

**Competing with Other States: Evaluating Iowa's Job Creation  
Business Tax Credit Programs**

**Preliminary (Not for citation)  
May 2017**

**By  
Zhong Jin**

**Tax Research and Program Analysis Section  
Iowa Department of Revenue**

### **Abstract**

Iowa state governments had approved a total of \$1.2 billion of tax incentives through High Quality Jobs program (HQJ) since the enactment in 2005. The program intends to induce business investment and encourage job creation in Iowa through the use of subsidies and tax incentives. In this paper we use an estimation approach that is valid under relatively weak assumptions to measure the impact of HQJ projects on local labor markets. The study also examines the fiscal impact of the HQJ program on Iowa's budgets. The study finds that the HQJ program have positive, statistically significant, impacts on local labor markets in terms of the employment growth rate and the wage growth rate. The fiscal impact of the program is found to usually spread out a period up to 12 years.

My results are noteworthy for several reasons. First, most previous studies are either focus on the economic impacts of place-based economic development programs, or aimed to estimate the responses of businesses toward such programs. This study is one of the few to measure both the welfare effect of a statewide economic development tax incentives program. Second, this study is also one the first to analyze how fiscal impacts of the tax credit program spread out over a long period to influence the government budgets. While state governments increasingly face situations of very tight budgets, the findings add to our understanding of the efficacy and the cost of these business development tax expenditures.

## **I. Introduction**

State and local governments often provide subsidies to businesses to create new jobs or retain existing jobs. One recent example that received national attention is that Carrier reportedly received \$7 million in tax credits from Indiana to preserve about 1,000 jobs in that state. Almost every state has some economic development program to offer tax incentives to businesses for investment and job creation. There is considerable debate over the effectiveness of such business tax incentive programs.

I examine the effectiveness of the Iowa High Quality Jobs (HQJ) Program which provides businesses tax credits and direct financial assistance to encourage those businesses to create, expand or modernize a facility in Iowa. Using cities with future HQJ projects as controls, I find that the HQJ projects generated jobs and raised earnings in cities with HQJ projects in early years. This finding built on the literature of place-based economic development programs which had found mixed evidences on the impacts of those programs on local economies. My work extended those literatures by examining the effectiveness of tax incentives on job growth in relative small and rural settings, using a difference-in-difference-in-differences model.

The empirical work focuses on estimating the impact of the HQJ program using confidential microdata from the Iowa Workforce Development (IWD). The data provides information on monthly employment and quarterly average wage of every employer in those cities. Because public data of small rural cities are mostly not available, this unique data source helps us identify employment effects of the HQJ projects in smaller communities. To identify the causal effects, a set of control cities based on records of awarded HQJ projects are selected. These control cities did not have any HQJ project in early years of the program, but won those projects in more recent years. They are likely to share unobserved traits and trends in common with those cities with early HQJ projects.

Point estimates from my main specification provide evidences that cities with HQJ projects experienced higher job growth and earnings growth. The magnitudes of the differences are not large: the average employment growth rate of cities with HQJ projects in early years is about two percentage points higher than that of control cities. The average wage growth rate of cities with HQJ projects is about three percentage points higher than control cities.

In additional to the analysis of economic impacts of the HQJ program, fiscal impacts of the program are also examined. Previous literature had paid little attention to how economic development programs through tax incentives affect state government fiscal revenues. Using a confidential and unique dataset from state income tax returns, which is the first among states, I am able to track how taxpayers claim tax incentives. The finding suggests that the HQJ economic development program has a long lasting impact (10 - 20 years) on state tax revenues due to the structure of tax incentives and the carryover rule in tax filing.

Related literature on development tax incentive programs are discussed in Section II. Section III describes the program. Section IV provides descriptive statistics of HQJ tax incentives awards and claims. Section V discusses economic analysis of the impacts of the HQJ tax incentives on job growth and earnings. The study concludes in Section VI.

## **II. Review of Related Literature**

The economic analysis later in this study will consider an important question about the impact of the HQJ program: Do HQJ projects have a positive impact on the local economy during and after the capital investment? The evidence from academic studies on both kinds of impacts is mixed (Kline and Moretti, 2014).

Hanson and Rohlin (2011) used the U.S. federal Empowerment Zone tax incentive program to examine the impact of the program on the number of new establishments in

the targeted areas. The study compared the Empowerment Zone areas with areas that applied for the Empowerment Zone but were rejected. The authors found that the Empowerment Zone program was responsible for reducing the number of new establishments that entered the targeted areas by almost 74 percent. The negative impact of the Empowerment Zone reflected that the designation resulted in higher property values in that area which reduced the number of new establishments that could afford the higher rent/location costs.

Recent research on impacts of tax incentive policies on local economies have focused on the Enterprise Zone programs created by states and the federal Empowerment Zone tax incentive program. Conclusions are mixed. Ham et al. (2011) studied impacts of state Enterprise Zones, federal Empowerment Zones, and federal Enterprise Community programs on local labor markets. Using data from the 1980, 1990 and 2000 Censuses, the study compared the labor markets in regions awarded those state and federal programs with those in nearby regions. The study found that these programs significantly improved local labor markets. The magnitude of the improvement was large; for example, an area's designation as a federal Empowerment Zones was estimated to reduce unemployment by 8.7 percent and the poverty rate by 8.8 percent. Busso, Gregory, and Kline (2013) examined the impact of federal Empowerment Zones on employment growth. The study used regions that were rejected and future applicants to the federal Empowerment Zone program as controls, compared with regions receiving the federal Empowerment Zone designation. The study found that the federal Empowerment Zones program increased the number of jobs by 12 to 19 percent over ten years.

On the other hand, Neumark and Kolko (2010) found that the California's Enterprise Zone program had little impact on increasing employment. Comparing the subzones where the Enterprise Zone projects are located with nearby subzones with no such projects, the study found that the Enterprise Zone program had no statistically significant effect on the number of jobs or the number of new establishments.

### **III. High Quality Jobs Program Description**

The HQJ program was enacted in 2005 to replace the New Jobs and Income Program (NJIP) which was created in 1994.<sup>1</sup> The program provides various forms of tax incentives to eligible businesses that meet certain job creation and capital investment requirements. HQJ is administered by the Iowa Economic Development Authority. Businesses interested in making capital investments in Iowa with the intent of either creating or retaining high-quality jobs must apply to IEDA to be considered for an award prior to the beginning of the project. IEDA negotiates an incentive package under the rules of program. If the investment is over \$10 million, the investment project must be approved by the local community where the business plans to undertake the project before negotiations with IEDA are completed. The proposed incentives, business activities, and local support are compiled into a project report which is presented to the IEDA Board for approval. If the approval is granted, the business must sign a contract with IEDA specifying the incentives offered by the State in anticipation of the investment completed and jobs created or retained by the business over the next three years, the performance period specified under the program. Unlike every other State tax credit program where tax credits are only awarded after the incentivized activity is completed, applicants under HQJ are allowed to claim tax credits during the performance of that investment and job creation. The business must also maintain those jobs during the two years following the project completion, the maintenance period specified under the program.

To be eligible for the tax incentives and financial assistance available under HQJ, the business must meet high-quality job creation or job retention requirements, where jobs are considered high-quality by meeting specified wage thresholds and benefit levels. The qualifying wage threshold equals the laborshed wage estimated for the geographic area surrounding the employment center in which the business is locating or expanding.

---

<sup>1</sup> The program is established in Iowa Code chapter 15, part 13, Sections 15.326 through 15.337. The administrative rules for the program are found at 261 IAC 68.

Iowa Workforce Development (IWD) determines the employment centers and defines the boundaries of each laborshed area. The tax incentives are contractually tied to the job requirements and the business must meet them in order to retain all of the awarded incentives. Eligible businesses must demonstrate that they have not closed or substantially reduced operations in another area of the state. The business cannot be a retail business, a business that levies a cover charge for entrance or has a membership requirement, or a service business with a consumer market that does not have a significant portion of sales from outside of Iowa.

If the business is creating jobs, all created jobs must pay 100 percent of the qualifying wage threshold at the start of the project, at least 120 percent by the end of the project performance period, and at least 120 percent during the maintenance period. If the business is retaining jobs, the requirement is those jobs pay 120 percent of the qualifying wage threshold at all times during the contract period. A business locating in a brownfield or grayfield site or in an economically distressed area may be awarded incentives for jobs that will pay less than 120 percent of the qualifying wage threshold. The business must also provide a sufficient benefits package to all full-time employees that includes at least one of the following: 80 percent of medical premiums for single coverage plans, 50 percent of medical premiums for family coverage plans, or some level of medical and dental coverage and provides the monetary equivalent value through other employee benefits.

Since fiscal year 2012 HQJ awards can include direct financial assistance, including loans and forgivable loans. The tax incentives available under the HQJ program since its inception are the focus of this study.

- Investment Tax Credit (ITC): This is an income tax credit equal to a maximum of 1 to 10 percent of the new qualifying investment directly related to jobs created or retained by the business' project. Qualifying investment means a capital investment in real property including the purchase price of land, existing buildings and structures; site preparation; improvements to real property; building

construction and long-term lease costs. It also includes capital investment in depreciable assets. The maximum credit percentage depends on the amount of pledged investment and jobs (see Table 1). The ITC is nonrefundable, nontransferable, and amortized equally over five years, which means the tax credit cannot reduce tax liability below zero in any year of claim, it cannot be sold to another taxpayer, and at most one-fifth of the award can be claimed in each of the five years of the project. Any credits not used in the first year of claim can be carried forward for seven tax years or until used, whichever is earlier. Beginning in fiscal year 2006, a limited refundable ITC was available, allowing IEDA to award up to \$4 million per fiscal year for businesses engaged in value-added agricultural products or biotechnology-related processes; that credit is no longer available. The ITC can be claimed against individual income, corporation income, insurance premium, franchise, and moneys and credits tax. If the participating business is organized as a pass-through entity, the claims for the ITC will be made by shareholders based on their ownership share of the business.

