

Preparing for the Future in Troup County, Georgia

● Assessment Report 2008



Business Development

Produced for Troup County and the
Cities of LaGrange, West Point, and Hogansville

PREPARING FOR THE FUTURE IN TROUP COUNTY, GEORGIA

Business Development Assessment

Produced for

Troup County and the Cities of LaGrange, West Point and Hogansville

Prepared by

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ABOUT THIS REPORT

In June 2007, leaders in Troup County and the cities of LaGrange, West Point, and Hogansville kicked off a two-year strategic planning initiative to create a framework for sustainable development. The goal of the effort is to develop innovative strategies for promoting quality growth, fostering healthy economic development, enhancing the quality of life of residents, and protecting Troup County's natural environment, sense of place, and community. Troup County leadership wants to preserve and enhance places for area residents and businesses by proactively, progressively and fairly directing the community's growth and development to shape its future.

Georgia Tech - through its Enterprise Innovation Institute and Center for Quality Growth and Regional Development - conducted research, assessments, and strategy development in support of this initiative. This report is one in a series of reports entitled *Preparing for the Future in Troup County, Georgia* produced by Georgia Tech.

OVERVIEW

Troup County borders Alabama on the west and lies just north of the Columbus metropolitan statistical area (MSA). The county is newly designated as a micropolitan statistical area due to its urban center in LaGrange. Interstate 85 runs through it, connecting the county to the Atlanta MSA only an hour away. Its proximity to Atlanta, Columbus, and even Auburn, Ala. offers business growth opportunities, but Troup's newest addition to its business sector, the Kia manufacturing facility, probably will have the most impact over the next decade.

Troup County is in transition. By landing Georgia's first automobile assembly plant in decades, it has embarked on a growth path that will transform the county and its surrounding region. Thousands of jobs at the Kia plant and thousands of additional jobs from Kia suppliers will add new workforce needs, new housing, and local government services to handle the influx of population. These jobs and new firms will have a large economic impact on the county and the region, offering a new set of business growth opportunities.

The goal of this report is to communicate the findings of an in-depth analysis of these business growth opportunities, whether through industrial recruitment or expansion of existing industry, or the development of start-up enterprises. This entails an assessment of the economic impact of the Kia plant and suppliers as well as an examination of existing opportunities in the region and in Troup County itself.

The stakeholder interviews reflected a desire to diversify Troup's economy and to find opportunities not necessarily tied to the Kia plant. Much of the analysis of this section is aimed at just that, but the Kia plant's impact will be substantial and offer its own set of opportunities.

The remainder of this report will focus on existing industries in Troup and the region defined in the next section. Gleaned from the findings, recommendations on the most promising business development opportunities appear in the last section.

ECONOMIC IMPACT OF THE KIA PLANT

When a new manufacturing plant the size of Kia locates in an area, it has a profound impact on the regional economy. Because Kia is an automobile manufacturer, it stipulates that its main suppliers must locate within a given distance from the plant. This adds even more impact to the regional economy.

The foundation of economic impact analysis is economic base theory, which says that economic growth occurs when there is an increase in the flow of money into an area through the export of goods and services (the Kia plant). The direct impact of that economic activity is commonly measured in terms of the number of jobs and amount of income the activity represents. However, the direct activity is just the beginning of total economic impact.

The money that flows into the region purchases materials and/or labor used to create the exported goods and services. Some of these are purchased locally, while others are purchased outside the region. To the extent that materials and/or labor are purchased locally, they represent an increase in local employment and income, and therefore have additional economic impact beyond the direct impacts. To the extent that material and/or labor are purchased outside the region, it is said to have leaked out of the regional economy and has no more economic impact. Inter-industry purchasing within the region represents the indirect impacts (Kia's purchasing from its suppliers, for example).

The third and final component of the economic impact results from the spending decisions by employees. Like the purchase of material inputs by firms, the employees spend some of their income locally and some leaks out of the region. Expenditures in the region generate an additional increase in local employment and income. These impacts represent the induced impact of the initial economic activity. The sum of all three impacts is referred to as the total impacts.

- **Direct impacts:** the revenue, payroll (income), and employment associated with the region's new economic activity. For example, when a new business locates in an area, the employees it hires, the payroll it pays to these employees, and its annual sales are all direct impacts.



- **Indirect impacts:** increases in output (business revenues), employment, and payroll of businesses in the study region due to inter-industry purchases. The purchasing by the facility representing the direct impacts begins the rounds of supply-chain purchasing.
- **Induced impacts:** increases in output (business revenues), employment, and payroll of businesses in the study region due to employee expenditures. The spending by the direct employees begins the rounds of expenditures by all the increases in payroll.
- **Total impacts:** sum of the direct, indirect, and induced impacts. The ratio of "total" to "direct" yields the economic multiplier.

The economic impact analysis was conducted using a well accepted model called IMPLAN¹. Also referred to as an input-output model, IMPLAN consists of over 500 industry sectors. It has become a nationwide industry standard for economic impact analysis.

In the discussion above, region refers to a multi-county area that defines the geographic area containing the estimates of economic impact (referred to as the “impact region”). This region shown in the map to the left, comprises three Alabama counties and six Georgia counties. These counties were chosen based on their linkages to each other defined by their commuting patterns. Commuting patterns from the U.S. Census Bureau show how many residents in each county work in another county and how many jobs in a county are held by residents of the county and by residents of other counties. Examination of those holding jobs in Troup County revealed that residents in the counties in the map each account for at least 1 percent of the jobs in Troup County.

It may be true that Coweta County is more tied to the Atlanta MSA, but that does not mean it will not experience some job growth from the Kia economic impact and that some of the Kia jobs will be held by folks who choose to reside in Coweta County.

Summary Profile of the Region

Of the nine counties in the impact region, Muscogee and Coweta counties in Georgia and Lee County in Alabama have the largest economies and population. Eight of the counties are either in a metropolitan statistical area or a micropolitan statistical area. Randolph County in Alabama is the lone county not in one of these statistical areas.

Table 1: Metropolitan and Micropolitan Statistical Area Designations

Coweta County, Ga.	Atlanta-Sandy Springs-Marietta, GA Metropolitan Statistical Area
Harris County, Ga.	Columbus, GA-AL Metropolitan Statistical Area
Heard County, Ga.	Atlanta-Sandy Springs-Marietta, GA Metropolitan Statistical Area
Meriwether County, Ga.	Atlanta-Sandy Springs-Marietta, GA Metropolitan Statistical Area
Muscogee County, Ga.	Columbus, GA-AL Metropolitan Statistical Area
Troup County, Ga.	LaGrange, GA Micropolitan Statistical Area
Chambers County, Ala.	Valley, AL Micropolitan Statistical Area
Lee County, Ala.	Auburn-Opelika, AL Metropolitan Statistical Area
Randolph County, Ala.	None

Table 2 shows total population and total jobs in each county in 2006. From these data it is clear that counties range widely in size – from a very small 11,472 in Heard to a much larger 188,660 in Muscogee. The last column shows the ratio of total jobs to total population in percentage terms. Counties that act as job centers tend to have larger ratios, as shown by the central MSA counties of Lee and Muscogee. Troup County has the second largest ratio, making it an important job center for the region even before the impacts of Kia occur.

¹ IMPLAN is a product of The Minnesota IMPLAN Group, Inc. (MIG). More on this model can be found at the company’s Web site: www.implan.com.

Table 2: Jobs and Population

County	2006 Population	2006 Total Jobs	Jobs to Pop %
Chambers, Ala.	35,176	10,195	29.0%
Lee, Ala.	125,781	48,694	38.7%
Randolph, Ala.	22,673	5,569	24.6%
Coweta, Ga.	115,291	31,119	27.0%
Harris, Ga.	28,785	3,990	13.9%
Heard, Ga.	11,472	2,304	20.1%
Meriwether, Ga.	22,881	4,872	21.3%
Muscogee, Ga.	188,660	97,935	51.9%
Troup, Ga.	63,245	31,572	49.9%
Regional Total	613,964	236,250	

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

Manufacturing jobs in the region are shown in Table 3, along with the percentage of total jobs represented by manufacturing. The largest manufacturing job shares are found in Chambers and Randolph counties, both in Alabama and both relatively small in total number of jobs and population. Small shares in Lee and Muscogee counties are not surprising as both are urban counties and would therefore have far more diverse economies with a much larger share of service and retail jobs. Troup County has the third largest share, indicating its relative manufacturing strength in the region.

