



Fiscal Impact Analysis of the Ad Astra Rural Jobs Act



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Executive Summary

The Ad Astra Rural Jobs Act (AARJA) is designed to attract capital investment to businesses located in rural areas of Kansas to both retain and create jobs. The act targets businesses in rural areas, in specific sectors, with fewer than 500 employees and less than \$15 million in federal adjusted gross income. The act also requires a “revenue impact assessment” to project new tax revenue generated by participating firms’ fund strategy.

The analysis presented here attempts to estimate the revenue impact of the entire program. This study uses a Kansas-specific IMPLAN model and includes the latest data on industry interactions within the state, as well as commuting patterns and other demographic information. In fact, two models were built – one for the 99 counties included as “rural” Kansas, and one for the 6 counties that are classified as “urban.” The two models were linked so that while the direct economic activity was modeled in the rural model, the indirect and induced economic activity in all areas of the state could be captured.

Since there is no way to know in exactly which industries the investments will be made by participating firms, this study uses a sample of investments made in other states, in qualifying companies that participated in similar tax credit programs. The final dataset included 86 companies. The financial and employment information on these companies was provided by three investment firms that have participated in similar tax credit programs in other states. These are actual rural businesses (in other states), that meet the requirements of the act, and have received investments under similar tax credit programs.

Investments of \$166.7 million in these 86 companies resulted in the creation of approximately 975 jobs, and another 637 retained jobs. These jobs were put into the IMPLAN model which showed that for every job created or retained in these industries, an additional 1.31 jobs are supported in other sectors of the state’s economy. The average wage for these initial jobs is approximately \$51K. This is just under the average wage for the state, but significantly higher than the average wage for rural Kansas.

The model further estimates that, once all of the investments have been made, the resulting economic activity would generate more than \$25 million in state and local tax revenue annually over the 10-year period. Of that amount, 54 percent would accrue to the state while the remaining 46 percent would accrue to local governments in Kansas.

Given the structure of the state credit, and the timing of these investments, the estimated return ratio of the credit is 2.11 after 10 years. If only state revenues are considered, the ratio drops to 1.13 after 10 years.

Introduction

The purpose of the Ad Astra Rural Jobs Act(AARJA) is to attract capital investment to businesses located in rural areas of Kansas in order to retain existing jobs; create new jobs within existing businesses; and attract new business and industry from outside the state to rural areas of Kansas. The act targets rural areas in Kansas by requiring that investment be made in companies that have their principal place of business¹ in areas that are “not within a city with a population greater than 60,000 or within the urbanized area contiguous and adjacent to the city.”² In addition, at the time of the initial investment, the businesses must have fewer than 500 employees and less than \$15 million in federal adjusted gross income. Further, the act targets industries in sectors such as manufacturing, plant sciences, technology, or agricultural technology.³

The act also requires a “revenue impact assessment” which, according to the definition of the act, is to project state and local tax revenue generated by participating firms’ fund strategy over a 10-year period. This assessment is to be made by “a nationally recognized third-party independent economic forecasting firm.”⁴

The analysis presented here does not assess the impact of any one firm’s fund strategy. Rather, it attempts to estimate the revenue impact of the entire AARJA program. The methodology presented here has been used in several other states for similar tax credit programs, and is widely accepted as a way to conduct an ex ante analysis of the estimated revenue impacts from tax credits such as those proposed under the AARJA.

¹ Principal place of business is defined as having at least 60 percent of the company’s employees or 60 percent of the company’s payroll located in rural Kansas.

² http://www.kslegislature.org/li/b2017_18/measures/documents/hb2168_02_0000.pdf

³ *Ibid.*

⁴ *Ibid.*

Methodology

Economic Base Theory

The foundation of this analysis is economic base theory which states that economic growth occurs when there is an increase in the flow of money into an area through the export of goods and/or services. This “direct” impact is commonly measured in terms of the number of jobs and/or amount of income the activity represents, and can also be measured in terms of contribution to GDP (“value added”) or total output⁵. However, the “direct” activity is just the beginning. The money that flows into the region is used by companies to purchase goods and services, and to the extent that those goods and services are purchased locally, they represent an increase in local employment and income, and therefore, have additional economic impact. Finally, the extent to which employees spend their income locally also generates an additional increase in local employment and income. The sum of these three represents the “total” economic impact of the economic activity under review.

When looking at economic impact, it is important to note that only *new* economic activity should be considered. For example, an existing company with 10 employees that is able to add 5 more employees and double sales as a result of an investment already had some economic impact in the state. For purposes of estimating the economic impact of the investment, only the 5 additional jobs, and the additional sales should be considered. An exception to this would be if the company was at risk of losing jobs without the investment. In that case, it is legitimate to include retained jobs and the new employees, as well as all the associated sales and wages.

