appendix C. Second Survey Sent to Companies in Same Industry as Companies Claiming RAC

IOWA Department of REVENUE

Survey on Research Activities in Iowa

Part 1: Company Information

Company Name:

Address:

Company 6-digit NAICS code: _____ Most recent tax year: _____

Contact person for survey responses: _____

Phone number: (_____)_____ e-mail: _____

Part 2: Research Expenditures and Employment

1. During what year did your company start conducting business in Iowa? _____

2. Does your company perform research in Iowa? Yes / No
If no, please skip to Part 3, Questions 11- 13, complete those and return the survey.

3. What year did your company begin performing research in Iowa? _____

4. Did your company claim the Iowa Research Activities Tax Credit in the most recent tax year? Yes / No
If not, please indicate why not. (Please check all that apply)

___ a. No qualified research expenditures in Iowa

___ b. Not eligible for credit based on levels of current and past research expenditures

___ c. Administrative burden of credit exceeds benefits

___ d. Not aware that tax credit existed

___ e. Unsure if research expenditures qualified for tax credit

___ f. Other (please explain) _____

5. Has your company incurred qualified research expenditures in any of the last four tax years? Yes / No
(Please see instructions for guidance on what research activities are considered qualified.)
If no, please skip to Part 3.

6. Provide your company's total U.S. qualified research expenditures during:

Tax Year 2006 _____ Tax Year 2007 _____

Tax Year 2008 _____ Tax Year 2009 _____

7. Provide your company's qualified research expenditures in Iowa during:

Tax Year 2006 _____ Tax Year 2007 _____

Tax Year 2008 _____ Tax Year 2009 _____

If your company did not conduct any in-house research (research carried out at your facilities by your paid employees) during the most recent tax year, please skip to Part 3, Question 3.

8. How many total U.S. employees in your company, measured in full-time equivalents (FTEs), were directly involved in qualified research during the most recent tax year? _____

a. How much in wages and salaries were paid to those employees for qualified research services?_____

9. How many of your employees, measured in full-time equivalents (FTEs), who were located in Iowa were directly involved in qualified research during the most recent tax year? _____

a. How much in wages and salaries were paid to those employees for qualified research services? _____

b. Circle fringe benefits offered to those employees:

i. health insurance	ii. dental insurance	iii. disability
iv. defined benefit retirement plan	v. 401k or similar available	vi. 401k matching
vii. vacation	viii. sick leave	ix. paid time off
x. daycare	xi. tuition reimbursement	xii. job training

c. How many of those employees have advanced degrees (Master's degree or higher)? _____

Part 3: Research Locations and Types of Research

1. Please list the zip code of your location(s) in Iowa where research expenditures (other then contract expenses) were made, total employees (FTEs) directly involved in research, and total research expenditures at each location in the most recent tax year:

Location One Zip Code: _____ FTEs: _____ Research expenditures: _____

Location Two Zip Code: _____ FTEs: _____ Research expenditures: _____

Location Three Zip Code: _____ FTEs: _____ Research expenditures: _____

(If more than three, please provide below or on a separate paper)

2. If your company also carried out research outside of Iowa (other than contract expenses), please provide the name(s) of the state(s), total employees (FTEs) directly involved in research, and the total research expenditures in the most recent tax year:

State One: _____ FTEs: _____ Research expenditures: _____

State Two: _____ FTEs: _____ Research expenditures: _____

State Three: _____ FTEs: _____ Research expenditures: _____

(If more than three, please provide below or on a separate paper)

3. Rate the importance of the following items for why you would expand your research efforts in one state versus another (Please circle the correct number: 1=not at all important, 2=not important, 3=somewhat important, 4=important, 5= very important)

a. Local density of similar technology companies	1	2	3	4	5
b. Quality of workforce	1	2	3	4	5
c. State business tax climate	1	2	3	4	5
d. Existing research facility	1	2	3	4	5
e. Proximity to academic research institutions	1	2	3	4	5
f. Low energy costs	1	2	3	4	5
g. Regional infrastructure	1	2	3	4	5
h. Proximity to manufacturing or supply chain operations	1	2	3	4	5
i. Quality of life for employees	1	2	3	4	5
j. Proximity to primary markets	1	2	3	4	5
k. Low cost of labor and other research inputs	1	2	3	4	5

If there is a factor your company considers very important that is missing from the above list, please describe:

_____

If your company did not fund any contract research (research expenses paid by your company to an organization with personnel who are not your employees) during the most recent tax year, please skip to Question 6.

4. If your company had contract research expenses in Iowa, what organization(s) carried out the research on your behalf, and what were the contract amounts in the most recent tax year?

a. Private business: _____ Contract amount: _____

Zip Code of that business: _____

b. Private college/university: _____ Contract amount: _____

c. Public college/university: _____ Contract amount: _____

d. Government agency: _____ Contract amount: _____

e. Other: _____ Contract amount: _____

(If more than one in any category, please provide on a separate paper)

5. If your company has a long-term research relationship (three or more years) with any of the above organizations, please provide the name of the organization:

_____

6. What type(s) of research is your company undertaking in Iowa? (Please circle)

a. Basic scientific research: Yes / No

b. Product invention and/or development: Yes / No

c. Manufacturing process design: Yes / No

d. Other (please describe): _____

7. Has your company developed a new product line or service in the last four years as a result of your research expenditures in Iowa? Yes / No
If you answered No to Question 7, please skip to Question 9