- Supplemental Research Activities Tax Credit (SRAC): If the eligible business is increasing research and development activities in the state and eligible to claim the Research Activities Tax Credit (RAC), the business may be eligible for a supplemental tax credit during the period the eligible business is participating in the HQJ program. The SRAC is refundable which means if the claim exceeds tax liability, the taxpayer receives that amount of the tax credit as a refund from the State. The award is based on the estimated amount of research that the business will conduct during the five years covered by the contract. Claims to the tax credit in any tax year are a function of incremental qualifying research expenditures in that year and the business's gross revenues. Companies with annual gross revenues exceeding \$20 million can claim a credit just under 50 percent of their RAC; companies with annual gross revenues of \$20 million or less can claim a credit that more than doubles their RAC. The SRAC can only be claimed against individual income and corporation income tax. If the participating

business is organized as a pass-through entity, the claims for the SRAC will be made by shareholders based on their ownership share of the business.

- **Sales and Use Tax Refund:** A sales and use tax refund may be awarded for taxes paid on gas, electricity, water, or sewer utility services, goods, wares, or merchandise, or on certain services related to the investment in construction or equipping of the facility covered under the HQJ contract. Sales and use refund awards are typically based on the assumption that roughly one-half of the qualifying investment will be subject to sales and use taxes. For distribution center projects, a refund of sales and use taxes paid on racks, shelving, and conveyor equipment can also be awarded, but claims for those refunds are limited to \$500,000 per fiscal year.
- **Corporation Income Tax Credit for Third Party Sales Tax:** This is an income tax credit awarded for sales taxes paid by certain third-party developers on gas, electricity, water, or sewer utility services, goods, wares, or merchandise, or on certain services related to the construction or equipping of the business' facility. This credit is awarded as an alternative to a sales and use tax refund when the participating business is not building the facility, but instead will lease the new facility. Because this business would not have paid any of the sales tax during the construction of the facility, the business is instead awarded an income tax credit that equals the taxes paid by the lessor. The income tax credit is refundable and can be claimed against corporation income, insurance premium, franchise, and moneys and credits tax.
- **Value-added Property Tax Exemption:** The participating local community may exempt all, or a portion, of the actual value added by improvements to real property from property taxation directly related to the new jobs created by the project. The exemption cannot exceed 20 years from the year the improvements are first assessed for taxation.

The program was initially called the High Quality Job Creation Program and required businesses to create new jobs in order to be eligible. Effective July 1, 2009, the program

was renamed by dropping “Creation” and retained jobs were included as qualifying toward high-quality jobs. At that time, a cumulative tax credit cap of \$185 million per fiscal year was also established for certain tax credits awarded by IEDA, including those awarded under the HQJ program. IEDA also has the ability to award 20 percent of next year’s cap in advance so that it has the flexibility to negotiate for large projects. Facing a tight State budget, the IEDA cap was reduced to \$120 million per fiscal year on July 1, 2010. In addition, the provision that allowed up to \$4 million of refundable Investment Tax Credits awards per fiscal year for projects involving value-added agricultural products or biotechnology-related processes was repealed effective on April 15, 2010. Effective July 1, 2012, the IEDA cap was increased to \$170 million per fiscal year. Subtracting the four other tax credit programs currently included under the IEDA cap that can award at most \$40 million per fiscal year leaves \$130 million in available awards for HQJ. During the 2016 Legislative session, the award cap for HQJ was temporarily reduced by \$25 million per year to offset the creation of the Renewable Chemical Production Tax Credit, allowing only \$105 million in HQJ awards during fiscal years 2017 through 2021.

The maximum ITC rates are established by Iowa Code, but IEDA can negotiate with a business and award tax incentives below the maximum levels. Actual award amounts are based on the business's level of need, the quality of the jobs, the percentage of created or retained jobs defined as high-quality, and the economic impact of the project. The economic impact is based on estimates of the contribution to State revenues resulting from the created or retained jobs. IEDA uses a model to estimate a proposed project’s contributions to State revenues measured as the Fiscal Impact Ratio (FIR). “Fiscal impact ratio” is defined in the Iowa Code as a ratio calculated by estimating the amount of taxes to be received from a business by the State and dividing the estimate by the estimated cost to the State of providing certain project completion assistance and tax incentives to the business, reflecting a ten-year period and expressed in terms of current dollars. Projects with a FIR greater than one suggests that the State revenues

attributed to the project over the following ten years exceed the expected costs of the incentives.

Once a contract is signed, IEDA monitors the progress of each project during the performance period and the maintenance period. If IEDA determines that the business has not met the terms of the contract, the business can be placed into default with a warning that incentives will be recaptured if the business does not make adjustments to meet those terms. If the business cannot cure the shortfall in either jobs or investment, IEDA determines the share of incentives that must be repaid and notifies the Iowa Department of Revenue (IDR) about the default. IDR then bills the taxpayers who have made tax credit claims or refund claims under that contract, where a full 100% default would require full repayment.

#### **IV. High Quality Jobs Program Awards and Claims**

##### **A. High Quality Jobs Program Awards**

Every HQJ application needs to be approved by the IEDA Board before a contract is signed and the tax credit award or financial assistance is issued. Between fiscal years 2005 and 2016, the Board approved 463 HQJ applications with the total projected qualified business investment of \$26.9 billion (see Table 2).<sup>2</sup> The total approved HQJ incentives for these 463 applications exceeded \$1.1 billion, including \$754.5 million of Investment Tax Credits, \$261.0 million of sales and use refunds including about \$1.0 million of Corporation Tax Credits for Third Party Sales Tax, \$109.6 million of Supplemental Research Activities Tax Credits, and \$41.9 million of direct financial assistance (including loans and forgivable loans). The highest annual total was approved in fiscal year 2007 at \$253 million, prior to any imposition of a cap, including several biofuel production facilities. The total HQJ incentives approved in 2009 were

---

<sup>2</sup> Benefits received by eligible businesses through awards of value-added property tax exemptions are not included in the analysis of this paper because the revenue reduction is realized at the local level and is not available from IEDA or IDR records.

only \$7.8 million, the lowest year, coinciding with the trough of the most recent economic recession. The HQJ incentives approved in 2012 exceeded program caps because one project received significant amounts of additional HQJ incentives under the 2013 and 2014 caps, but are presented here as one application amount. Recall that direct financial assistance was not offered under the HQJ program until 2012.

An approved HQJ application does not always lead to a HQJ contract and formal award for various reasons. Businesses can withdraw their applications before the contract is signed. IEDA may decline the approved application before the contract is signed if they cannot agree on contract terms. Additionally, once contracts are signed and incentives awarded, if a business does not meet job creation or investment requirements, IEDA and the business can agree to terminate a contract. Therefore, the total HQJ award amount associated with valid HQJ contracts, contracts in performance, in maintenance, or closed successfully, as of June 2016 is lower than the total HQJ incentive amount from Table 3. Overall, valid contracts represent 80.6 percent of the incentives originally approved by the Board. Not surprisingly, the share of applications in valid contracts is much higher for recent award years than the older years. This reflects that for years that are more than 5 years old, all contracts will have either successfully completed or been terminated. In addition, the recession in 2008 and 2009 also may have contributed to the low success rates of HQJ applications.

As of June 2016, total HQJ tax incentives awarded on valid contracts were \$731.6 million and the total direct financial assistance awarded was \$39.3 million, only 5.1 percent of total incentives. Those HQJ tax incentives include ITC awards, sales and use tax refunds, and SRAC awards. Among those incentives, the ITC awards are \$435.6 million, accounting for 56.5 percent of the total HQJ awards (see Figure 1). Sales and use tax refund awards total \$203.9 million including about \$1.0 million of Corporation Income Tax Credits for Third Party Sales Tax, 26.5 percent of the total HQJ awards. SRAC awards total \$92.0 million, accounting for 11.9 percent of the total HQJ awards.

IEDA reports 373 HQJ awards issued since the inception of the program were in progress or successfully closed through fiscal year 2016 (see Table 3). Businesses receiving these 373 awards promised investments of \$19.5 billion in Iowa, 72.3 percent of the total HQJ investment amount from all approved applications. The ratios of HQJ awards to approved HQJ incentives between 2006 and 2009 are below 50 percent, suggesting that the economic recession forced many businesses to cancel their investment plans. Coinciding with the ensuing economic recovery, the ratios of HQJ awards to approved HQJ incentives between 2010 and 2015 are above 80 percent. Also, many of the newly approved HQJ projects are still in the performance period or the maintenance period. Some current valid contracts could fall short of the requirements before those projects are closed.

For the 373 valid HQJ awards, businesses promised to create 12,837 new jobs and retain 5,607 existing jobs (see Table 4). Awarded businesses promised to create 2,905 new jobs in contracts awarded during 2015, the highest number between 2005 and 2016. The average annual wage for promised jobs across all 373 awards was above \$43,000, higher than the average annual wage earned by Iowans of \$42,500 in 2015.

In the early years of the program when job creation was the focus, nearly all awards only reported created jobs (see Table 4). In 2009 and after, more projects reported retained jobs; in 2012 through 2014, nearly half of the projects included pledged retained jobs. Projects with only retained jobs are approved only when the business indicates it will close a facility and leave the state without the incentives. In fiscal year 2016, of the 51 awarded HQJ projects, 33 were awarded for the expansion of existing Iowa businesses with both created and retained jobs, 7 were preventing businesses from leaving Iowa with only retained jobs, and 11 were likely for new businesses to Iowa with only created jobs, although projects with only created jobs could also reflect the expansion of an existing business.

Among these 373 valid HQJ awards, the majority (242) were awarded to manufacturing businesses. Wholesale trade businesses received 28 HQJ awards, the second highest number of awards among all industries (see Table 5). Awards received by manufacturing businesses totaled \$452.1 million, accounting for 58.6 percent of total HQJ awards. Those manufacturing businesses pledged to make capital investments of \$10.0 billion in Iowa, 51.4 percent of total pledged investment. Businesses in the information industry pledged to invest \$4.5 billion in Iowa (23.1%) and received \$107.5 million of HQJ awards (13.9%), the second highest among all industries. These top two industries accounted for close to 75 percent of pledged investment and received more than 70 percent of HQJ award amounts.