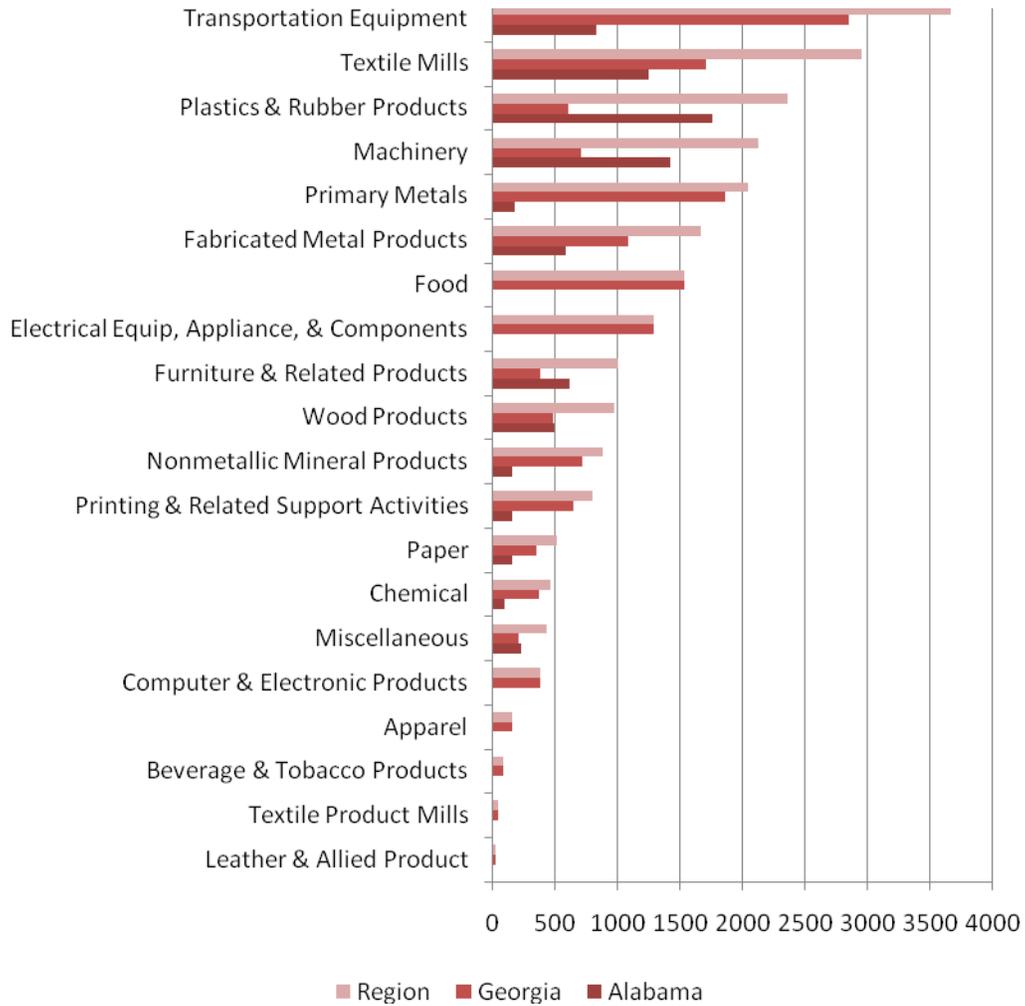
Table 3: Manufacturing Jobs and Percentage of Total Jobs

County	2006 Manufacturing Jobs	Percent of Total Jobs
Chambers, Ala.	3,381	33.2%
Lee, Ala.	7,416	15.2%
Randolph, Ala.	1,682	30.2%
Coweta, Ga.	4,702	15.1%
Harris, Ga.	185	4.6%
Heard, Ga.	428	18.6%
Meriwether, Ga.	700	14.4%
Muscogee, Ga.	9,458	9.7%
Troup, Ga.	7,099	22.5%
Regional Total	35,051	

Source: U.S. Bureau of Labor Statistics and Georgia Department of Labor

The region relies considerably on transportation equipment manufacturing even before Kia's figures are included. Figure 1 below shows a chart of 2006 manufacturing jobs by industry in the region, Alabama, and Georgia from largest to smallest, the latest year for which data is available. Data for Alabama is from the U.S. Bureau of Labor Statistics and some of it is suppressed for confidentiality reasons. Therefore, the Alabama figures may not be giving a complete picture of which industries are most important in the three-county Alabama portion of the region. However, the data for Georgia is not suppressed. Based on these figures, transportation equipment manufacturing accounts for the most jobs in the region, followed by textile mills, plastics and rubber products, and food manufacturing. For the six-county Georgia portion of the region, the primary metals industry comes in second. Plastics and rubber products top the list in the three-county Alabama region.

Figure 1: Jobs by Manufacturing Industry, 2006



Source: U.S. Bureau of Labor Statistics and the Georgia Department of Labor

Creating an IMPLAN Model for the Region

The project team received job estimates for the Kia plant and for its suppliers expected to locate in the region. Although the Kia job estimates were fairly well-established, the job estimates and final location of the suppliers are based on information as of the end of June 2008. Information obtained regarding suppliers was provided on a confidential basis and cannot be reported here, but information was obtained from several sources.

Because the IMPLAN model contains a “recipe” for automobile manufacturing based on the 1997 United States census of manufacturers, researchers could not use the supplier industry information without modifying the regional purchase coefficients in the model². Such modification was done so that all the supplier information could be used as direct impacts in the model.

Once the counties were determined for the region, an IMPLAN model was created for it. Using the Kia and in-region supplier job estimates as direct impacts, the regional model was used to estimate the total economic impact of the plant and its known regional suppliers. However, because the Kia plant’s jobs are phased in over several years, which also impacts when the supplier jobs are included, the impact model had to be run for each phase. There were four phases in this analysis corresponding to 2007, 2008, 2009, and 2010 (full operation year).

Construction impacts were also estimated, but these impacts are not permanent because once all construction is completed, the construction jobs are gone. Their impacts are transitory and their multiplier impacts cannot be included in the overall total impact, which is sustained over time. Consequently, the construction jobs enter the impact figures as direct impacts only. Construction jobs for this project are very large and therefore have a significant impact over the two years in which the Kia plant and the supplier facilities are constructed.

Allocating Impacts over Time and Counties

As explained above, an IMPLAN economic impact model was developed for the nine-county region and researchers estimated direct, induced, and indirect impacts for the region as a whole. Allocating these impacts to each county in the region is difficult because the true allocation depends on many factors that will only be known for certain once the Kia plant and the supplier facilities are constructed and have been running at capacity for several years. Adding to the complexity is the fact that the Kia plant and the supplier plants are not created at once; that is, there is a construction phase, a start-up phase, and a full operation phase.

Setting up the Phases

Information available at the time this analysis was conducted contained a considerable number of gaps regarding the level and type of activities undertaken by Kia and its suppliers in each of the construction and start-up years. Where such gaps exist, reasonable assumptions about the activities and how they are distributed over time were made based on available information. Some of these assumptions probably will prove, at least to some degree, inaccurate. However, it is also likely that the results of the economic impact analysis are not significantly compromised by any inaccuracies related to the timing of activities.

Phase I - 2007

The primary activity in 2007 is from construction of the Kia facility and various supplier facilities, but there is also some impact resulting from personnel brought into the region to oversee the construction and start-up process. Because the suppliers will need to have their production and distribution systems

² Regional purchase coefficients (RPCs) estimate the share of total purchases for a particular input that occurs from suppliers in the region for which the model is created.

up and running before Kia can begin its own start-up processes, it was assumed that the suppliers would complete 85 percent of their construction in 2007 (about \$104 million) while Kia completes 35 percent, or about \$56 million. An estimated 72 Kia employees were on-site in 2007 and an equal number of supplier employees were assumed. These employees, while not producing any output, nevertheless received salaries that were spent in the regional economy and thus had an impact.

Phase II - 2008

Construction continues to be the primary impact in 2008 with the completion of both the supplier network and the core facilities at Kia. According to available information, Kia expects to have 1,019 employees at its site in 2008. Furthermore, half (2,617) of the estimated total supplier jobs are assumed to be in place in the region, although no production is expected.

Phase III - 2009

Kia will likely not begin full operations until 2010, but the suppliers will need to be ready to begin their production and distribution processes to enable Kia to test and refine its production process. Therefore, it was assumed that all suppliers are operating during 2009 (employing 5,234) but Kia, although it has its full complement of employees (2,502), does not begin full operations. The impacts are therefore from two sources – the operations of the suppliers and the spending by Kia employees.

Phase IV - 2010

Both suppliers and Kia are assumed to be in full production in 2010. This represents the final phase of the project, and its impacts are assumed to remain constant throughout the remainder of the planning horizon.

Allocation of Impacts to Counties

Direct jobs were allocated based on where the plants are located. All Kia jobs were allocated to Troup County because the plant is situated there. Each supplier was allocated to a county if it had announced its location decision. The spending by these employees was then allocated according to commuting patterns that estimates where these employees are most likely to live. The allocation of direct jobs to counties is shown in Table 4 below.

Table 4: Distribution of Direct Jobs to Counties - Kia and Suppliers

County	Jobs
Chambers, Ala.	1,102
Lee, Ala.	370
Randolph, Ala.	0
Coweta, Ga.	0
Harris, Ga.	610
Heard, Ga.	0
Meriwether, Ga.	300
Muscogee, Ga.	350
Troup, Ga.	5,005
Regional Total	7,736

Source: Georgia Department of Economic Development

The numbers in Table 4 do not show how many residents of each county hold these jobs. To arrive at that, commuting patterns must be taken into account. Because these are manufacturing jobs, the census commuting patterns data for manufacturing jobs was used to determine where those holding the jobs are likely to live. The fact that these data are now over seven years old adds a degree of uncertainty to the allocation of impacts.

Indirect and Induced jobs present more of an allocation problem. The induced impacts are created from the expenditure of workers payroll on everything from haircuts to groceries to appliances. Therefore, it is reasonable to assume that these expenditures will occur in each county proportional to the number of workers holding direct jobs who reside in each county. Indirect impacts result from inter-industry purchasing/selling, so indirect jobs were allocated proportionally to each county's share of industry employment in 2006.

Lastly, the induced and indirect jobs are not expected to all materialize in the same year as the direct jobs are created. Instead, these jobs are allocated over three years starting in the year in which the direct impacts are created.

Economic Impact Results

The following tables summarize the results from all of the steps described above. Table 5 shows job impacts for each county, which include construction, direct, and multiplier jobs. The job figures show cumulative jobs in each year. Although all new direct jobs stop after 2010 which is phase IV of the schedule, the indirect and induced jobs continue into 2012 due to our assumption of a three-year lag for all multiplier impacts to be completed.