8. If that new product line or service is produced or delivered in Iowa, please provide the following information:

a. General description of the product line or service: _____

_____

b. Year that the new product line or service began. _____

c. Zip Code of that facility: _____

d. Number of employees, measured in full-time equivalents (FTEs), added in Iowa for the production of the new product line or service over the last four years _____

e. Circle fringe benefits offered to those production employees:

i. health insurance	ii. dental insurance	iii. disability
iv. defined benefit retirement plan	v. 401k or similar available	vi. 401k matching
vii. vacation	viii. sick leave	ix. paid time off
x. daycare	xi. tuition reimbursement	xii. job training

f. The number of FTEs who have advanced degrees (Master's degree or higher) _____

(If more than one product or service line, please provide answers to Question 8 for others on a separate paper)

9. What is the total number of patents awarded to your company nationally during the last four years? _____

10. Has your company received any patents as a result of your research expenditures in Iowa during the last four years? Yes / No If so, how many? _____

11. What is the average share of your company's production occurring in Iowa for the last four tax years?_____

12. What is the average share of your company's sales occurring in Iowa for the last four tax years? _____

13. What were gross revenues for your company in the most recent tax year? _____

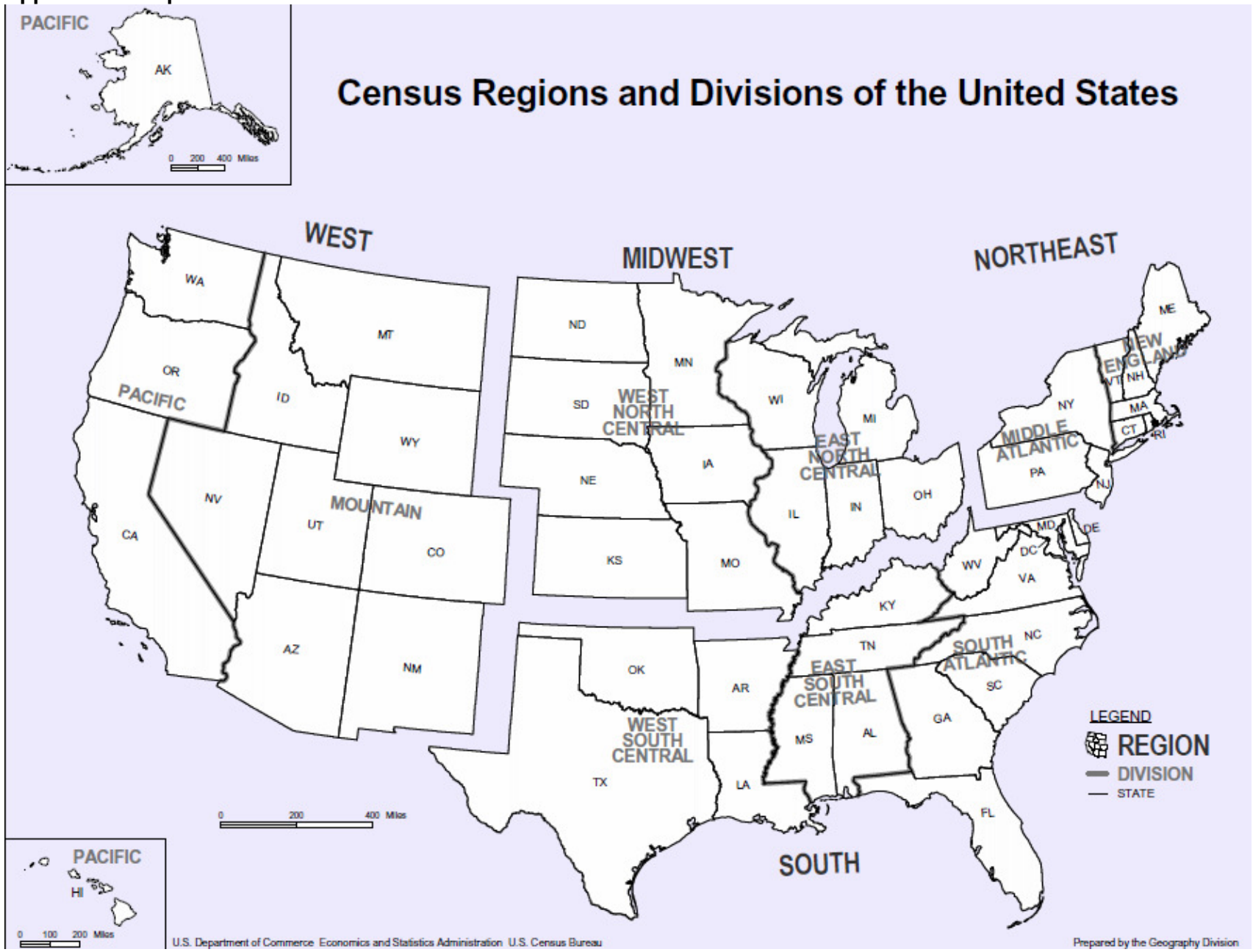
Part 4: Federal Research Tax Credit Claims

1. Did your company claim the federal research tax credit in any of the last four tax years? If so, please circle the method used for those claims in the applicable tax year (AIRC= Alternative Incremental Research Credit, ASIC = Alternative Simplified Incremental Credit)?

Tax Year 2006: Regular / AIRC / ASIC Tax Year 2007: Regular / AIRC / ASIC

Tax Year 2008: Regular / AIRC / ASIC Tax Year 2009: Regular / ASIC

2. If your company has ever claimed the federal regular credit, what was your most recent fixed base percentage? _____

Thank you for your participation in this survey. Please share any additional information or comments regarding the topics raised in this survey below:

Appendix D. Map of Census Divisions