ITC awards comprised \$303.4 million (67.1%) of the \$452.1 million of HQJ awards received by manufacturing businesses and \$83.1 million were sales and use tax refunds (18.4%). For information businesses, \$28.2 million of the \$107.5 million of HQJ awards were ITC (26.3%) and \$72.4 million were sales and use tax refunds (67.4%). This difference in the distribution of HQJ incentives by industry likely reflects the fact that manufacturing businesses are able to benefit more from the ITC which is related to the number of jobs created or retained and the amount of capital investment. Businesses in the information industry, many of which are data centers with relatively lower numbers of jobs per investment dollar, could benefit more from tax incentives to refund sales taxes paid on construction materials. Manufacturing businesses were also awarded \$44.7 million of SRAC (48.6%) out of the total SRAC awards and agriculture were awarded \$41.8 million of SRAC (45.4%), which suggests that much of research is conducted by traditional manufacturing and agriculture businesses in Iowa. Although businesses in retail are not eligible, two businesses were awarded contracts to construct distribution centers in Iowa.

Manufacturing businesses pledged to create 7,680 new jobs and retain 2,256 existing jobs for awards made between fiscal years 2005 and 2016, accounting for 59.8 percent of all pledged new jobs and 40.2 percent of all pledged retained jobs (see Table 6).

Businesses in the information industry and agriculture industry pledged to create 1,402 new jobs (10.9%) and 853 new jobs (6.6%) respectively. These top three industries accounted for more than 75 percent of total pledged new jobs for all valid HQJ contracts. The average value of awards per pledged jobs varies widely across the industries, from \$5,196 for the one real estate business to over \$200,000 for management companies. Manufacturers received an average of \$45,502 in awards per job, with the average annual wage reported for those jobs of \$41,223.

Most of the HQJ awards were concentrated in counties in central Iowa, eastern Iowa, and along the western borders (see Figure 2). Businesses in Polk, Lee, and Pottawattamie counties received \$138.6 million, \$109.7 million, and \$55.2 million of HQJ awards, respectively, higher than any other Iowa county. There were also 43 counties without a single business that received HQJ awards between 2005 and 2016.

## **B. High Quality Jobs Program Tax Credit Claims**

Although HQJ awards were first made in fiscal year 2005 with claims first possible in tax year 2005, tracking of income tax credits began in tax year 2006 with the introduction of the IA 148 Tax Credits Schedule. Between tax years 2006 and 2014, more than \$154.0 million of HQJ tax incentives were claimed by taxpayers where capture and verification of tax year 2014 claims are incomplete (see Table 7). Each HQJ award is assigned a unique tax credit certificate number. Taxpayers are directed to report that tax credit certificate number when making a claim; however, not all taxpayers include the tax credit certificate number. Although the Department attempts to verify claims by requesting missing information from taxpayers, those efforts were not as thorough in the early years of tracking. Thus the low claim count in 2006 may in part reflect incomplete claim information. Because IEDA also made awards for ITC and SRAC under other incentive programs, only tax credit claims with associated HQJ tax credit certificate numbers are included in the remaining analysis. The ITC claims total \$77.1 million, accounting for 49.9 percent of the claimed HQJ tax incentives. Sales and use tax refunds, including a small count of Corporation Tax Credit for Third Party Sales Tax

claims, total \$39.1 million (25.3%) and SRAC claims total \$38.3 million (24.8%). Claims have been reduced by any amounts subsequently repaid to the State as a result of default billings.

The HQJ tax incentives can be claimed against individual income tax (including fiduciary tax), corporation income tax, sales and use tax, franchise tax, insurance premium tax, and moneys and credits tax. Between tax years 2006 and 2014, \$92.0 million (59.6% of all claimed HQJ tax incentives) were claimed against corporation income tax, including \$55.9 million of ITC (72.5% of ITC) and \$36.1 million of SRAC (94.2% of SRAC) (see Table 8). The vast majority of the 25.3 percent of incentives claimed as sales and use tax refunds were claimed against the sales and use tax; the small portion claimed as Corporation Tax Credits for Third Party Sales Tax against corporation income tax is not broken out because the count of claims is too small. An additional 14.3 percent of HQJ tax incentives were claimed against individual income tax. Less than 1 percent of tax incentives were claimed against franchise tax and insurance premium tax.

Taxpayers associated with awards made to manufacturing businesses have claimed 71.4 percent of total HQJ tax incentives (\$108.2 million) claimed between tax years 2006 and 2014 (see Table 9). Among these \$108.2 million of claimed tax incentives, were \$63.6 million of ITC (82.4% of all claimed ITC) and \$30.3 million of SRAC (80.4% of all claimed SRAC). Manufacturing businesses claimed \$13.7 million of sales and use tax refunds (39.8% of all sales and use tax refunds), lower than the sales and use tax refund amounts claimed by businesses in the information industry (\$16.1 million).

There are several possible reasons why taxpayers would not claim all the approved HQJ tax incentives. First, as discussed above, the approved HQJ contracts could be cancelled before a tax credit certificate is even issued if the business or IEDA determined that the approved project would not achieve the promised goals laid out in the initial agreement or even agreed to in a contract. Second, businesses could proceed with the HQJ contract, receiving a tax credit certificate and making claims, but later fall

short of the terms and thus face a full cancellation of benefits and clawback of any tax incentives claimed through the default process. Third, for the sales and use refunds or Supplemental Research Activities Tax Credits, the actual claim amount could be lower than the approved amount because the underlying economic activity might be smaller than the amount estimated for the HQJ contract. For example, the share of qualifying investment that will be subject to Iowa sales and use tax is an estimate; that estimate could have been too high. Fourth, for nonrefundable tax incentives, if taxpayers do not have enough tax liability across the available years, some of the ITC would be left unclaimed.

Details tracking the amount of tax incentives approved under HQJ to tax incentive claims reducing the General Fund are helpful in understanding how any proposed change to the HQJ program cap is forecasted to impact future revenues. The largest part of the cancelled HQJ contracts, both before and after offering tax credit certificates, which accounted for \$394.9 million of unclaimed HQJ tax incentives, were concentrated between 2005 and 2009 (see Table 10). Those canceled incentives totaled more than 50 percent of approved HQJ incentives in that period as the economic recession likely forced businesses to cancel investment projects. Also, in years prior to the cap, the State had less reason to negotiate tax incentive amounts with marginal contracts which may have resulted in the higher cancellation shares. After 2009, shares of incentives associated with the cancelled HQJ contracts are much lower. The economic recession also forced some businesses to reduce their original investment and hiring, and as a result, those businesses could not reach their employment goal set in the HQJ contracts. In many cases, IEDA defaulted those businesses based on the shortfall or renegotiated with those businesses and adjusted the HQJ incentives according to a reduced goal. More than \$5 million of HQJ incentives between 2005 and 2008 were eliminated under a partial default. Overall, 38.1 percent of approved HQJ tax incentives over 2005 through 2015 were invalid as of June 2016, with the bulk of those dollars identified for the 2005 through 2009 award years when an average of 67.5 percent became invalid. However, even for the 2010 through 2015 award years, an average of

9.8 percent of approved awards became invalid including 14.4 percent of 2015 awards in as short as one year from approval.

The fiscal impact of HQJ tax incentives is spread over a long period of time. The ITC claims must be amortized over a five-year period and each allocation can be carried forward for an additional seven years. Therefore, the businesses can claim tax credits for as many as twelve years after they were awarded the HQJ incentives. Indeed, ITC awards made in award year 2005 can last be claimed in tax year 2017. If the awarded project has a multi-stage construction period, the sales and use tax refund claims can also spread over several years until all the construction is completed. Consequently, the claiming cycle for the HQJ awards issued near the beginning of the program (for example, 2005-2009) is far from complete. The HQJ awards issued after 2010 are still in the early stage of the claiming cycle and only a very small percentage has been claimed. Therefore, the remaining tracking of tax credit utilization is limited to those awards made through fiscal year 2010.

For HQJ awards issued between 2005 and 2010, about \$115.4 million (59.2%) of HQJ tax incentives have been claimed during tax years 2006 through 2014 out of the \$195.0 million of total awards (see Table 11). Among those claimed tax incentives, about \$65.1 million were ITC claims, accounting for 53.4 percent of ITC awards issued between 2005 and 2010. The ITC credit carry forward reported on the last tax year totaled more than \$9 million for those awards issued between 2005 and 2010, accounting for an additional 7.4 percent of the ITC awards. This suggests that at most, 60.8 percent of the ITC awards made on valid contracts and adjusted for partial defaults will be claimed. However, with the difficulty tracking claims in the early years of the program, the claims could be understated. For sales and use refunds, where awards are based on estimated taxability of the qualifying investment made during the three year compliance period, only 45.1 percent of valid awards (\$14.2 million) were claimed. Even for the refundable SRAC, only 82.2% of valid awards have been claimed.

## **V. Economic Analysis of High Quality Jobs Program Outcomes**

The question of interest is whether the HQJ program improves local economic welfare. Each HQJ project is expected to benefit the local economy through increased economic activity and, more specifically, incremental spending in the area. That is one reason that the local government is expected to financially support any large project.

The ideal approach to measure the impact of an HQJ project on a local economy would be to conduct an experiment with two identical jurisdictions where only one has an HQJ project, and then measure the difference between the economies of the two jurisdictions after several years. Because identical jurisdictions do not exist, this ideal experiment is not possible. Alternatively, econometric tools can be used to estimate the impact of the HQJ projects. Under the assumption that a pool of jurisdictions shares the same likelihood to attract HQJ projects, those jurisdictions with HQJ projects are called the “treatment” group. The rest of the jurisdictions in the pool are called the “control” group.

Similar to the ideal experiment, for the treatment group, the difference in economic activity between the periods before and after the HQJ project captures both the impact of the project and economic change caused by other factors. For the control group, the difference in economic activity over the same period only reflects the economic change caused by other factors which are assumed to be the same for both groups because those jurisdictions come from the same pool sharing the same likelihood to attract HQJ projects. Thus the impact of the HQJ project can be identified from the difference between the differences mentioned above measured for the treatment group and the difference measured for the control group.