IMPLAN Model

The process described above is simulated using an input-output model of the economy under consideration, which in this case, is the State of Kansas. Specifically, the economic impact analysis was conducted using the nationally recognized model, IMPLAN, developed by the Minnesota IMPLAN Group. IMPLAN is an input-output model configurable for any state, multi-county region, or even a single county. For this analysis, an IMPLAN model was built for rural Kansas using 2016 data⁶ on industry interactions within the state, as well as commuting patterns and other demographic information.

⁵ See Appendix A for the definitions of terms.

⁶ 2016 is the latest data available for the IMPLAN model.

Again, according to the bill, the direct economic activity must occur in rural areas that are “not within a city with a population greater than 60,000 or within the urbanized area contiguous and adjacent to the city.”⁷ Unfortunately, economic data is largely unavailable at a sub-county level. Therefore, the research team used a slightly more conservative definition for “rural” Kansas based on population density classifications developed by the Kansas Department of Health and Environment (KDHE). KDHE classifies counties in the state using the following system:

- “Frontier” – less than 6.0 persons per square mile
- “Rural” – between 6.0 and 19.9 persons per square mile
- “Densely-settled Rural” – between 20.0 and 39.9 persons per square mile
- “Semi-Urban” – between 40.0 and 149.9 persons per square mile
- “Urban” – more than 150.0 persons per square mile

The Institute for Policy & Social Research at the University of Kansas developed a map of these classifications and it is included below (Figure 1).⁸ Using these classifications and the requirements of the bill, researchers limited the IMPLAN model to those counties that were included in the “Frontier”, “Rural”, “Densely-settled Rural”, and “Semi-Urban” categories. These four categories include 99 of the 105 counties in the state, but combined represent only 43.7 percent of the population, 38.0 percent of total personal income, and 34.3 percent of the state’s gross product. In general, the counties that are excluded from the rural model are those in and around Kansas City, Topeka, and Wichita.

The direct activity described below was then used as the input into this rural model. However, there are obviously economic linkages between rural Kansas and the more urban parts of the state. Therefore, the remaining 6 counties were combined into an “urban Kansas” IMPLAN model and linked to the rural model to capture any indirect and induced economic activity that might occur in urban Kansas as a result of the new direct economic activity in rural Kansas. The results of this multi-regional input-output analysis (MRIO) are presented below.

⁷ http://www.kslegislature.org/li/b2017_18/measures/documents/hb2168_02_0000.pdf

⁸ <http://www.ipsr.ku.edu/ksdata/ksah/population/popden2.pdf>

Dataset

Unfortunately, there is no way to know in exactly which industries these investments will be made. Therefore, the next best sample would be that of investments made in other states, in qualifying companies that participated in similar tax credit programs. To simulate the economic and fiscal impact of the AARJA researchers needed a sample that included businesses that:

1. have fewer than 500 employees
2. are in the targeted sectors of manufacturing, plant sciences, technology, or agricultural technology
3. are located in rural areas

The dataset included 87 companies that met these criteria. However, if a company in the portfolio was in an industry that does not currently exist in rural Kansas, and there is no industry even similar in scope in rural Kansas, then they were excluded from the dataset. Of the 87 companies, only 1 was excluded for this reason⁹, leaving 86 companies in the final dataset. The information on these companies was provided by three investment firms that have participated in similar tax credit programs in other states. Again, these are actual rural businesses (in other states), that meet the requirements of the AARJA, and that have received investments under similar tax credit programs. The dataset included the name of the company, the industry, the initial level of employment, the number of jobs created due to the investment, the amount of the investment, and the most recent number of jobs. The large majority of both investments and new jobs created were in manufacturing.

Combined, these companies received \$455.9 million in qualified investments. Because the AARJA limits total investment to \$166.7 million, the entire dataset was scaled down proportionally to levels that would equate to \$166.7 million of investment. For example, the analysis of the dataset showed that the \$455.9 million of investment led to the creation of just over 2,675 new jobs. However, scaling that investment down to \$166.7 million results in approximately 975 new jobs created in these companies.

The AARJA allows for the consideration of both new and retained jobs. Unfortunately, the dataset didn't have a lot of useful information on retained jobs. For example, if a

⁹ This company was engaged in seafood processing and packaging. This industry, nor anything structurally similar, exists in rural Kansas.

company employed 42 people before the investment, and 58 after, the 16 new jobs related to the investment can easily be included in this analysis, but we don't know how many of the original 42 jobs were retained because of the investment. In this case, for companies that created jobs, to be conservative it was assumed that zero jobs were retained and only the new jobs were considered and simulated in the IMPLAN model. Of the 86 companies in the dataset, 48 of them fell into this category.