Table 5: County-Level Impacts - Jobs (with construction impacts)

County	2007	2008	2009	2010	2011	2012
Chambers, Ala.	994	1,199	1,972	2,288	2,600	2,756
Lee, Ala.	470	594	1,168	1,764	2,368	2,733
Randolph, Ala.	178	238	359	459	551	603
Coweta, Ga.	105	145	288	556	829	998
Harris, Ga.	392	498	948	1,424	1,906	2,225
Heard, Ga.	206	473	956	1,491	1,918	2,127
Meriwether, Ga.	258	356	681	955	1,231	1,384
Muscogee, Ga.	464	518	995	1,441	1,895	2,159
Troup, Ga.	1,977	2,976	4,076	4,599	5,067	5,311
Regional Total	5,045	6,996	11,444	14,978	18,365	20,296

Source: Enterprise Innovation Institute analysis

Table 6: County-Level Impacts - Labor Compensation (with construction impacts)

County	2007	2008	2009	2010	2011	2012
Chambers, Ala.	\$36,189,340	\$69,162,893	\$92,208,209	\$135,740,627	\$142,888,419	\$149,860,190
Lee, Ala.	\$17,147,097	\$39,249,682	\$70,992,449	\$96,969,408	\$111,423,466	\$125,984,512
Randolph, Ala.	\$6,476,268	\$13,914,154	\$18,102,720	\$25,514,164	\$27,637,304	\$29,839,311
Coweta, Ga.	\$3,809,047	\$10,733,182	\$21,950,014	\$27,782,207	\$34,359,272	\$41,057,173
Harris, Ga.	\$14,150,319	\$31,335,212	\$53,688,078	\$75,914,223	\$87,801,830	\$100,795,908
Heard, Ga.	\$6,609,940	\$21,507,441	\$50,306,390	\$52,544,241	\$61,757,408	\$72,105,029
Meriwether, Ga.	\$9,476,435	\$23,760,714	\$40,673,899	\$54,690,366	\$61,006,422	\$67,095,440
Muscogee, Ga.	\$17,087,883	\$35,567,267	\$61,433,580	\$82,508,528	\$93,082,014	\$103,410,841
Troup, Ga.	\$72,379,147	\$173,106,011	\$186,332,427	\$281,552,970	\$292,065,928	\$303,067,029
Regional Total	\$183,325,476	\$418,336,555	\$595,687,766	\$833,216,733	\$912,022,063	\$993,215,434

Source: Enterprise Innovation Institute analysis

Table 7: County-Level Impacts - Output**Table 7: County Level Impacts - Output (with construction impacts)**

County	2007	2008	2009	2010	2011	2012
Chambers, Ala.	\$80,277,681	\$386,831,966	\$413,027,810	\$1,112,066,809	\$1,135,369,903	\$1,158,107,660
Lee, Ala.	\$39,474,971	\$287,855,729	\$239,116,960	\$607,004,493	\$653,916,685	\$701,188,145
Randolph, Ala.	\$14,474,923	\$81,541,102	\$72,130,871	\$189,352,820	\$196,258,369	\$203,424,962
Coweta, Ga.	\$9,294,023	\$94,136,166	\$54,335,145	\$124,956,234	\$146,283,243	\$168,007,656
Harris, Ga.	\$32,904,713	\$217,228,076	\$186,154,789	\$482,794,122	\$521,262,145	\$563,266,904
Heard, Ga.	\$18,273,836	\$99,463,294	\$114,461,049	\$228,129,090	\$258,206,312	\$291,978,917
Meriwether, Ga.	\$21,621,889	\$173,973,024	\$144,391,046	\$366,012,492	\$386,599,989	\$406,454,861
Muscogee, Ga.	\$38,694,216	\$270,494,991	\$212,400,908	\$536,111,398	\$570,527,576	\$604,155,272
Troup, Ga.	\$158,915,901	\$962,506,340	\$874,926,748	\$2,383,979,248	\$2,418,270,971	\$2,454,165,619
Regional Total	\$413,934,161	\$2,574,032,696	\$2,310,947,334	\$6,030,408,716	\$6,286,697,203	\$6,550,752,009

Source: Enterprise Innovation Institute analysis

Table 6 shows labor compensation for the jobs in Table 5. These values are estimates of the household income generated by these jobs based on the IMPLAN model's assumptions about average wages by county and by type of industry. Table 7 is an estimate of total output generated by all the new firms that result from the direct Kia and supplier jobs and the multiplier impacts from these direct jobs. All the values in Tables 5 through 7 are expected to be sustained indefinitely beyond 2012 at the levels shown in that year.

BUSINESS OPPORTUNITIES ANALYSIS FOR THE REGION

All of the economic impacts shown in the preceding section represent estimates of new economic activity for the region and for each county. The direct jobs are all new manufacturing jobs bringing new income and investment into the region. The multiplier jobs, income, and output (induced and indirect) are fairly accurate estimates of what should occur in the region given the large direct impacts. That means a certain number of new firms across a wide range of industries probably will be formed in the region.

The IMPLAN model provides a great deal of detail on how each of 500 industries is affected by the new direct impacts in the region. These can be aggregated into a smaller group of industries as shown in Table 8³ below. Although IMPLAN doesn't turn job estimates into number of establishments, that can easily be accomplished using current statistics on the average size of establishments – that is, average jobs per establishment. These statistics were used to turn the jobs into estimates of establishments by industry.

Table 8 shows that establishments should increase by about 1,407 across all industries shown in the table. The estimates in Table 8 are for total private-sector jobs and establishments, and correspond to full operation in 2012 with all multiplier impacts phased in. There are 138 fewer jobs in Table 8 than in Table 5 which represent IMPLAN's estimate of new public sector jobs. Those jobs are not considered as business opportunities for the region, so they were left out of Table 8.

Of the 1,407 establishments, only 39 are expected to be in manufacturing, but these include Kia and the suppliers included as direct impacts. A catchall of service industries labeled "Other Services" should see some 570 new firms due to the direct impacts. This category includes such things as automotive, mechanical and electrical repair and maintenance (290 firms), private households that hire persons to work on their premises (223), commercial and industrial repairs (8 firms), personal care services (14), and a variety of other service firms, some of which are charity-oriented. The average weekly wages column comes from IMPLAN and includes all labor compensation including benefits for the year 2006. Appendix A has a detailed list of industries that compose the aggregate industries shown in Table 8.

Opportunities to Expand Existing Industry

Knowing which industries to recruit to an area depends on a community's desires for the type of industry it wants to see locate and grow as well as what it can realistically attract. Often, what a community wants isn't feasible based on its resources and assets. Only a quantitative analysis can determine which industries make the most sense for a community to pursue. Furthermore, these job opportunities also should raise average income in the area and thereby increase the wealth of the community.

³ Some industries in the table show zero establishments with a few employees. This resulted from rounding up the number of establishments estimated from jobs per establishment and the jobs estimated from IMPLAN. A 0 means that the number of establishments estimated was less than 0.5. A smaller than average-sized establishment could be created in this case or existing establishments could grow slightly to accommodate the new demand.

Table 8: Estimated Total Establishments from the Economic Impact Analysis⁴

Industry Title	Estimated Jobs	Estimated Establishments	Average Weekly Wages (2006)
Agriculture, Forestry, Fishing, and Hunting	61	4	\$362.95
Mining	0	0	N/A
Utilities	100	2	\$1,583.28
Construction	102	13	\$724.47
Manufacturing			
Food Manufacturing	33	2	\$869.10
Textile Mills	20	0	\$930.19
Textile Product Mills	10	0	\$817.42
Apparel	14	0	\$352.33
Leather and Allied Product Manufacturing	2	0	\$487.50
Wood Product Manufacturing	26	1	\$794.22
Paper Manufacturing	5	0	\$1,314.08
Printing and Related Support Activities	19	0	\$855.68
Chemical Manufacturing	20	0	\$1,126.30
Plastics and Rubber Products Manufacturing	205	3	\$814.12
Nonmetallic Mineral Product Manufacturing	2	0	\$730.07
Primary Metal Manufacturing	11	0	\$1,099.47
Fabricated Metal Product Manufacturing	147	11	\$876.53
Machinery Manufacturing	85	0	\$1,036.86
Computer and Electronic Product Manufacturing	17	0	\$1,094.89
Electrical Equipment, Appliance, and Component Manufacturing	4	0	\$1,408.98
Transportation Equipment Manufacturing	7,221	20	\$1,385.86
Furniture and Related Product Manufacturing	15	1	\$798.18
Miscellaneous Manufacturing	13	1	\$958.91
Wholesale Trade	1,168	129	\$960.63
Transportation and Warehousing	1,615	98	\$909.03
Retail	1,373	112	\$491.21
Information Services	256	12	\$995.04
Finance and Insurance	521	30	\$1,057.19
Real Estate and Rental and Leasing	354	72	\$614.83
Professional, Scientific, Technical Services	857	129	\$919.99
Management of Companies and Enterprises	389	9	\$1,446.85
Administrative & Support & Waste Management & Remediation Services	985	52	\$373.02
Educational Services	130	8	\$385.34
Health Care and Social Assistance	1,060	56	\$805.21
Arts, Entertainment, Recreation	195	12	\$314.05
Accommodation and Food Services	1,175	60	\$290.00
Other Services	1,945	570	\$441.08
TOTAL	20,158	1,407	\$943.02

Source: IMPLAN model and Enterprise Innovation Institute analyses.

⁴ The 20 establishments in the transportation equipment manufacturing industry reflect Kia and its known suppliers (located in the region) at the time of this analysis.

This section reports on a quantitative analysis of business growth opportunities for Troup County. Existing industry in Troup County and in the region was examined to search for the best opportunities for further economic development. NAICS⁵-based county-level employment and wage data from the Georgia Department of Labor (GDOL) for the years 2001 through 2006 were used to conduct this analysis.

The first step in the process was to examine average weekly wages in the county to determine a feasible cutoff for defining “high-wage” industry. This cutoff was used to filter the analysis down to those industries having a higher average weekly wage, thus defining high-wage industry in the county.

Defining High-Wage Industry

The definition for high-wage industry is based on average weekly wage data from the Georgia Department of Labor (GDOL). These data correspond to jobs within the county that may or may not be filled by county residents. This employment definition is called “by place of work.” The data collected by GDOL is based on information each firm in the state must submit under the Employment Security Law. Firms submit these data quarterly, and GDOL creates county-level annual estimates of establishments, employment (jobs), and average weekly wages by industry category.

Table 9 shows total jobs, establishments, and average weekly wages in the private sector⁶ for Troup County in 2006. The high-wage cutoff was set at 10 percent above the county’s private-sector average weekly wage in 2006. All three-digit NAICS industries in the county were compared to the cutoff, and those industries above the cutoff were selected as the initial group of high-wage industries.