The sample period compares economic activity in 2002 and 2012. Cities in the treatment group received HQJ projects between 2005 and 2008 and cities in the control group received HQJ projects only after 2012. Jurisdictions that received HQJ projects

throughout the decade, mostly large jurisdictions, are not included in either group. There were 23 cities selected in the treatment group and the control group respectively (see Table 12). The average population for cities in the treatment group was 7,251 based on the 2000 Census, and 4,694 for the control group. Based on the IWD data, the average number of people working in each city in 2002, well before any HQJ project was initiated, was 4,318 for the treatment group and 2,741 for the control group. The average share of the treatment group's population working was 59.5 percent and 58.4 percent for the control group. The average wage observed in the cities during 2002 in the treatment group was \$23,994 compared to \$22,809 for the control group which includes both full-time and part-time workers.

The average employment growth rates of control cities were higher than those of treatment cities for most of years between 1997 and 2004 (see Figure 3). The only exception is 2003, when the average employment growth rate of control cities was -3.1 percent, compared to the average employment growth rate of 0.5 percent for treatment cities. However, the difference between averages growth rates for these two groups of cities was statistically insignificant between 1997 and 2004, suggesting that there was no fundamental difference between the labor markets of the treatment group and the control group prior to any impact of the HQJ program.

Suppose a HQJ project located in a city in the treatment group in 2007, the average annualized differences between the employment growth rates and the total wage growth rates between 2002 and 2007 would capture the economic development prior to the HQJ project in that city, called the pre-HQJ differences. Differences between 2007 and 2012 would capture the economic development after the HQJ project, called the post-HQJ differences. Differences between the pre-HQJ and post-HQJ differences would capture the impact of the HQJ project and the impact of other factors. For a matching city in the control group, the same differences would only capture the impact of other factors. Taking the difference between those of the treatment group and those of the control group ( $D_i$ ), the impact of the HQJ project can be estimated.

Similar to previous studies (Ham et al., 2011; Busso, Gregory, and Kline, 2013) that measured the impacts of place-based economic development policies, the second analysis in this study attempts to measure the impacts of HQJ projects on local economies. The technique used starts with the pool of all jurisdictions in which an HQJ project located over the last decade. That pool is divided based on the timing of those HQJ projects. The analysis compares local jurisdictions receiving HQJ projects mostly in the program's early years (the treatment group) with those jurisdictions with similar characteristics except receiving HQJ projects only in later years (the control group). Jurisdictions that received HQJ projects throughout the decade, mostly large jurisdictions, are not included in either group. One advantage of this approach is the elimination of large jurisdictions from the sample which avoids the potential bias caused by differences between the economic development efforts between large jurisdictions and small jurisdictions. A second advantage of this approach is that because jurisdictions in both groups worked with IEDA to negotiate with businesses, went through the similar approval process, and at some point won an HQJ project, jurisdictions in the control group should have similar economic characteristics attractive to business investments to those in the treatment group.

The specification of this analysis largely follows the work of Ham et al. (2011), with the assumption that the sum of the quadratic and the higher order trends of the observed characteristics and the double difference are equal for jurisdictions in both treatment and control groups. The assumption suggests that the speeds of the economic growth rate changes in jurisdictions in both groups are the same. More specifically, the economic outcome of jurisdiction  $k$ , where  $k$  equals  $i$  for the treatment group or  $j$  for the control group, is determined by

$$Y_{kt} = X_{kt}\beta + \delta HQJ_{kt} + \alpha_k + \gamma T_t + \varepsilon_{kt} \quad (1)$$

In (1),  $X_{kt}$  is a vector of observed characteristics of the jurisdictions,  $HQJ_{kt}$  equals 1 after the jurisdiction in the treatment group won the HQJ project and 0 otherwise,  $\alpha_k$  denotes group-specific characteristics that do not change over time,  $T_t$  denotes time, and  $\varepsilon_{kt}$  captures the random unobserved characteristics for the jurisdiction.

It is assumed the HQJ project only affects the treatment group. The difference between the economic growth rates before and after the HQJ project is awarded captures both the effect of the HQJ project and effects of other economic trends, for example, the Great Recession during 2008 and 2009. For the control group, the difference between the similar economic growth rates should only capture the effects of other economic trends. Therefore, the double difference between economic growth before and after the HQJ project for a jurisdiction is

$$Z_k = (Y_{klast} - Y_{kHQJ}) - (Y_{kHQJ} - Y_{kfirst}) = [(X_{klast}\beta + \delta HQJ_{klast} + \alpha_k + \gamma T_{last} + \varepsilon_{klast}) - (X_{kHQJ}\beta + \delta HQJ_{kHQJ} + \alpha_k + \gamma T_{HQJ} + \varepsilon_{kHQJ})] - [(X_{kHQJ}\beta + \delta HQJ_{kHQJ} + \alpha_k + \gamma T_{HQJ} + \varepsilon_{kHQJ}) - (X_{kfirst}\beta + \delta HQJ_{kfirst} + \alpha_k + \gamma T_{first} + \varepsilon_{kfirst})] = (X_{klast} - 2X_{kHQJ} + X_{kfirst})\beta + (HQJ_{klast} - 2HQJ_{kHQJ} + HQJ_{kfirst})\delta + (T_{last} - 2T_{HQJ} + T_{first})\gamma + \varepsilon_{kt} \quad (2)$$

The beginning of the sample period denotes *first*, the end of sample period denotes *last*, and the award year of the HQJ project denotes *HQJ*.

Based on the assumption that the sum of the quadratic and the higher order trends of the observed characteristics and the double difference are equal for jurisdictions in both treatment and control groups, for the jurisdictions in the treatment group  $i$  and the control group  $j$ , there is

$$(X_{ilast} - 2X_{iHQJ} + X_{ifirst}) = (X_{jlast} - 2X_{jHQJ} + X_{jfirst}) \quad (3)$$

To estimate the HQJ project's effect, eliminating the effects of other economic trends and calculating the triple difference between the treatment group and the control group, the difference-in-difference-in-differences (DDD) estimator is

$$D_i = Z_i - Z_j = \text{HQJ}_{i\text{last}} \bar{\delta} + \varepsilon_{kt} \quad (4)$$

The parameter of interest is  $\bar{\delta}$ , which measures the impact of the HQJ project on economic growth of the jurisdiction. It is also assumed that errors are correlated, suggesting that economies of those cities could also be affected by the same random factors.

To further measure the effect of HQJ tax incentives on economic growth, the approach from (Acemoglu, Autor, and Lyle, 2004) is used to restructure equation (1) into the following equation

$$Y_{kt} = X_{kt}\beta + \delta \text{HQJ}_{kt} + \mu \text{Credit}_{kt} \text{HQJ}_{kt} + \alpha_k + \gamma T_t + \varepsilon_{kt} \quad (5)$$

Here  $\text{Credit}_{kt}$  is the amount of HQJ tax incentives in the award year and beyond for HQJ projects in the jurisdiction  $k$  and \$0 otherwise. The DDD estimator then becomes

$$D_i = Z_i - Z_j = \text{HQJ}_{i\text{last}} \bar{\delta} + \mu \text{Credit}_{kt} \text{HQJ}_{kt} + (\varepsilon_{i\text{last}} - 2\varepsilon_{i\text{HQJ}} + \varepsilon_{i\text{first}}) - (\varepsilon_{j\text{last}} - 2\varepsilon_{j\text{HQJ}} + \varepsilon_{j\text{first}}) \quad (6)$$

The parameter of interest in (6) is  $\mu$ , which measures whether jurisdictions with more HQJ tax incentives experienced a greater increase in economic growth. Two alternative measurements of the HQJ projects, such as the number of jobs promised ( $\text{Job}_{kt}$ ) and the total project investment ( $\text{Cost}_{kt}$ ), were also used to examine the HQJ program's impacts.

This analysis estimates both (4) and (6) to examine the impact of the HQJ program as a whole and the impact of marginal changes in the amount of tax incentives offered. The

estimation is conducted on the city level. The city-level data are collected from the Iowa unemployment insurance payment dataset provided by the Iowa Workforce Development (IWD), which contains monthly employment and quarterly wage information reported by employers for all physical facilities operated in Iowa.

Since economies of those cities could be affected by the same random factors and the error terms could be correlated, the maximum likelihood method is used to estimate the impact of the HQJ program on local economy, assuming the normal distribution.

The estimation suggests that receiving an HQJ project significantly influences employment growth rates and total wage growth rates in those cities (see Table 13). The HQJ project is estimated to raise the annual employment growth rate of a city by an average of more than two percentage points. Average wage income earned in the city is estimated to increase by an average of more than three percentage points as a result of the HQJ project. To illustrate the estimation results, suppose the average employment in the treatment group in 2008 is 4,400 and the average number of HQJ direct jobs is 37. The average number of indirect jobs is about 2 percent of 4,400 in excess of the 37 direct jobs, which is estimated to be 51, including both full-time and part-time jobs. The average annual wage increase after 2008 in treatment cities is estimated to be \$1,000 higher due to the HQJ projects.

The regression results (equation (6)) showed that the log value of tax credit awards, the log value of the total project investment, and the number of promised jobs had significant impacts on both the employment growth rate and the average wage growth rate. Specifically, for every 10 percent increase of HQJ tax incentives given that the city had a HQJ project, the employment growth rate increases by an estimated 0.07 percentage points and the average wage growth rate increases by 0.05 percentage points. For every 10 percent increase of HQJ project investment given that the city had a HQJ project, the employment growth rate increases by an estimated 0.1 percentage points and the average wage growth rate increases by 0.06 percentage points. For

every ten additional promised jobs from a HQJ project, the city is estimated to raise employment growth rate and the average wage growth rate by an average of 0.4 percentage points respectively every year after the award year.

It needs to be emphasized that the large jurisdictions which often receive HQJ projects through the 2005 and 2012 period excluded from this analysis because they do not qualify as either the control or treatment group. Such jurisdictions are likely to experience smaller impacts on employment and wage growth rates than those measured here for the smaller Iowa cities because those jurisdictions also have a larger economic base and much more diverse economic activities. Another concern is that information on economic development programs from the federal government or other State programs are not completely available. Thus, they are assumed to affect cities in both groups equally in this analysis.

## References

Acemoglu, Daron, David h. Autor, and David Lyle. "Women, War, And Wages: The Effect Of Female Labor Supply On The Wage Structure At Midcentury," *Journal of Political Economy*, 2004, v112(3,Jun), 497-551.