However, if the company employed 42 people before the investment, but had only 25 jobs as of the latest reporting, then for purposes of this analysis, it was assumed that, while some jobs were lost, the remaining 25 jobs were retained because of the investment. Of the remaining 38 companies in the dataset, 31 fell into this category. Most of those had fewer jobs as of the last reporting than they did at the time of the investment. These are the jobs that have been retained since the investment.

The final 7 companies had zero jobs as of the final reporting. However, the investments in these companies were still included as part of the total investment allocation. Obviously, it would be inappropriate to cherry pick only those investments that were successful in creating or retaining jobs.

Using these criteria and the data provided on the 86 companies, \$166.7 million of investment in these companies would have represented 975 new jobs, and 637 retained jobs. These jobs were used in the previously mentioned IMPLAN model for rural Kansas. In other words, researchers simulated the economic and fiscal impact of these investments as if they had occurred in rural Kansas. Given the nature of the companies and the requirements of the act, this was the best way to estimate what the economic and fiscal impact of the AARJA will be on the state's economy.

Analysis Results

Economic Impact

The results of the analysis show that for every new direct job created in these industries, an additional 1.31 jobs are generated in other sectors of the Kansas economy. For example, 100 new jobs in rural Kansas distributed across the industries in the dataset, would result in 131 indirect and induced jobs across the state (Table 1).

Table 1: Impact of 100 Jobs In the Dataset Industries

	Employment	Income*	Value Added*	Output*
Direct	100	5,110.9	8,551.3	47,935.4
Indirect/Induced	131	5,729.9	9,620.0	21,173.0
Total	231	10,830.8	18,171.4	69,108.4
<i>Multiplier</i>	2.3	2.1	2.1	1.4

*Income, value added, and output are in thousands of dollars. Totals may not add due to rounding.

Using the Multi-Regional Input-Output (MRIO) model, we know that of those 131 indirect and induced jobs, 109 will be in rural Kansas, while only 22 will be in the urban areas. Overall, while 100 percent of the direct jobs must be in rural Kansas, about 91 percent of the total job creation is estimated to occur in rural portions of the state. Further, the average wage for these direct jobs is nearly \$51,000. This is just under the average wage for the state, but significantly higher than the average wage for rural Kansas.

Fiscal Impact Analysis

The MRIO rural Kansas IMPLAN model estimates that the direct, indirect, and induced economic activity resulting from these investments would generate nearly \$25 million in state and local tax revenue annually. Under House Bill 2168 (AARJA), the “revenue impact assessment” should include both “state and local tax revenue.”¹⁰ However, given that the credit is a credit against state tax liability, this analysis will consider state and local revenue combined, as well as state revenue alone.

¹⁰ http://www.kslegislature.org/li/b2017_18/measures/documents/hb2168_02_0000.pdf

The IMPLAN model estimates state and local tax revenue as a combined number. Using data from the U.S. Census Bureau's *Annual Survey of State and Local Finances*, researchers estimate that of the \$24.7 million in annual state and local tax revenue, 53.8 percent of the total revenue impact accrues to the state in the form of sales taxes, income taxes, and other miscellaneous taxes and revenues. The remaining 46.2 percent accrues to local governments across the state, primarily in the form of property taxes. The new property taxes are driven by investment in commercial real and personal property (e.g., new buildings, manufacturing equipment, etc.) as well as new household formation that results from job growth.

Under the AARJA, there is a 24-month delay before the credit of 12 percent (or \$20 million for the entire program) can be taken for five consecutive years, and all the investments must be made within those 24 months. Since there is no way to know how quickly those investments will be made, this analysis assumes that 50 percent will be invested in year 1 and 50 percent will be invested in year 2. The analysis also assumes that most of the expected new job creation will occur within 12 months of the investment. Finally, this analysis assumes that there will be no new tax revenues from these investments until the year *AFTER* they are made. This is because investments can be made either early or late in the year. Delaying any tax benefits until the following year introduces another conservative bias to the analysis. Under all these assumptions, the estimated return ratio of the credit is 2.11 after 10 years. If only state revenues are considered, the ratio drops to 1.13 after 10 years (Table 2).

Because the stream of new revenues extends longer than the tax credits, it is appropriate to consider the present value of both the stream of tax credits and the stream of new tax revenues. Using a discount rate of 3 percent¹¹, the anticipated return ratio of the program under the above assumptions is still 2.06 over a 10-year horizon; 1.11 if only state revenues are considered.