Table 9: Average Weekly Wage Cutoffs for High-Wage Definition

	Troup County
Establishments	1,470
Private-Sector Jobs	26,382
Average Weekly Wages	\$654
Cutoff for High-Wage	\$719

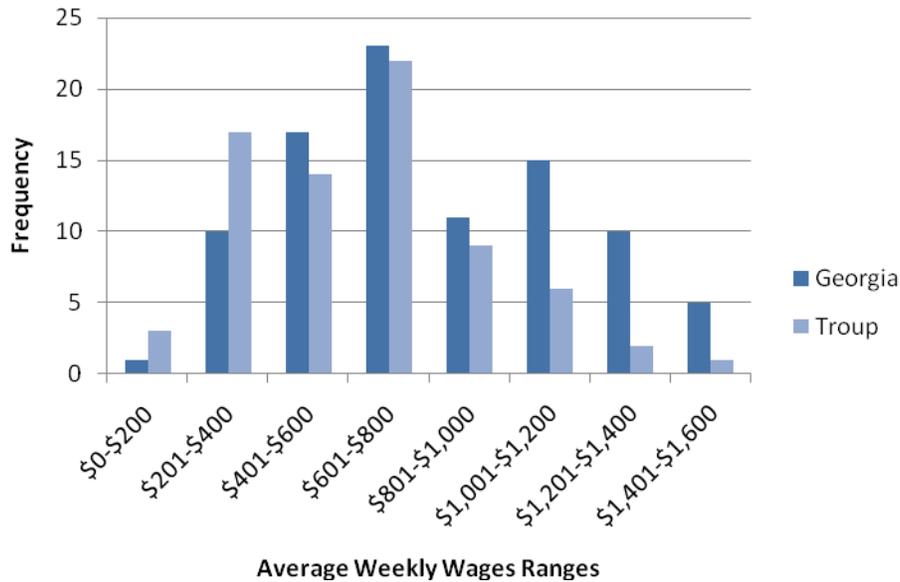
Source: Georgia Department of Labor

The average weekly wage (AWW) for the state’s private-sector jobs was \$785 in 2006, well above Troup County’s average. The distribution of industry AWW across various ranges is shown in Figure 2 for the state and for Troup County. As the chart shows, there are many three-digit NAICS industries in the county that are in the \$201-to-\$400 range and much smaller numbers of industries in the high-wage ranges. Even taking into consideration cost-of-living differences, the county’s AWW is quite low relative to the state average and adds to the argument that the county needs to diversify its economy with higher-wage industries.

⁵ North American Industrial Classification System (NAICS) is a multi-tiered system of industry classification based on what firms produce. This hierarchical system consists of highly aggregated classifications that are broken down into finer and finer classifications; six-digit codes are the most detailed.

⁶ Private-sector average weekly wages are used rather than total average weekly wages, which includes federal, state, and local government jobs, because the objective of a business development strategy is to stimulate growth in private-sector jobs.

Figure 2: Average Weekly Wages Frequency Chart



Source: Georgia Department of Labor

Selecting High-Wage Industries for Further Analysis

Not all of the high-wage NAICS industries represent opportunities for recruitment. Many of these serve the local Troup County market, and efforts at recruitment and at growing existing industries should concentrate on NAICS industries that serve a national or international market. Industries that serve non-Georgia markets bring new money into the state's economy and into the local economy. The injection of new money into an economy creates further economic activity (multiplier impacts), whereas industries that serve local markets simply recirculate existing income. Kia is an example of an industry that exports its products outside the county, the region, and the state.

Given this reality, some of the entries in the complete list of high-wage industries will not be considered for further analysis. Manufacturing is typically considered a basic or "export" industry because it sells its products outside the immediate area. Most business services serve a local or small regional market and, therefore, don't fit the definition of export industries. However, many high-wage jobs are found in business service sectors, so these will be given further consideration. In addition, if companies in Troup are purchasing services from businesses outside of the county, these purchases represent a leakage that could be "captured" if companies in Troup had an opportunity to purchase these services from other Troup firms. Referred to as "import substitution," stopping these leaks has the same impact as new money coming into the Troup economy through sales to outside firms.

With the exception of the Kia economic impact analysis, this study's emphasis is on existing industry rather than industries that don't yet exist in the region. This is based on the belief that creating an industry cluster from nothing is much harder than growing healthy, high-wage industries from what already exists in the county or region.

Location Quotient Analysis

A location quotient provides insight into which industries appear to be concentrated in a given geographic area. It is estimated by dividing the percentage of total employment a particular NAICS industry represents in the study area by the same ratio for the United States. A location quotient greater than 1.0 indicates a larger-than-average (using the U.S. ratio as “average”) share of total employment in the area. A value less than 1.0 indicates just the opposite, and a value of 1.0 means it represents an average concentration.

Location Quotient Values and Definitions

- LQ > 1.0** Indicates the industry's employment share is larger than that of the United States. These industries satisfy local demand and "export" the excess.
- LQ = 1.0** Indicates the industry's employment share is equal to the U.S. value. These industries produce just enough to satisfy local demand.
- LQ < 1.0** Indicates the industry's employment share is smaller than that of the United States. These industries do not satisfy local demand, and the difference must be imported.

Location quotients were estimated for 2001 through 2006 (most recent year data was available) for all three-digit NAICS industries found in Troup County in 2006. Sometimes a high location quotient may not indicate a robust and growing industry cluster. When calculating location quotients for a small geographic area like a county, one large plant can produce a large location quotient because its employment is large relative to the county's total employment. Typically, one-firm industries with large location quotients are not selected as targets for further expansion unless there are special conditions that make it a good strategy.

Table 10 contains location quotient data for 2004, 2005, and 2006; average weekly wages for 2006; and projected U.S. job and output annual growth rates for the period 2004-2014. The U.S. projections are from the federal Bureau of Labor Statistics (BLS).⁷ In some cases, BLS does not provide forecasts at the three-digit NAICS level of detail; therefore, the same growth rates are used for several three-digit industries. In other cases, BLS does not provide a forecast at all. Troup County location quotients for 2004 and 2005 only appear if that industry existed in the county in either year.

Table 10: LQs for NAICS 3-Digit Industries in Troup County in 2006

NAICS	NAICS Title	2004 Troup LQ	2005 Troup LQ	2006 Troup LQ	2006 Troup AWW	U.S. Projections 2004-2014	
						Jobs Growth	Output Growth
Agriculture, Fishing, Forestry, Hunting, Mining, Utilities, Construction							
111	Crop Production	0.07	0.11	0.10	\$330	N/A	N/A
112	Animal Production	0.02	0.02	0.02	\$57	N/A	N/A
113	Forestry and Logging	2.46	2.39	2.69	\$493	N/A	N/A
115	Support Activities for Agriculture and Forestry	0.01	0.07	0.09	\$306	N/A	N/A

⁷ The federal Bureau of Labor Statistics (BLS) produces a forecast of employment and output for the period 2002 through 2012, by four-digit NAICS code (some are only at the three-digit level). Because the primary purpose of the business opportunities analysis is to find suitable industries for recruitment, U.S. growth rates are more appropriate.

NAICS	NAICS Title	2004 Troup LQ	2005 Troup LQ	2006 Troup LQ	2006 Troup AWW	U.S. Projections 2004-2014	
						Jobs Growth	Output Growth
212	Mining (except Oil and Gas)	0.32	0.32	0.47	\$859	-1.4	0.3
221	Utilities	0.54	0.58	0.61	\$1,082	-0.1	0.8
236	Construction of Buildings	1.50	1.40	1.39	\$915	1.1	2.2
237	Heavy and Civil Engineering Construction	0.52	0.48	0.59	\$722	1.1	2.2
238	Specialty Trade Contractors	0.76	0.80	0.78	\$668	1.1	2.2
Manufacturing							
312	Beverage and Tobacco Product Mfg	0.15	0.07	0.07	\$1,528	-0.7	-0.7
313	Textile Mills	29.71	30.41	33.02	\$831	-6.6	-3.2
314	Textile Product Mills	48.48	51.86	56.72	\$878	-2.0	2.5
321	Wood Product Mfg	1.89	2.27	2.33	\$564	0.7	2.1
322	Paper Mfg	0.08		0.13	\$764	-0.2	0.8
323	Printing and Related Support Activities	1.14	0.86	0.66	\$593	-1.0	1.1
325	Chemical Mfg	0.41	0.45	0.59	\$719	-0.1	1.8
326	Plastics and Rubber Products Mfg	2.85	2.60	2.53	\$657	-1.0	3.7
327	Nonmetallic Mineral Product Mfg	0.44	0.51	0.57	\$760	0.4	1.6
331	Primary Metal Mfg	0.20	0.19	0.04	\$316	-2.0	0.4
332	Fabricated Metal Product Mfg	0.28	0.27	0.35	\$791	-0.2	1.9
333	Machinery Mfg	1.92	1.92	1.97	\$917	-1.4	0.9
334	Computer and Electronic Product Mfg	0.60	0.85	1.15	\$720	-0.7	12.7
335	Electrical Equipment, Appliance, and Component Mfg	4.35	4.28	4.43	\$1,041	-2.1	2.2
336	Transportation Equipment Mfg	3.13	2.07	1.51	\$770	0.5	3.5
337	Furniture and Related Product Mfg	0.17	0.11	0.09	\$1,121	-0.2	2.5
339	Miscellaneous Mfg	2.18	2.17	1.93	\$839	-0.3	3.7
Wholesale Trade							
423	Merchant Wholesalers, Durable Goods	0.36	0.40	0.41	\$646	0.8	6.4
424	Merchant Wholesalers, Nondurable Goods	1.23	1.15	1.14	\$692	0.8	6.4
425	Wholesale Electronic Markets and Agents and Brokers	0.67	0.57	0.52	\$1,287	0.8	6.4
Retail Trade							
441	Motor Vehicle and Parts Dealers	1.18	1.14	1.11	\$614	1.0	4.6
442	Furniture and Home Furnishings Stores	1.19	1.25	0.93	\$385	1.0	4.6
443	Electronics and Appliance Stores	0.14	0.15	0.16	\$476	1.0	4.6
444	Building Material & Garden Equipment and Supplies Dealers	0.74	0.75	0.86	\$330	1.0	4.6
445	Food and Beverage Stores	0.88	0.71	0.74	\$521	1.0	4.6
446	Health and Personal Care Stores	0.91	0.57	0.63	\$550	1.0	4.6
447	Gasoline Stations	2.80	3.00	2.67	\$336	1.0	4.6
448	Clothing and Clothing Accessories Stores	0.40	0.45	0.48	\$327	1.0	4.6
451	Sporting Goods, Hobby, Book, and Music Stores	0.29	0.33	0.30	\$592	1.0	4.6
452	General Merchandise Stores	2.93	3.01	2.95	\$428	1.0	4.6
453	Miscellaneous Store Retailers	0.61	0.62	0.65	\$370	1.0	4.6
454	Non-store Retailers	1.72	1.91	2.13	\$656	1.0	4.6
Transportation and Warehousing							
484	Truck Transportation	0.45	0.41	0.59	\$656	0.9	3.5
485	Transit and Ground Passenger Transportation	0.01	0.06	0.01	\$118	2.1	2.8