Black, Dan A. and William H. Hoyt, "Bidding for Firms," *American Economic Review*, Vol. 79, No. 5 (Dec., 1989), pp. 1249-1256

Busso, Matias, Jesse Gregory, and Patrick Kline, "Assessing the Incidence and Efficiency of a Prominent Place Based Policy," *American Economic Review*, Vol. 103, No. 2, April 2013, (pp. 897-947)

Brühlhart, Marius, Mario Jametti, Kurt Schmidheiny, "Do agglomeration economies reduce the sensitivity of firm location to tax differentials?" *The Economic Journal*, Volume 122, Issue 563, September 2012, Pages 1069–1093

Devereuxa, Michael P., Rachel Griffith, Helen Simpson, "Firm location decisions, regional grants and agglomeration externalities," *Journal of Public Economics*, Volume 91, Issues 3–4, April 2007, Pages 413–435

Greenstone, M and Moretti E. 2004. "Bidding for industrial plants: Does winning a "million dollar plant" increase welfare?" NBER Work. Paper. 9844

Ham, John C., Charles Swenson, Ayse Imrohroglu, and Heonjae Song. 2011. "Government Programs Can Improve Local Labor Markets: Evidence from State Enterprise Zones, Federal Empowerment Zones and Federal Enterprise Community." *Journal of Public Economics* 95 (7-8): 779–97.

Hanson, Andrew and Shawn Rohlin, "Do Location-Based Tax Incentives Attract New Business Establishments?" *Journal of Regional Science*, Volume 51, Issue 3, August 2011, Pages 427–449

Iowa Economic Development Authority, The High Quality Jobs Program: A Report to the Legislative Tax Expenditure Committee, 2016

Jolley, G. Jason, Mande Foushee Lancaster, and Jiang Gao, "Tax Incentives and Business Climate: Executive Perceptions From Incented and Nonincented Firms", *Economic Development Quarterly*, 2015, Vol. 29(2) 180–186

Kline, Patrick, and Enrico Moretti, "People, Places, and Public Policy: Some Simple Welfare Economics of Local Economic Development Programs," *Annual Review of Economics*, August 2014, Vol. 6: 629-662

Performance Audit Committee, Nebraska Legislature, “Nebraska Advantage Act Performance on Selected Metrics,” November 2016, accessed at [http://nebraskalegislature.gov/pdf/reports/audit/naa\\_2016.pdf](http://nebraskalegislature.gov/pdf/reports/audit/naa_2016.pdf)

Nebraska Department of Revenue, 2015 Annual Report on Nebraska Advantage Act, Accessible at [http://www.revenue.nebraska.gov/incentiv/annrep/15an\\_rep/neb\\_adv/neb\\_adv\\_annrep.html](http://www.revenue.nebraska.gov/incentiv/annrep/15an_rep/neb_adv/neb_adv_annrep.html) in 12/2016

Neumark, David and Jed Kolko, “Do enterprise zones create jobs? Evidence from California’s enterprise zone program,” *Journal of Urban Economics*, 68 (2010) 1–19

Office of Fiscal and Management Analysis, 2015 Indiana Tax Incentive Evaluation, Accessible at [https://iga.in.gov/static-documents/6/d/e/c/6dec6072/indiana\\_tax\\_incentive\\_review\\_2015\\_annual\\_report.pdf](https://iga.in.gov/static-documents/6/d/e/c/6dec6072/indiana_tax_incentive_review_2015_annual_report.pdf) in 12/2016

Warner, Mildred E. and Lingwen Zheng, “Business Incentive Adoption in the Recession,” *Economic Development Quarterly*, 2013 27: 90

## Tables and Figures

DRAFT

**Table 1. High Quality Jobs Program Maximum Tax Credit Awards Available to a Business**

Amount of Qualifying Investment	Number of Jobs Created or Retained That Meet Wage Threshold Requirements for the Laborshed plus Sufficient Benefits				
	No Jobs	1-5	6-10	11-15	16 or More
Less than \$100,000	Up to 1% ITC	Up to 2% ITC	Up to 3% ITC	Up to 4% ITC	Up to 5% ITC
\$100,000 - \$499,999	Up to 1% ITC, Sales Tax Refund	Up to 2% ITC, Sales Tax Refund	Up to 3% ITC, Sales Tax Refund	Up to 4% ITC, Sales Tax Refund	Up to 5% ITC, Sales Tax Refund
\$500,000 or More	Up to 1% ITC, Sales Tax Refund, Supplemental Research Activities Tax Credit	Up to 2% ITC, Sales Tax Refund, Supplemental Research Activities Tax Credit	Up to 3% ITC, Sales Tax Refund, Supplemental Research Activities Tax Credit	Up to 4% ITC, Sales Tax Refund, Supplemental Research Activities Tax Credit	Up to 5% ITC, Sales Tax Refund, Supplemental Research Activities Tax Credit

Amount of Qualifying Investment	Number of Jobs Created or Retained That Meet Wage Threshold Requirements for the Laborshed plus Sufficient Benefits				
	31-40	41-60	61-80	81-100	101 or More
\$10,000,000 or More	Up to 6% ITC, Sales Tax Refund, Supplemental Research Activities Tax Credit, Property Tax Exemption	Up to 7% ITC, Sales Tax Refund, Supplemental Research Activities Tax Credit, Property Tax Exemption	Up to 8% ITC, Sales Tax Refund, Supplemental Research Activities Tax Credit, Property Tax Exemption	Up to 9% ITC, Sales Tax Refund, Supplemental Research Activities Tax Credit, Property Tax Exemption	Up to 10% ITC, Sales Tax Refund, Supplemental Research Activities Tax Credit, Property Tax Exemption

"Amount of Qualifying Investment" means a capital investment in real property including the purchase price of land, existing buildings and structures, site preparation, improvements to real property, building construction, and long-term lease costs. It also includes capital investment in depreciable assets. "ITC" means Investment Tax Credit. "Sales Tax Refund" means Sales and Use Tax Refund or refundable Corporation Tax Credit for Third Party Sales Tax.

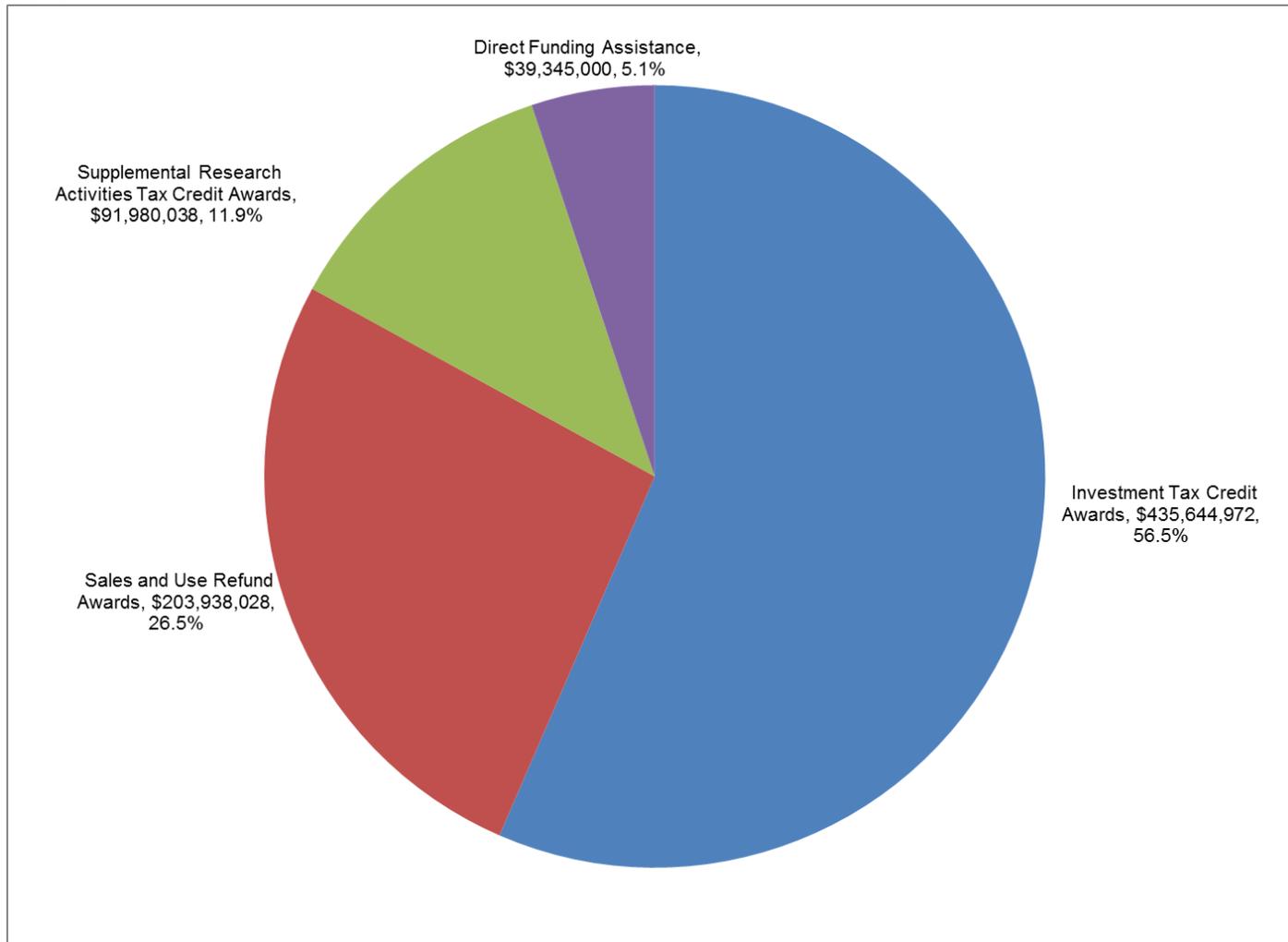
Source: Iowa Economic Development Authority website