¹¹ The discount rate represents the opportunity cost of capital, that is, it is the interest lost by receiving funds in the future rather than in the present. A true opportunity cost of capital for a government would be bracketed by the interest that must be paid on current debt and the interest that could be earned in the appropriate investment funds market. Because inflation is not included in the analysis, we should subtract the inflation rate from the discount rate calculated as described above. Given the current interest rate environment, however, that would result in a discount rate of nearly zero. In order to be conservative in the analysis, a discount rate slightly higher than the inflation rate was chosen.

Table 2: AARJA Return Ratio

(Millions of Dollars)

	State and Local Revenue Combined			State Revenue Only		
	Credit	New Revenue*	Return Ratio	Credit	New Revenue*	Return Ratio
Year 1	\$0.00	\$0.00	~~	\$0.00	\$0.00	~~
Year 2	\$0.00	\$12.39	~~	\$0.00	\$6.67	~~
Year 3	\$10.00	\$24.78	3.72	\$10.00	\$13.33	2.00
Year 4	\$20.00	\$24.78	2.06	\$20.00	\$13.33	1.11
Year 5	\$20.00	\$24.78	1.73	\$20.00	\$13.33	0.93
Year 6	\$20.00	\$24.78	1.59	\$20.00	\$13.33	0.86
Year 7	\$20.00	\$24.78	1.51	\$20.00	\$13.33	0.81
Year 8	\$10.00	\$24.78	1.61	\$10.00	\$13.33	0.87
Year 9	\$0.00	\$24.78	1.86	\$0.00	\$13.33	1.00
Year 10	\$0.00	\$24.78	2.11	\$0.00	\$13.33	1.13
Total	\$100.00	\$210.62	2.11	\$100.00	\$113.33	1.13
PV @ 3%	\$85.08	\$175.63	2.06	\$85.08	\$94.51	1.11

* The analysis is done real dollars and as such, the effect of inflation is ignored.

Appendix A

Definitions

Direct Impacts. The initial economic activity that results from changes in production or expenditures by producers and/or consumers.

Indirect Impacts. The economic activity that results from local industries buying goods and services from other local industries. This cycle of spending continues until all the money leaks out from the regional economy.

Induced Impacts. The economic activity that results from the spending of employees' labor income. This cycle of household spending continues until all the money leaks out from the regional economy.

Economic Output. Final value of industry production. For manufacturing companies, output is sales plus/minus changes in inventory. For service sectors, output is equal to sales. For retail and wholesale trade companies, output equals gross margin, NOT gross sales.

Value Added. The difference between an industry's output and the cost of its intermediate inputs. This includes employee compensation, taxes on production, and gross operating surplus. This is the measure of the contribution to GDP made by the industry.

Wages/Income. All forms of employment income, including employee compensation and proprietor income. Employee compensation is the total payroll cost of the employee paid by the employer including wages and salary, all benefits (health, retirement, etc) and employer-paid payroll taxes (social security, unemployment, etc). Proprietor income consists of payments received by self-employed individuals and unincorporated business owners, and includes the capital consumption allowance.

Economic Impact Group, LLC.

The Economic Impact Group, LLC. (EIG) specializes in economic and fiscal analysis supporting local economic development. Founded in 2002 by two Georgia Tech economists, the company helps clients in both the public and private sectors understand how development and incentives impact the local economy and the fiscal situation of state and local governments.

Dr. Alfie Meek is the President and Principal Economist at EIG, and is also the Director of the Center for Economic Development Research, a research unit within the Enterprise Innovation Institute at the Georgia Institute of Technology (cedr.gatech.edu). Dr. Meek has more than 25 years of experience in economic/fiscal analysis and community-based research, nearly half of which have been with Georgia Tech. He has also served as the Chief Economist and Director of Economic Development for the Gwinnett County Board of Commissioners, as well as the Director of Research for the Small Business Development Center at the University of Georgia.

EIG is also the owner and licensor of the LOCI™ fiscal model, the nationally recognized gold standard in fiscal impact analysis software. Licensed by dozens of communities across the country, LOCI™ helps communities understand the full cost to local governments of development and development incentives. LOCI™ uses information specific to a community, including commuting patterns, service delivery, tax digest, cost structure, and depreciation schedules, to estimate the change in revenues and expenditures due to expansion in households that accompany economic development growth. Current LOCI™ users include cities ranging from Los Angeles, California to Austin, Texas to South Bend, Indiana. And not only cities, but local economic development authorities from InvestAtlanta in Georgia to the Sioux Falls Development Authority in South Dakota utilize the LOCI™ model to give them a strategic advantage when negotiating with economic development prospects.

For more information about EIG visit www.economicimpact.com.

For more information about the LOCI™ fiscal model visit www.lociapp.com.

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