NAICS	NAICS Title	2004 Troup LQ	2005 Troup LQ	2006 Troup LQ	2006 Troup AWW	U.S. Projections 2004-2014	
						Jobs Growth	Output Growth
488	Support Activities for Transportation	0.29	0.30	0.33	\$721	1.1	4.8
492	Couriers and Messengers	0.65	0.62	0.73	\$651	0.7	2.3
493	Warehousing and Storage	0.51	0.22	0.26	\$789	2.2	4.6
Business and Consumer Services							
511	Publishing Industries (except Internet)	0.38	0.47	0.49	\$679	2.1	6.6
512	Motion Picture and Sound Recording Industries	0.28	0.36	0.25	\$298	1.5	3.7
515	Broadcasting (except Internet)	2.54	2.58	2.65	\$1,245	1.0	3.6
517	Telecommunications	4.41	4.69	5.06	\$754	-0.7	3.7
518	Data Processing, Hosting and Related Services	0.05	0.09	0.06	\$475	2.5	8.5
522	Credit Intermediation and Related Activities	0.47	0.72	0.67	\$1,008	0.5	3.7
523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	0.15	0.14	0.12	\$1,118	1.5	6.7
524	Insurance Carriers and Related Activities	0.78	0.93	1.00	\$885	0.3	2.0
531	Real Estate	0.19	0.21	0.21	\$614	1.7	2.4
532	Rental and Leasing Services	0.89	1.11	1.16	\$520	1.5	4.6
541	Professional, Scientific, and Technical Services	0.24	0.25	0.24	\$801	2.5	4.8
551	Management of Companies and Enterprises	1.76	1.96	1.77	\$1,147	1.0	5.5
561	Administrative and Support Services	1.16	1.21	1.16	\$361	2.8	4.6
562	Waste Management and Remediation Services	0.34	0.50	0.52	\$711	2.4	2.9
Health and Social Services							
621	Ambulatory Health Care Services	0.69	0.71	0.73	\$933	3.6	4.1
622	Hospitals			0.32	\$681	1.5	3.5
623	Nursing and Residential Care Facilities	0.52	0.54	0.79	\$386	2.5	2.3
624	Social Assistance	0.85	0.86	0.80	\$272	3.0	2.9
Entertainment, Recreation, Lodging							
711	Performing Arts, Spectator Sports, and Related Industries	0.01	0.01	0.01	\$231	2.0	3.2
712	Museums, Historical Sites, and Similar Institutions	1.45	1.90	1.98	\$404	1.8	3.1
713	Amusement, Gambling, and Recreation Industries	0.35	0.38	0.40	\$297	2.4	4.1
721	Accommodation	0.35	0.37	0.39	\$372	1.6	2.8
722	Food Services and Drinking Places	0.97	1.00	0.96	\$190	1.5	1.9
Repair and Personal Services							
811	Repair and Maintenance	0.71	0.75	0.75	\$558	1.4	2.4
812	Personal and Laundry Services	0.55	0.64	0.60	\$369	1.5	3.9
813	Religious, Grantmaking, Civic, Professional, and Similar Organizations	0.17	0.15	0.17	\$409	1.2	2.5
814	Private Households	0.40	0.34	0.31	\$249	-0.4	0.1

Source: Georgia Department of Labor and Bureau of Labor Statistics

Table 11 eliminates all three-digit industries in Table 10 that don't make the high-wage cutoff; that is, industries with AWW below the cutoff of \$719. This removes 45 of the 73 industries in Table 10 to arrive at the 28 high-wage industries shown in Table 11.

Table 11: LQs for High-Wage NAICS 3-Digit Industries in Troup County in 2006

NAICS	NAICS Title	2004 Troup LQ	2005 Troup LQ	2006 Troup LQ	2006 Troup AWW	U.S. Projections 2004-2014	
						Jobs Growth	Output Growth
Agriculture, Fishing, Forestry, Hunting, Mining, Utilities, Construction							
212	Mining (except Oil and Gas)	0.32	0.32	0.47	\$859	-1.40	0.30
221	Utilities	0.54	0.58	0.61	\$1,082	-0.10	0.80
236	Construction of Buildings	1.50	1.40	1.39	\$915	1.10	2.20
237	Heavy and Civil Engineering Construction	0.52	0.48	0.59	\$722	1.10	2.20
Manufacturing							
312	Beverage and Tobacco Product Manufacturing	0.15	0.07	0.07	\$1,528	-0.70	-0.70
313	Textile Mills	29.71	30.41	33.02	\$831	-6.60	-3.20
314	Textile Product Mills	48.48	51.86	56.72	\$878	-2.00	2.50
322	Paper Manufacturing	0.08		0.13	\$764	-0.20	0.80
327	Nonmetallic Mineral Product Manufacturing	0.44	0.51	0.57	\$760	0.40	1.60
332	Fabricated Metal Product Manufacturing	0.28	0.27	0.35	\$791	-0.20	1.90
333	Machinery Manufacturing	1.92	1.92	1.97	\$917	-1.40	0.90
334	Computer and Electronic Product Manufacturing	0.60	0.85	1.15	\$720	-0.70	12.70
335	Electrical Equipment, Appliance, and Component Manufacturing	4.35	4.28	4.43	\$1,041	-2.10	2.20
336	Transportation Equipment Manufacturing	3.13	2.07	1.51	\$770	0.50	3.50
337	Furniture and Related Product Manufacturing	0.17	0.11	0.09	\$1,121	-0.20	2.50
339	Miscellaneous Manufacturing	2.18	2.17	1.93	\$839	-0.30	3.70
Wholesale and Retail Trade							
425	Wholesale Electronic Markets and Agents and Brokers	0.67	0.57	0.52	\$1,287	0.80	6.40
441	Motor Vehicle and Parts Dealers	1.18	1.14	1.11	\$614	1.00	4.60
Transportation and Warehousing							
488	Support Activities for Transportation	0.29	0.30	0.33	\$721	1.10	4.80
493	Warehousing and Storage	0.51	0.22	0.26	\$789	2.20	4.60
Business and Consumer Services							
515	Broadcasting (except Internet)	2.54	2.58	2.65	\$1,245	1.00	3.60
517	Telecommunications	4.41	4.69	5.06	\$754	-0.70	3.70
522	Credit Intermediation and Related Activities	0.47	0.72	0.67	\$1,008	0.50	3.70
523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	0.15	0.14	0.12	\$1,118	1.50	6.70
524	Insurance Carriers and Related Activities	0.78	0.93	1.00	\$885	0.30	2.00
541	Professional, Scientific, and Technical Services	0.24	0.25	0.24	\$801	2.50	4.80
551	Management of Companies and Enterprises	1.76	1.96	1.77	\$1,147	1.00	5.50
Health and Social Services							
621	Ambulatory Health Care Services	0.69	0.71	0.73	\$933	3.60	4.10

Source: Georgia Department of Labor and Bureau of Labor Statistics

Some of the service industries (NAICS codes 510 - 560 in Table 11) certainly do most of their business in the county; however, if these services did not exist locally, regional customers of these service industries would have to "import" the services they require. As mentioned above, import substitution can stop these leakages (if they exist) and add to the overall economic impact from the local group of purchasing industries.

Retail stores may also be considered import substitution firms if they keep retail expenditures by local residents in the county rather than see them go to another county. They can also attract retail dollars into the county. However, retail is typically not considered an industry that local economic development efforts would target for recruitment or expansion (except in the case of specialized retail tied to the tourism industry). Large retailers do their own analysis and base their expansions on demographic analysis; that is, trends in population and income growth. Retail growth occurs as a result of population and household growth, which results from expansion of the “exporting” companies like manufacturing and certain non-manufacturing firms.

Further Refinement of Selected Industries

The next step in this process is to further refine the list shown in Table 11. All high-wage industries were included in Table 11 to provide an overall look at each major industry in Troup County that had at least one high-wage, three-digit NAICS industry. Not all of these warrant further examination in this business opportunities analysis.

Industry Categories Dropped

Industry categories that will not be considered further are listed below with reasons for being dropped.

Agriculture, Fishing, Forestry, Hunting, Mining, Utilities, Construction

Typically, only a few industries show up as high-wage under this category, and that was the case with Troup. The only industry in this category with an LQ above 1.0 is Construction of Buildings, but this industry serves a local and regional market and tends to easily expand or contract as needed. It is hardly ever considered as a target for further recruitment. Given the Kia plant location and the supplier facilities that come with it, as well as the new firms created from multiplier impacts, construction will be a strong industry in Troup County for the foreseeable future. For these reasons, this category was eliminated from further consideration.

Retail Trade

For the reasons mentioned above, retail is not a good candidate for recruitment unless there is an opportunity for a retail center at an I-85 interchange that could capture business from pass-through travelers. These types of malls are usually discount outlets and some are very successful. However, to establish a business case for that type of development is beyond the scope of this project. Recruiting retail to serve the residents of Troup County may not be a good expenditure of economic development resources unless it recaptures dollars leaving through import substitution.