**Table 2. High Quality Jobs Program Approved Incentives, Award Years 2005-2016**

Award Year	Total Number of Approved Projects	Total Pledged Business Investment (in Million \$)	Approved Investment Tax Credits (in Million \$)	Approved Sales and Use Tax Refunds (in Million \$)	Approved Supplemental Research Activities Tax Credits (in Million \$)	Total Approved Tax Incentives (in Million \$)	Approved Direct Funding Assistance (in Million \$)	Total Approved HQJ Incentives (in Million \$)
2005	16	\$282.75	\$9.19	\$0.82	\$0.75	\$10.76	\$0	\$10.76
2006	54	\$3,490.84	\$136.55	\$20.15	\$10.29	\$166.99	\$0	\$166.99
2007	57	\$4,984.68	\$193.34	\$43.05	\$17.43	\$253.82	\$0	\$253.82
2008	40	\$1,250.16	\$54.32	\$11.57	\$5.00	\$70.89	\$0	\$70.89
2009	18	\$187.81	\$5.99	\$1.57	\$0.25	\$7.81	\$0	\$7.81
2010	27	\$510.41	\$18.06	\$4.34	\$15.11	\$37.50	\$0	\$37.50
2011	45	\$1,758.31	\$25.79	\$13.33	\$9.55	\$48.67	\$0	\$48.67
2012	45	\$5,644.34	\$132.28	\$58.57	\$12.88	\$203.72	\$4.08	\$207.81
2013	38	\$1,953.38	\$47.00	\$29.25	\$4.72	\$80.98	\$8.71	\$89.69
2014	43	\$1,994.42	\$21.46	\$29.50	\$0.65	\$51.61	\$3.30	\$54.90
2015	80	\$2,301.49	\$80.70	\$28.24	\$3.32	\$112.26	\$18.51	\$130.78
2016	51	\$2,558.72	\$29.85	\$20.57	\$29.62	\$80.04	\$7.33	\$87.38
Total	463	\$26,917.31	\$754.52	\$260.97	\$109.57	\$1,125.06	\$41.94	\$1,167.00

Source: High Quality Jobs Program Records from Iowa Economic Development Authority

**Figure 1. Distribution of the High Quality Jobs Program Incentives on Awarded Contracts, Award Years 2005-2016**



Source: High Quality Jobs Program Records from Iowa Economic Development Authority

**Table 3. High Quality Jobs Program Incentives on Awarded Contracts, Award Years 2005-2016**

Award Year	Total Number of Awards	Total Business Investment (in Million \$)	Investment Tax Credit Awards (in Million \$)	Sales and Use Refund Awards (in Million \$)	Supplemental Research Activities Tax Credit Awards (in Million \$)	Total Tax Incentives (in Million \$)	Direct Funding Assistance (in Million \$)	Total HQJ Awards (in Million \$)
2005	5	\$160.79	\$7.24	\$0.46	\$0.14	\$7.83	\$0	\$7.83
2006	30	\$1,944.69	\$58.57	\$12.41	\$9.05	\$80.03	\$0	\$80.03
2007	22	\$984.34	\$28.25	\$9.24	\$14.68	\$52.17	\$0	\$52.17
2008	21	\$492.15	\$10.85	\$4.86	\$4.89	\$20.60	\$0	\$20.60
2009	13	\$85.95	\$1.39	\$1.10	\$0.12	\$2.60	\$0	\$2.60
2010	19	\$413.34	\$15.63	\$3.43	\$14.63	\$33.69	\$0	\$33.69
2011	35	\$1,506.53	\$18.39	\$11.68	\$9.26	\$39.33	\$0	\$39.33
2012	32	\$5,496.55	\$131.70	\$57.54	\$4.13	\$193.37	\$2.82	\$196.19
2013	36	\$1,874.76	\$45.94	\$28.69	\$1.55	\$76.18	\$8.71	\$84.89
2014	40	\$1,880.92	\$20.34	\$28.44	\$0.62	\$49.40	\$3.30	\$52.69
2015	69	\$2,061.47	\$67.50	\$25.51	\$3.29	\$96.31	\$17.18	\$113.49
2016	51	\$2,558.72	\$29.85	\$20.57	\$29.62	\$80.04	\$7.33	\$87.38
Total	373	\$19,460.22	\$435.64	\$203.94	\$91.98	\$731.56	\$39.35	\$770.91
Ratio of Awards to Approved Amount from Applications								
Ratio:	80.6%	72.3%	57.7%	78.1%	83.9%	65.0%	93.8%	

Source: High Quality Jobs Program Records from Iowa Economic Development Authority

Note: Table includes only projects shown in Table 3 that were not terminated or 100 percent defaulted.

**Table 4. High Quality Jobs Program Business Investment and Jobs on Awarded Contracts, Award Years 2005-2016**

Award Year	Total Number of Awards	Number of Awards with Only Created Jobs	Number of Awards with Only Retained Jobs	Number of Awards with Both Created and Retained Jobs	Pledged Business Investment (in Million \$)	Total Projected Jobs Creation	Total Projected Jobs Retention	Average Annual Wage
2005	5	5	0	0	\$160.79	71	0	\$36,792
2006	30	26	3	1	\$1,944.69	948	349	\$41,223
2007	22	20	1	1	\$984.34	1,049	48	\$44,604
2008	21	20	0	1	\$492.15	459	21	\$51,807
2009	13	9	2	2	\$85.95	346	65	\$45,633
2010	19	11	2	6	\$413.34	895	671	\$44,205
2011	35	25	3	7	\$1,506.53	851	424	\$43,701
2012	32	18	1	13	\$5,496.55	1,080	245	\$42,567
2013	36	20	1	15	\$1,874.76	1,382	1,691	\$40,173
2014	40	19	2	19	\$1,880.92	908	157	\$43,029
2015	69	22	3	44	\$2,061.47	2,905	577	\$42,546
2016	51	11	7	33	\$2,558.72	1,943	1,359	\$44,352
<b>Total</b>	<b>373</b>	<b>206</b>	<b>25</b>	<b>142</b>	<b>\$19,460.22</b>	<b>12,837</b>	<b>5,607</b>	<b>\$43,386</b>

Source: High Quality Jobs Program Records from Iowa Economic Development Authority

Note: All numbers are presented in nominal values with no adjustment for inflation.

**Table 5. High Quality Jobs Program Incentives on Awarded Contracts by Industry, Award Years 2005-2016**

Industry	Total Number of Awards	Total Business Investment (in Million \$)	Distribution of Business Investment	Investment Tax Credit Awards (in Million \$)	Sales and Use Refund Awards (in Million \$)	Supplemental Research Activities Tax Credit Awards (in Million \$)	Direct Funding Assistance (in Million \$)	Total HQJ Awards (in Million \$)	Distribution of HQJ Awards
Manufacturing	242	\$9,995.35	51.4%	\$303.36	\$83.14	\$44.66	\$20.94	\$452.11	58.6%
Wholesale Trade	28	\$397.58	2.0%	\$11.32	\$4.78	\$3.02	\$0.26	\$19.39	2.5%
Professional, Scientific, and Technical Services	22	\$509.48	2.6%	\$25.06	\$10.80	\$0.13	\$1.60	\$37.60	4.9%
Finance and Insurance	24	\$132.88	0.7%	\$1.21	\$1.84	\$1.01	\$2.68	\$6.74	0.9%
Information	15	\$4,489.32	23.1%	\$28.22	\$72.43	\$0.95	\$5.88	\$107.47	13.9%
Transportation and Warehousing	13	\$276.43	1.4%	\$7.24	\$4.16	\$0.00	\$1.22	\$12.61	1.6%
Agriculture, Forestry, Fishing and Hunting	10	\$1,444.31	7.4%	\$5.07	\$2.96	\$41.76	\$4.20	\$53.99	7.0%
Construction	4	\$5.66	0.0%	\$0.21	\$0.07	\$0.13	\$0.23	\$0.64	0.1%
Management of Companies and Enterprises	6	\$1,769.58	9.1%	\$19.00	\$13.79	\$0.31	\$2.12	\$35.22	4.6%
Other Services	4	\$46.05	0.2%	\$0.55	\$0.54	\$0.01	\$0.23	\$1.32	0.2%
Retail Trade	3	\$388.24	2.0%	\$34.22	\$9.37	\$0.00	\$0.00	\$43.58	5.7%
Real Estate and Rental and Leasing	1	\$1.50	0.0%	\$0.06	\$0.03	\$0.00	\$0.00	\$0.08	0.0%
Administrative and Support and Waste Management	1	\$3.83	0.0%	\$0.12	\$0.03	\$0.00	\$0.00	\$0.15	0.0%
<b>Total</b>	<b>373</b>	<b>\$19,460.22</b>	<b>100.00%</b>	<b>\$435.64</b>	<b>\$203.94</b>	<b>\$91.98</b>	<b>\$39.35</b>	<b>\$770.91</b>	<b>100.0%</b>

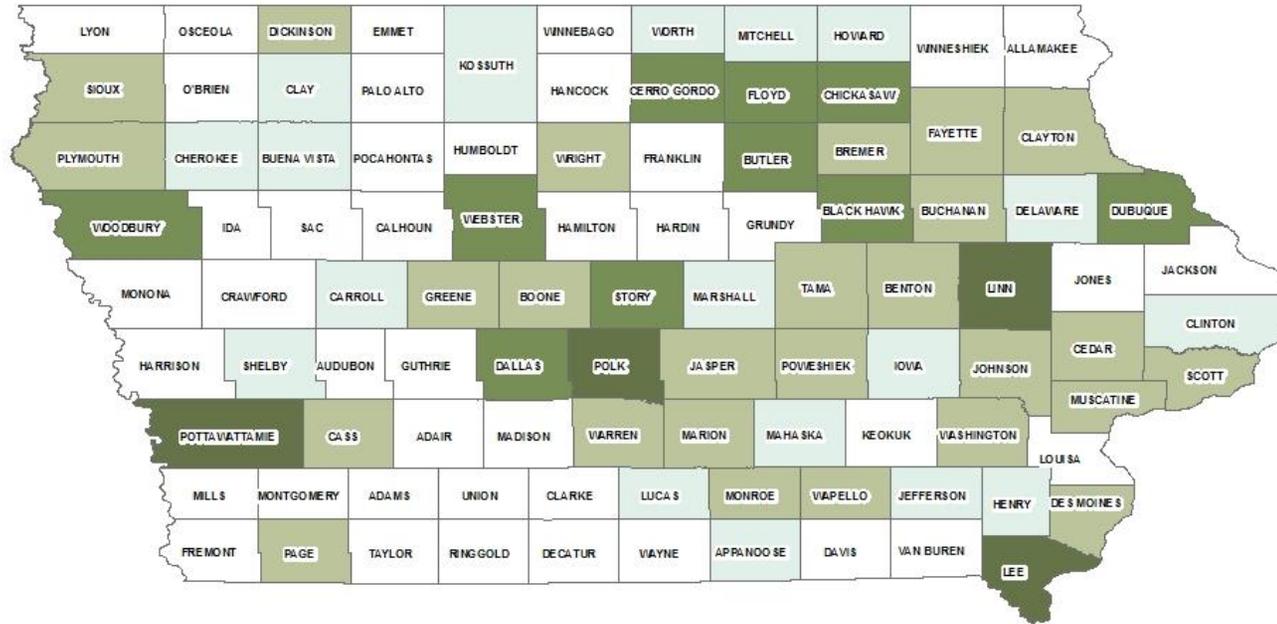
Source: High Quality Jobs Program Records from Iowa Economic Development Authority

**Table 6. High Quality Jobs Program Pledged Investment and Jobs on Awarded Contracts by Industry, Award Years 2005-2016**

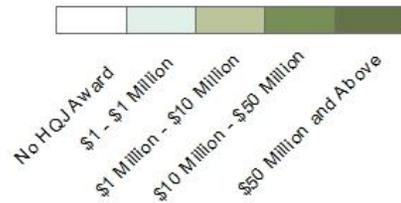
Industry	Total Number of Awards	Total Projected Jobs Creation	Distribution of Created Jobs	Total Projected Jobs Retention	Distribution of Retained Jobs	Average Annual Wage	Total HQJ Awards (in Million \$)	Average Awards Per Job
Manufacturing	242	7,680	59.8%	2,256	40.2%	\$41,223	\$452.11	\$45,502
Wholesale Trade	28	522	4.1%	58	1.0%	\$43,344	\$19.39	\$33,432
Professional, Scientific, and Technical Services	22	786	6.1%	1,794	32.0%	\$50,736	\$37.60	\$14,572
Finance and Insurance	24	684	5.3%	100	1.8%	\$48,531	\$6.74	\$8,597
Information	15	1,402	10.9%	6	0.1%	\$51,198	\$107.47	\$76,327
Transportation and Warehousing	13	304	2.4%	1,000	17.8%	\$51,135	\$12.61	\$9,674
Agriculture, Forestry, Fishing and Hunting	10	853	6.6%	371	6.6%	\$41,769	\$53.99	\$44,110
Construction	4	93	0.7%	0	0.0%	\$44,940	\$0.64	\$6,874
Management of Companies and Enterprises	6	154	1.2%	22	0.4%	\$49,245	\$35.22	\$200,103
Other Services	4	88	0.7%	0	0.0%	\$43,386	\$1.32	\$15,053
Retail Trade	3	239	1.9%	0	0.0%	\$50,421	\$43.58	\$182,360
Real Estate and Rental and Leasing	1	16	0.1%	0	0.0%	\$33,579	\$0.08	\$5,198
Administrative and Support and Waste Management	1	16	0.1%	0	0.0%	\$43,071	\$0.15	\$9,375
<b>Total</b>	<b>373</b>	<b>12,837</b>	<b>100.0%</b>	<b>5,607</b>	<b>100.0%</b>	<b>\$45,583</b>	<b>\$770.91</b>	<b>\$41,797</b>

Source: High Quality Jobs Program Records from Iowa Economic Development Authority

**Figure 2. High Quality Jobs Program Incentive Amount on Awarded Contracts by County, Award Years 2005-2016**



**HQJ Awards by County**



**Table 7. Claims of High Quality Jobs Tax Incentives by Tax Year, Tax Years 2005-2014**

Tax Year	Amount of ITC Applied in Current Tax Year	Share of ITC	Amount of Sales and Use Tax Refunds	Share of Sales and Use Tax Refunds	Amount of SRAC Claims	Share of SRAC	Total Claimed HQJ Incentives
2006	\$0	0.0%	\$0	0.0%	\$1,964,602	100.0%	\$1,964,602
2007	\$4,967,463	41.0%	\$1,518,921	12.5%	\$5,631,457	46.5%	\$12,117,841
2008	\$3,447,670	27.9%	\$2,583,764	20.9%	\$6,309,683	51.1%	\$12,341,117
2009	\$6,816,686	38.9%	\$5,112,417	29.2%	\$5,576,528	31.9%	\$17,505,631
2010	\$5,843,925	41.9%	\$3,931,209	28.2%	\$4,167,015	29.9%	\$13,942,149
2011	\$14,190,898	60.0%	\$1,437,846	6.1%	\$8,034,540	34.0%	\$23,663,284
2012	\$9,806,648	39.6%	\$13,857,794	56.0%	\$1,086,503	4.4%	\$24,750,945
2013	\$17,799,765	67.3%	\$7,530,037	28.5%	\$1,123,260	4.2%	\$26,453,062
2014*	\$14,220,740	65.5%	\$3,083,508	14.2%	\$4,416,574	20.3%	\$21,720,822
Total	\$77,093,795	49.9%	\$39,055,496	25.3%	\$38,310,162	24.8%	\$154,459,453

\*Tax year 2014 is incomplete

Source: IA 148 Tax Credit Schedule information from Iowa Department of Revenue

**Table 8. Claims of High Quality Jobs Tax Incentives by Tax Type, Tax Years 2005-2014**

Tax Type	Amount of ITC Applied in Current Tax Year	Distribution of ITC Claims	Sales and Use Tax Refunds	Distribution of Sales and Use Tax Refunds	SRAC Claims	Distribution of SRAC Claims	Total HQJ Claims	Distribution of Total HQJ Claims
Individual Income Tax	\$19,855,537	25.8%	\$0	0.0%	\$2,234,126	5.8%	\$22,089,663	14.3%
Corporation Income Tax	\$55,914,994	72.5%	\$0	0.0%	\$36,076,036	94.2%	\$91,991,030	59.6%
Sales and Use Tax	\$0	0.0%	\$39,055,496	100.0%	\$0	0.0%	\$39,055,496	25.3%
Franchise Tax and Insurance Premium Tax	\$1,323,264	1.7%	\$0	0.0%	\$0	0.0%	\$1,323,264	0.9%
Total	\$77,093,795	100.0%	\$39,055,496	100.0%	\$38,310,162	100.0%	\$154,459,453	100.0%

Source: IA 148 Tax Credit Schedule information from Iowa Department of Revenue

**Table 9. Claims of High Quality Jobs Tax Incentives by Industry Receiving the Award, Tax Years 2005-2014**

Industry	Amount of ITC Applied in Current Tax Year	Distribution of ITC	Share of ITC	Amount of Sales and Use Tax Refunds	Distribution of Sales and Use Tax Refunds	Share of Sales and Use Tax Refunds	Amount of SRAC Claims	Distribution of SRAC	Share of SRAC	Total Claimed HQJ Incentives
Manufacturing	\$63,553,625	82.4%	58.7%	\$15,377,736	39.2%	14.2%	\$29,288,498	76.5%	27.1%	\$108,219,859
Information	\$3,709,168	4.8%	18.0%	\$16,920,784	43.1%	81.9%	\$25,927	0.1%	0.1%	\$20,655,879
Wholesale Trade	\$1,451,404	1.9%	27.4%	\$1,100,207	2.8%	20.8%	\$2,744,760	7.2%	51.8%	\$5,296,371
Professional, Scientific, and Technical Services	\$489,700	0.6%	16.3%	\$428,012	1.1%	14.3%	\$2,084,945	5.4%	69.4%	\$3,002,657
Finance and Insurance	\$1,415,322	1.8%	31.0%	\$3,156,994	8.0%	69.0%	\$0	0.0%	0.0%	\$4,572,316
All Other Industries	\$6,474,576	8.4%	50.2%	\$2,247,890	5.7%	17.4%	\$4,166,032	10.9%	32.3%	\$12,888,498
Total	\$77,093,795	100.0%	49.9%	\$39,231,623	100.0%	25.4%	\$38,310,162	100.0%	24.8%	\$154,635,580

Source: IA 148 Tax Credit Schedule information from Iowa Department of Revenue and High Quality Jobs Program Award file from Iowa Economic Development Authority

**Table 10. High Quality Jobs Program Incentives on Approved Contracts and Cancelled Contracts, Award Years 2005-2015**

Award Year	Total Approved HQJ Incentives	Cancelled HQJ Awards Before Certificate Issued	Cancelled HQJ Awards After Certificate Issued	Total Valid HQJ Incentives	Total Valid HQJ Incentives Adjusted for Partial Default	Share of Invalid HQJ Incentives
2005 and 2006	\$178,039,016	\$66,304,623	\$23,825,569	\$87,908,824	\$85,338,048	52.1%
2007	\$254,064,313	\$140,145,262	\$61,503,746	\$52,415,305	\$50,019,610	80.3%
2008	\$71,576,046	\$39,034,336	\$11,251,821	\$21,289,889	\$20,930,690	70.8%
2009	\$7,808,230	\$4,948,173	\$259,098	\$2,600,959	\$2,600,959	66.7%
2010	\$39,940,353	\$3,759,740	\$51,400	\$36,129,213	\$36,129,213	9.5%
2011	\$48,914,933	\$8,825,161	\$573,000	\$39,516,772	\$39,516,772	19.2%
2012	\$204,789,405	\$5,196,081	\$5,842,635	\$193,750,689	\$193,750,689	5.4%
2013	\$81,021,544	\$3,507,000	\$1,286,500	\$76,228,044	\$76,228,044	5.9%
2014	\$52,055,676	\$2,209,523	\$0	\$49,846,153	\$49,846,153	4.2%
2015	\$113,591,410	\$16,365,200	\$0	\$97,226,210	\$97,226,210	14.4%
Total	\$1,051,800,926	\$290,295,099	\$104,593,769	\$656,912,058	\$651,586,388	38.1%