Health and Social Services

This industry category can represent an opportunity if certain three-digit industries in this category show up for the area. For example, medical and diagnostic laboratories, along with medical equipment and supplies manufacturing and a research hospital, could be the makings of a health industry cluster. However, Troup County does not have any of these elements; therefore, this industry category does not appear to offer any business growth opportunities to pursue.

Telecommunications and Broadcasting (except Internet)

Although 517 - Telecommunications has a very high LQ, it is made up of firms that sell wired and wireless telecommunications services, as well as cable providers. This industry will expand as the Kia plant's impacts take hold and population growth increases in the county, but it is not usually part of a growth strategy. Similar comments can be made for 515 - Broadcasting (except Internet), which also serves a very local market and responds on its own to population growth. For these reasons, both were dropped for further consideration.

Industry Categories Selected

The remaining categories were selected for further analysis. An examination of location quotients and growth potential for the industries in these categories should reveal the best opportunities, but there are limits to this type of numerical analysis. For example, high location quotients don't reveal how large an industry is in terms of establishments or employment. A very small industry group with only one or two firms may still have disproportionately high employment resulting in a high location quotient. With such a small number of firms, it may be very difficult to recruit more of the same or expand the existing firms. It also is unlikely that any kind of supplier network exists in the immediate area. Because of Georgia Tech's confidentiality agreement with GDOL, such small industries cannot be revealed in terms of number of establishments and number of employees.

Manufacturing

NAICS industries 312, 322, and 337 were dropped from the list of manufacturing industries in Table 11 because each consists of only one firm with a few employees.

Table 12: Selected Manufacturing Industries for Further Consideration

NAICS	NAICS Title	2004 Troup LQ	2005 Troup LQ	2006 Troup LQ	2006 Troup AWW	U.S. Projections 2004-2014	
						Jobs Growth	Output Growth
313	Textile Mills	29.71	30.41	33.02	\$831	-6.60	-3.20
314	Textile Product Mills	48.48	51.86	56.72	\$878	-2.00	2.50
327	Nonmetallic Mineral Product Manufacturing	0.44	0.51	0.57	\$760	0.40	1.60
332	Fabricated Metal Product Manufacturing	0.28	0.27	0.35	\$791	-0.20	1.90
333	Machinery Manufacturing	1.92	1.92	1.97	\$917	-1.40	0.90
334	Computer and Electronic Product Manufacturing	0.60	0.85	1.15	\$720	-0.70	12.70
335	Electrical Equipment, Appliance, and Component Manufacturing	4.35	4.28	4.43	\$1,041	-2.10	2.20
336	Transportation Equipment Manufacturing	3.13	2.07	1.51	\$770	0.50	3.50
339	Miscellaneous Manufacturing	2.18	2.17	1.93	\$839	-0.30	3.70

The county's traditional reliance on textiles is still evident in the very high LQs for *Textile Mills* and *Textile Products*. Both industries remain strong and continue to grow in relative importance in the county as shown by the increasing LQ values from 2004 through 2006 – a trend that has continued at least since 2001. Although the national job projection for these industries is negative, they are very important to the county's economy from a job and income standpoint.

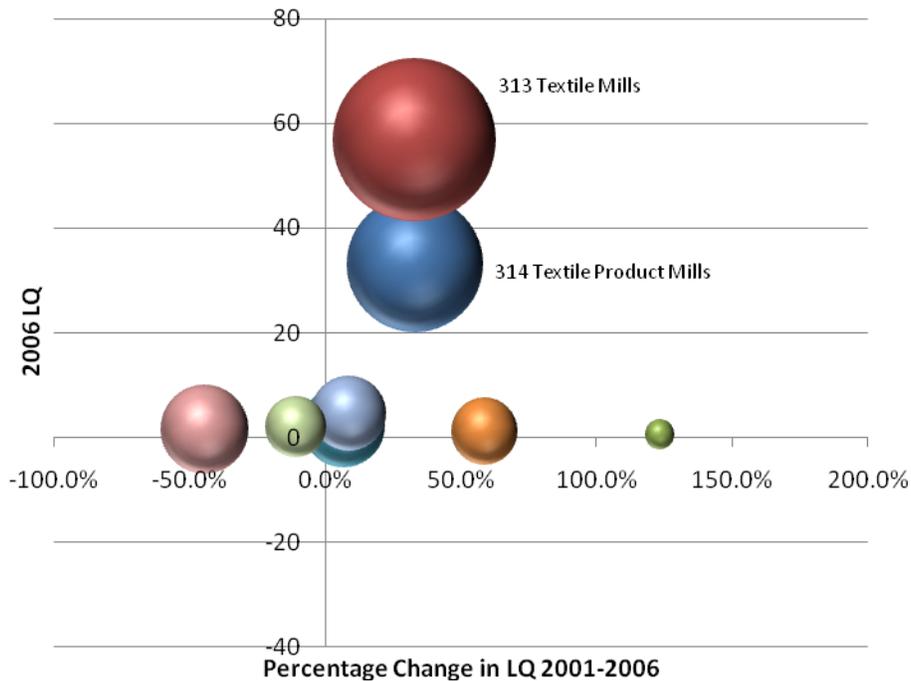
Industry 335 - *Electrical Equipment, Appliance, and Component Manufacturing* has a high LQ in the county and it has shown a slight rise over the last three years. The declining LQ for 336 - *Transportation Equipment Manufacturing* will rise dramatically when the Kia and supplier data start showing up in the GDOL database. Miscellaneous manufacturing has a high LQ, but it is declining in the county.

Figure 3 shows a bubble chart of the manufacturing industries in Table 12, which depicts each industry's size in terms of jobs (size of the bubble), its 2006 LQ value (vertical axis), and the percentage change in its LQ from 2001 to 2006 (horizontal axis). Because LQs for NAICS 313 and 314 are so much larger than those for the other manufacturing industries, they distort the chart. Therefore, the other industries in Table 12 are only shown on the chart in Figure 3 to make this point. They will be displayed in the next figure.

Although both the table and the chart appear to show a textile industry that is growing in importance in the county, further examination of the LQ reveals that this can be misleading. As the definition for

LQ illustrates, it is a ratio of local employment share to national employment share. Comparing LQ over time can result in erroneous conclusions because the growth or decline in LQ over time may be caused by just a change in the national share and no change in the local share. For example, 313 - *Textile Mills*, fell from 7.5 percent of total private-sector jobs in 2001 to 5.7 percent in 2006, in the county. In the nation, however, the change in employment share for the same span went from .3 percent to .17 percent, a much larger decline. This is why the LQ for this industry rose over this time period.

Figure 3: All Selected Manufacturing Industries by Size, 2006 LQ, and Percentage Change 2001-2006



Before discussing the results for the remaining manufacturing industries, the change in employment shares should be examined for all industries in Table 12. Figure 4 shows a chart of the ratio of industry employment shares in 2006 to that in 2001, for the county and for the nation. Any values below 1.0 mean that the share fell from 2001 to 2006.

Most industries in Figure 4 show higher values for Troup County than for the nation and two industries in the county show values above 1.0 – 327 - *Nonmetallic Mineral Product Manufacturing* and 334 - *Computer and Electronic Product Manufacturing*. These two industries experienced rising employment shares between 2001 and 2006, indicating growing and healthy industries. Wherever, the national value is below the county's value, it means that the employment share in the nation is falling faster than the employment share in the county. These observations of employment shares help to explain the change in LQ over time.

Figure 5 shows the same information as Figure 3, except with NAICS 313 and 314 removed so that the other industries can be differentiated with respect to LQ size. Both 327 and 334 are in the upper right quadrant, indicating high and growing LQ. As noted above, employment shares for both of these industries grew over the 2001-to-2006 period (see Figure 4), so the increase in LQ that both experienced was not due only to a declining national employment share. Industries 332, 333, and 335 all show slightly growing LQ as well, and although the change in employment shares for each shows a slight decline, the change for each is nearly the same in the nation (see Figure 4). From this, it can be concluded that the rise in LQ for each is not due just to a decline in national employment shares.

Figure 4: Comparison of the Change in Industry Concentrations - Troup County and the Nation

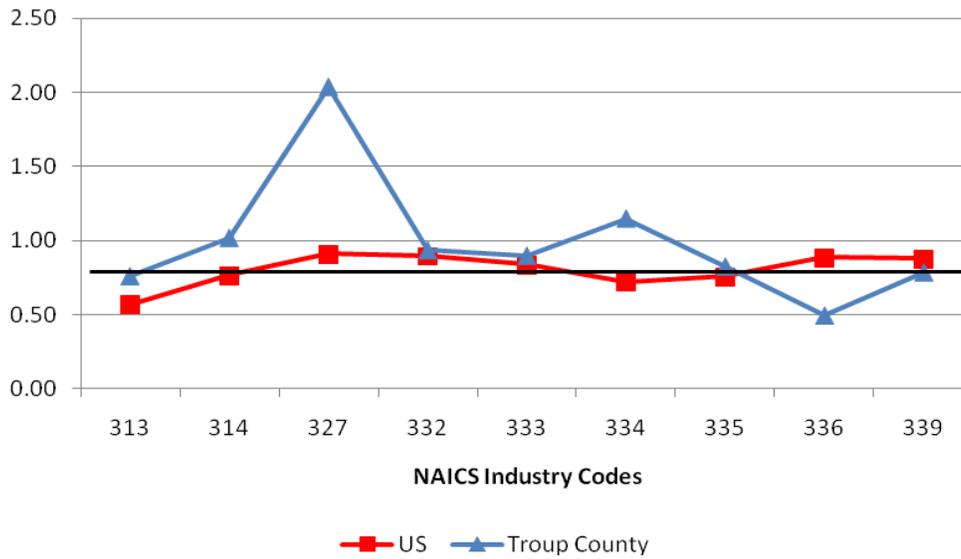
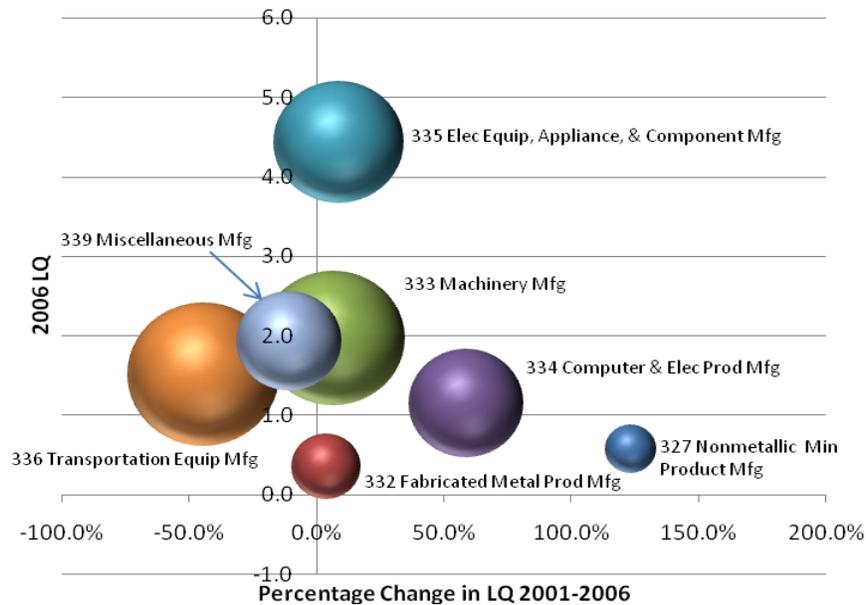