Source: High Quality Jobs Program Award file from Iowa Economic Development Authority

**Table 11. High Quality Jobs Program Incentives on Awarded Contracts and Claims, Award Years 2005-2010**

Award Year	HQJ Incentives Adjusted for Partial Default	HQJ Tax Incentive Claims	Share of Claimed Tax Credits	ITC Claims	Share of ITC Claims to ITC Awards	ITC Carry Forward	Share of ITC Carry Forward to ITC Awards	Sales and Use Tax Refunds	Share of Actual Refunds to Sales and Use Tax Refund Awards	SRAC Claims	Share of SRAC Claims to SRAC Awards
2005 and 2006	\$85,338,048	\$44,155,118	51.7%	\$32,145,115	48.8%	\$4,672,138	7.1%	\$4,044,918	31.4%	\$7,965,085	86.7%
2007	\$50,019,610	\$32,517,322	65.0%	\$14,007,153	49.6%	\$1,305,602	4.6%	\$5,479,830	59.3%	\$13,030,339	88.8%
2008	\$20,930,690	\$17,099,748	81.7%	\$8,662,283	79.9%	\$1,807,580	16.7%	\$3,759,700	77.3%	\$4,677,765	95.6%
2009	\$2,600,959	\$1,248,663	48.0%	\$894,520	64.5%	\$135,503	9.8%	\$327,982	29.9%	\$26,161	22.0%
2010	\$36,129,213	\$20,346,005	56.3%	\$9,377,475	60.0%	\$1,141,490	7.3%	\$605,688	17.6%	\$10,049,963	68.7%
Total	\$195,018,520	\$115,366,855	59.2%	\$65,086,546	53.4%	\$9,062,313	7.4%	\$14,218,117	45.1%	\$35,749,313	82.2%

Source: IA 148 Tax Credit Schedule information from Iowa Department of Revenue and High Quality Jobs Program Award file from Iowa Economic Development Authority

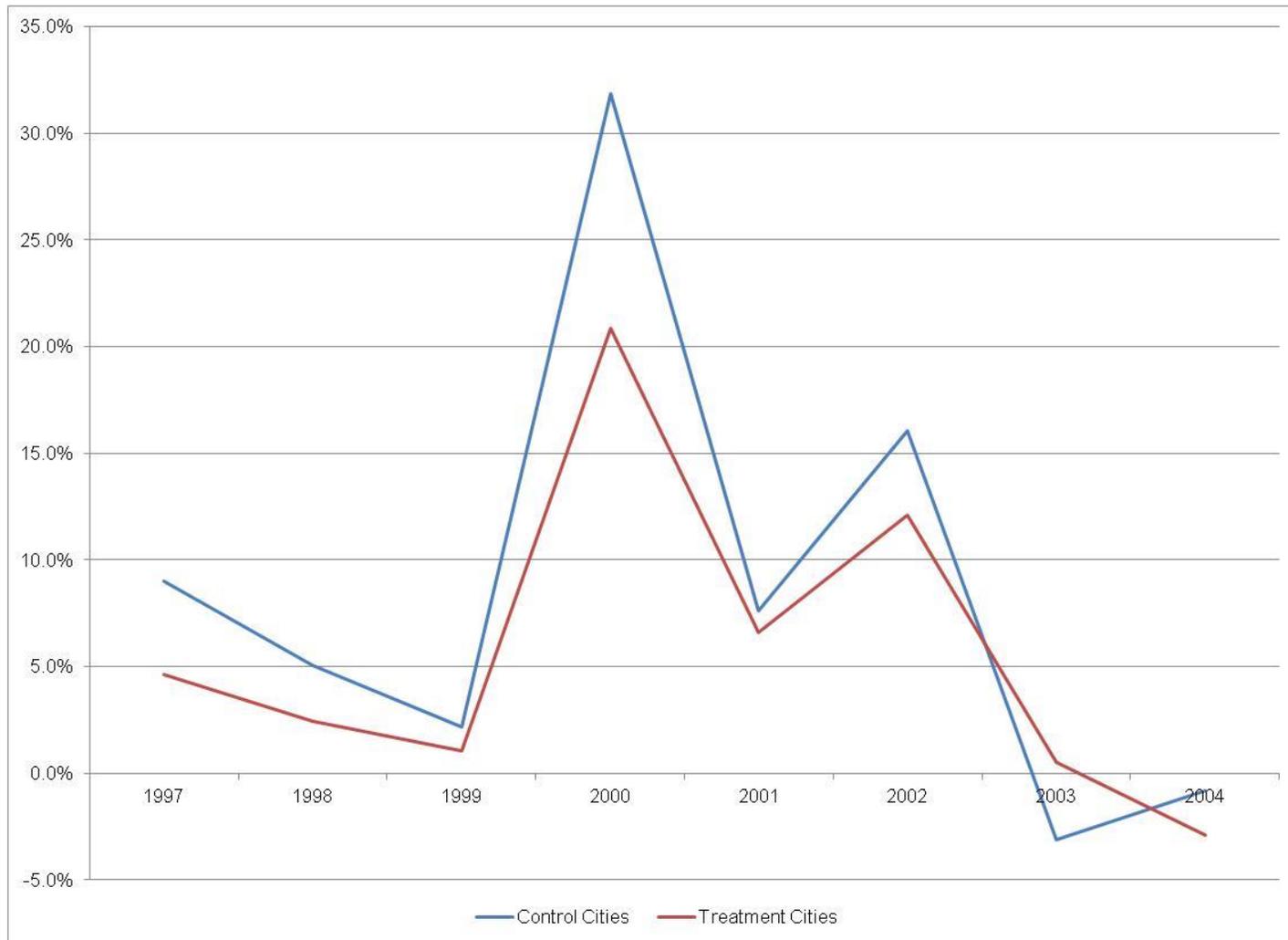
**Table 12. Summary Statistics of Cities in Treatment Group and Control Group**

Treatment Group					Control Group				
City	County	2000 Census Population	2002 Employment	2002 Average Wage	City	County	2000 Census Population	2002 Employment	2002 Average Wage
Burlington	Des Moines	26,839	12,504	\$29,216	Atlantic	Cass	7,257	4,631	\$23,190
Charles City	Floyd	7,812	4,512	\$24,700	Bancroft	Kossuth	808	388	\$20,855
Cherokee	Cherokee	5,369	3,142	\$34,959	Belle Plaine	Benton	2,878	1,096	\$24,644
Crawfordsville	Washington	295	125	\$12,778	Carter Lake	Pottawattamie	3,248	923	\$23,707
Denver	Bremer	1,627	694	\$26,792	Cascade	Dubuque	1,958	1,381	\$27,702
Durant	Cedar	1,677	879	\$17,364	Centerville	Appanoose	5,924	4,318	\$21,831
Fairfield	Jefferson	9,509	6,331	\$27,216	Clarksville	Butler	1,441	341	\$16,827
Fort Madison	Lee	10,715	6,570	\$24,405	Clear Lake	Cerro Gordo	8,161	3,925	\$24,802
Grand Junction	Greene	964	206	\$22,323	Colfax	Jasper	2,223	570	\$17,981
Indianola	Warren	12,998	5,383	\$23,497	Elkader	Clayton	1,465	1,622	\$30,056
Keokuk	Lee	11,427	6,889	\$29,696	Glidden	Carroll	1,253	294	\$23,918
Lawton	Woodbury	697	314	\$20,973	Lake Park	Dickinson	1,023	369	\$20,587
Lone Tree	Johnson	1,151	365	\$15,034	Lime Springs	Howard	496	152	\$19,343
Mason City	Cerro Gordo	29,172	16,351	\$39,831	Marshalltown	Marshall	26,009	17,367	\$28,358
Merrill	Plymouth	754	249	\$12,709	Milford	Dickinson	2,474	1,780	\$22,614
Muscatine	Muscatine	22,697	15,667	\$43,978	Monona	Clayton	1,550	788	\$19,953
New Hampton	Chickasaw	3,692	3,284	\$20,992	Norway	Benton	601	548	\$23,464
Shell Rock	Butler	1,298	885	\$13,929	Oelwein	Fayette	6,692	3,047	\$20,588
Shenandoah	Page	5,546	3,296	\$30,063	Ottumwa	Wapello	24,998	14,848	\$25,795
Superior	Dickinson	142	94	\$14,481	Tama	Tama	2,731	2,280	\$24,482
Washington	Washington	7,047	4,349	\$22,740	Thompson	Winnebago	596	271	\$23,790
West Branch	Cedar	2,188	1,797	\$14,927	Tipton	Cedar	3,155	1,855	\$18,595
West Burlington	Des Moines	3,161	5,422	\$29,267	Urbana	Benton	1,019	256	\$21,517
Average		7,251	4,318	\$23,994			4,694	2,741	\$22,809
Standard Deviation		8,504	4,795				6,931	4,443	
Average Share of Employment to Population			59.5%					58.4%	
Standard Deviation			29.0%					23.6%	

Source: U.S. Census Bureau, Bureau of Labor Statistics

Note: Average wage is measured across all workers, including both full-time and part-time workers

**Figure 3. Average Employment Growth Rates of Treatment Cities and Control Cities, 1997-2004**



**Table 13. Regression Estimates of High Quality Jobs Program Effects on City Economies**

		Annual Employment Growth Rate	Annual Total Wage Growth Rate
Equation (4)	HQJ	0.02591*** (0.004897)	0.03417*** (0.006707)
Equation (6)	HQJ	-0.07447** (0.03113)	-0.04147 (0.03891)
	HQJ*Credit	0.007512** (0.002302)	0.005661* (0.002873)
Equation (6)	HQJ	-0.1462** (0.04619)	-0.07631 (0.05737)
	HQJ*Investment	0.01021*** (0.002724)	0.006550* (0.003380)
Equation (6)	HQJ	0.01102* (0.006255)	0.02133*** (0.008198)
	HQJ*Job	0.000569*** (0.00156)	0.000491** (0.000199)

\* The estimated coefficient is significant at the 10% level.

\*\* The estimated coefficient is significant at the 5% level.

\*\*\* The estimated coefficient is significant at the 1% level.