Figure 5: Selected Manufacturing Industries by Size, 2006 LQ, and Percentage Change 2001-2006



Wholesale Trade

Economic growth strategies typically don't consider wholesale trade as a viable target because it serves a local market and generally follows retail growth. The one wholesale industry that made it to the high-wage category in Table 11 is 425 - *Wholesale Electronic Markets and Agents and Brokers*. Two other wholesale industries show up in the county (see Table 10) but both pay wages below the cutoff. Statewide, these same industries pay much higher average wages, probably because most are found in the Atlanta metropolitan area. The impact analysis indicates that the region will need 119 additional wholesale trade firms employing 1,077.

Transportation and Warehousing

Transportation and Warehousing is likely to grow significantly based on the impact results in Table 8. Throughout the region, the impact results predict 89 new firms will be created in this industry group, hiring up to 1,620. Because these can be created anywhere in the impact region, Troup County must be proactive in helping these firms start there if officials desire to grow this industry and make it more concentrated in the county.

Table 13: Selected Transportation and Warehousing Industries for Further Consideration

NAICS	NAICS Title	2004 Troup LQ	2005 Troup LQ	2006 Troup LQ	2006 Troup AWW	U.S. Projections 2004-2014	
						Jobs Growth	Output Growth
488	Support Activities for Transportation	0.29	0.30	0.33	\$721	1.10	4.80
493	Warehousing and Storage	0.51	0.22	0.26	\$789	2.20	4.60

Business and Consumer Services

The *Business and Consumer Services* industry group contains a wide variety of small firms. Everything from Web designers to lawyers, accountants to management consultants, and phone companies to research and development are contained in this industry group. In the impact results shown in Table 8, these industries are expected to create an additional 282 firms and add 3,259 employees.

Two of the most desired three-digit industries in the two-digit industry 51 - *Information Services* are 516 - *Internet Publishing and Broadcasting* and 518 - *Internet Service Providers, Web Search Portals, and Data Processing Services*. Only NAICS 518 has a presence in the county, but it's a very small presence.

Table 14: Selected Business and Consumer Services Industries for Further Consideration

NAICS	NAICS Title	2004 Troup LQ	2005 Troup LQ	2006 Troup LQ	2006 Troup AWW	U.S. Projections 2004-2014	
						Jobs Growth	Output Growth
522	Credit Intermediation and Related Activities	0.47	0.72	0.67	\$1,008	0.50	3.70
523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities	0.15	0.14	0.12	\$1,118	1.50	6.70
524	Insurance Carriers and Related Activities	0.78	0.93	1.00	\$885	0.30	2.00
541	Professional, Scientific, and Technical Services	0.24	0.25	0.24	\$801	2.50	4.80
551	Management of Companies and Enterprises	1.76	1.96	1.77	\$1,147	1.00	5.50

Figure 6 displays each business services industry in Table 14 in the same kind of bubble chart used above for manufacturing industries. Both 551 and 522 have shown slight declines in LQ, and, in both cases, the national employment share grew faster than the employment share in Troup County. As Figure 7 shows, the national employment shares for each industry did not change much from 2001 to 2006 – each industry's value is very close to 1.0. Therefore, business services industries that showed a positive gain in LQ over this period did so mostly by raising their employment concentration in Troup County and not from a fall in the national employment concentration.

Figure 6: Selected Business Services Industries by Size, 2006 LQ, and Percentage Change 2001-2006

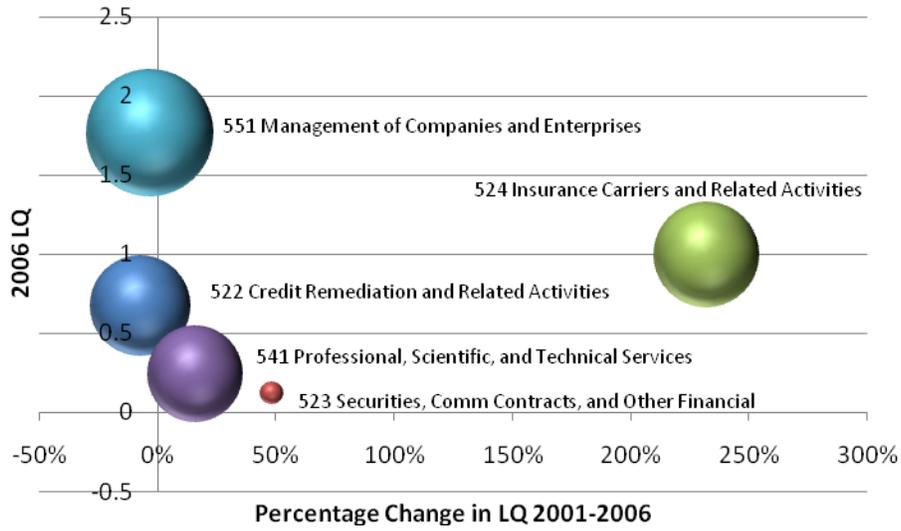
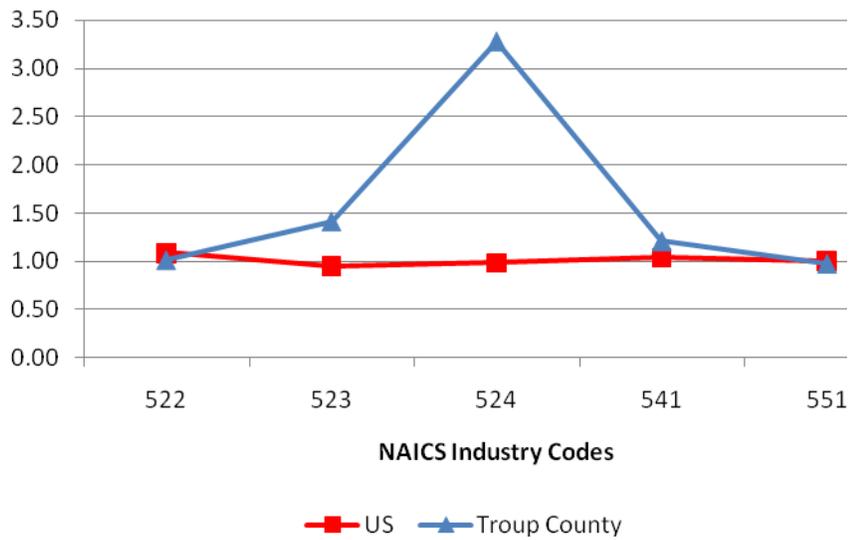
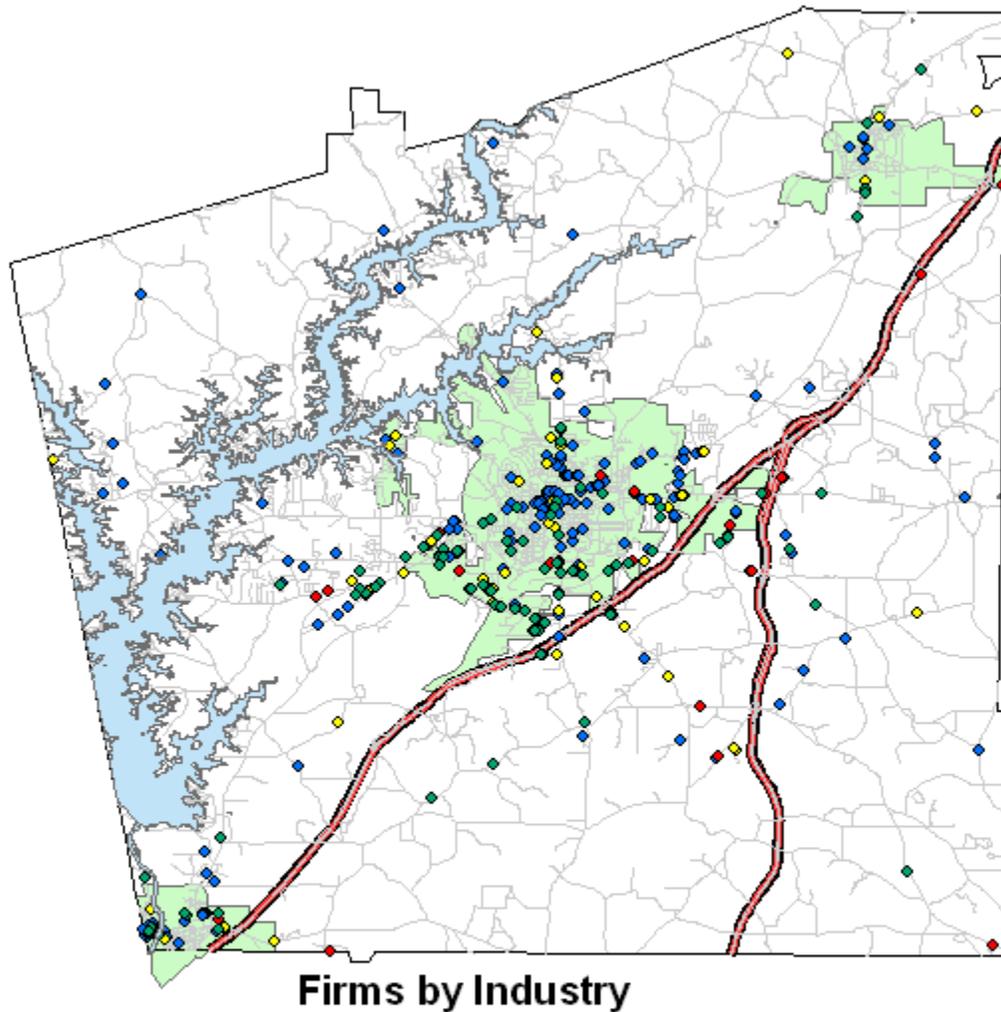


Figure 7: Comparison of the Change in Industry Concentrations - Troup County and the Nation



The location of each establishment in the four selected industry categories is shown in Figure 8 below. Not surprisingly, most businesses cluster in one of the three cities in Troup County, with most of them in the largest one, LaGrange.

Figure 8: Location of Selected Firms in Troup County



- ◆ Manufacturing Firms
- ◆ Transportation & Warehousing
- ◆ Wholesale Trade
- ◆ Business & Consumer Services

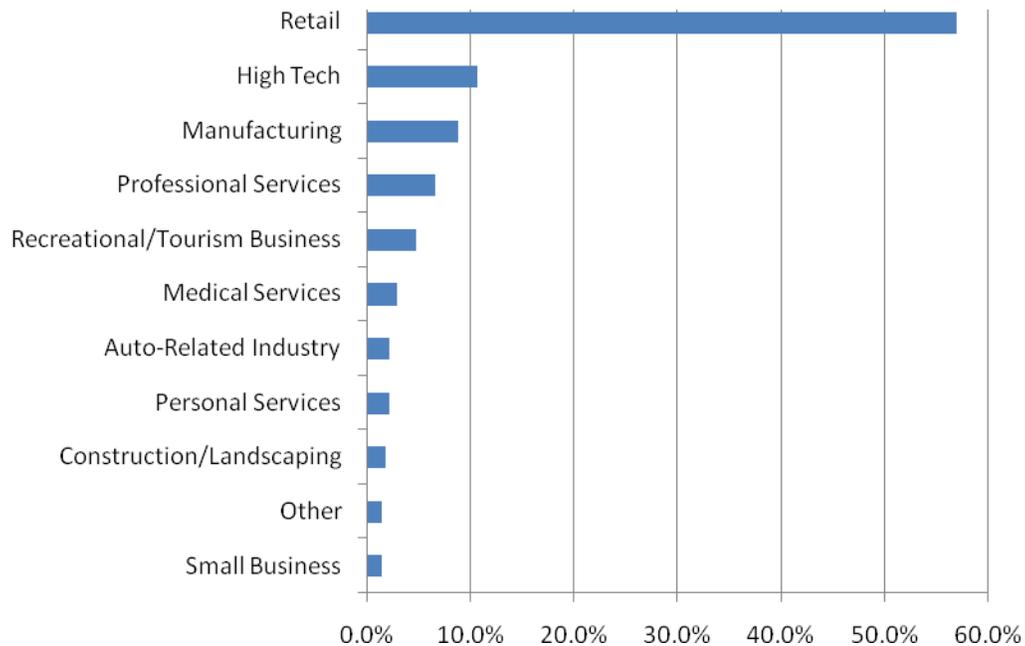
Source: Georgia Department of Labor.

RECOMMENDATIONS FOR INDUSTRY TARGETS

What the Stakeholders Said

In the stakeholders' interviews, respondents were asked which industries they desired to have locate and expand in the county. The results appear in Figure 9 below as percentages of total responses (272 suggestions). Surprisingly, retail was by far the most desired business group with 57 percent. High-tech industry followed with a much lower 10.7 percent, followed by manufacturing at 8.8 percent.

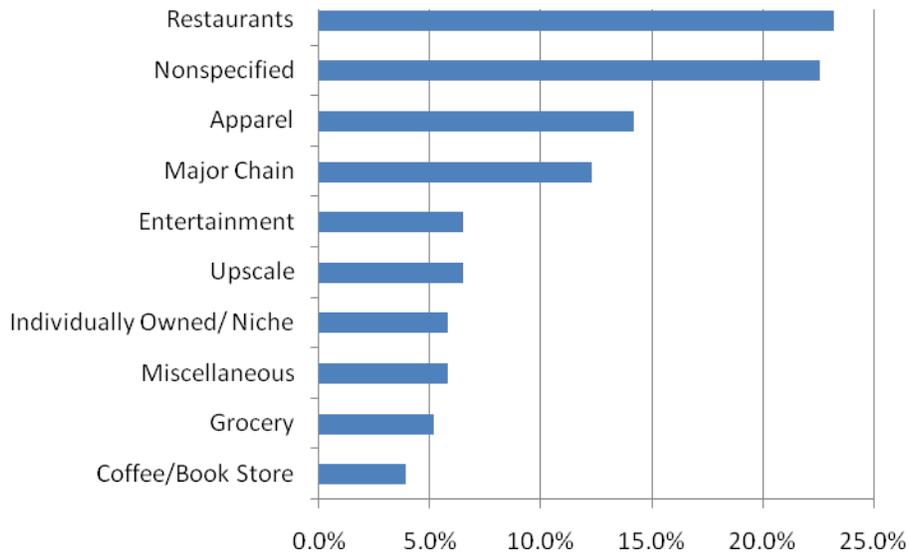
Figure 9: Stakeholders' Interviews - What type of businesses are desired for future growth?



Source: Stakeholder interviews

Given retail's appeal, a follow-up question was asked regarding what types of retail they desired. Figure 10 below shows the results. Restaurants were the top choice, followed by a large percentage of nonspecific choices (respondents said "retail" but not a particular type). Apparel stores, major chain stores, and entertainment businesses followed.

The desire for more retail is typical in a community that has some but not enough of the kinds of retail choices consumers most desire. However, retail is rarely considered as an industry to recruit because (1) it is typically small and low-wage, (2) tends to follow population and purchasing power, and (3) primarily serves a local market. "Big-box" retail sometimes makes sense to lure to an area if it can attract consumers from out of county and thus capture sales taxes that were going to another county. But, this retail can also cause the closure of smaller competitors that may be the lifeblood of the downtown area. The loss of that retail can cause a host of other problems.

Figure 10: Stakeholder Interviews - What types of retail are desired?

Source: Stakeholder interviews

Recommended Strategies for Business Sector Growth

This report examined Troup County's best opportunities for economic growth through an in-depth assessment of its existing industry and through estimating the potential economic impact of the Kia plant and its first-tier suppliers. The latter provides a range of new industries that will need to be formed in the region to support the wide-ranging impact of the Kia plant. Whether Troup County can secure these businesses within its borders is, to some degree, a matter of how well it prepares for this growth, how well it serves the needs of new businesses and existing businesses, and how well it can provide the resources required by these businesses, most notably a trained, dependable workforce. Because the Kia plant is the largest economic development project to land in the county and the region in some time, it deserves a great deal of attention. Therefore, the first strategy relates to the new firms and jobs that the economic impact assessment estimates will occur because of the project. As noted above, most of these firms are in service-sector industries, which are composed mostly of small firms.

The second strategy is focused on strengthening high-wage existing industry, primarily manufacturing, which will have the most impact on further economic growth in the county. This is due to its "export" nature that brings new income into the county through exporting of products to areas outside the county, the region, and even the state.

The third strategy involves maximizing the potential of the automotive industry in the county and the region. Although the stakeholder interviews reflected a desire to diversify the county's economy and to avoid dependence on a single industry, this opportunity should not be ignored. When Alabama landed the Mercedes automotive plant, it did not ignore that opportunity. Since then, it has added two more auto assembly plants and now claims over 300 auto-related manufacturers.

Economic Impact-Induced Growth

Table 8 listed all the industries that our economic impact assessment predicts will show growth in the region due to the Kia plant. Because of commuting patterns within the nine-county impact region, a few of these establishments and jobs will probably locate outside the region, but that number is likely to be small.

The same arguments that were cited above to determine which existing high-wage industries should be selected for further consideration apply to Table 8. Therefore, agriculture, mining, utilities, and construction will not be considered in this strategy. Nearly all remaining industries in Table 8 are represented in the county’s existing industry with the exception of food, apparel, and leather and allied products manufacturing.

Most of the manufacturing industries in Table 8 already exist in Troup County (according to 2006 data), and many of these are considered high-wage industries⁸. However, because NAICS three-digit industries are fairly aggregated groups with significant differences in wages and specific products, the exact kinds of manufacturing plants needed cannot be known. IMPLAN can only say that, for example, three *plastics and rubber products manufacturers* are needed to support all the new economic activity due to the Kia plant. The model cannot say exactly what kinds of products within this industry aggregate are needed and, therefore, whether the specific plants needed are on the high end or low end of the wage scale in that industry.

Given this, each manufacturing industry with at least one new plant estimated to be needed should be given some consideration for recruitment even if it doesn’t make the high-wage cutoff. The following list of manufacturers from Table 8 is recommended to receive focused attention in recruitment efforts because the impact analysis has shown a need for them in the region. The three that made the high-wage cutoff should receive higher priority. Transportation equipment manufacturing is not included because it is fully accounted for with Kia and the known suppliers.

Table 15: Selected Manufacturing Industries from Impact Analysis

NAICS	Industry	Est	Jobs	Exist	High-Wage
311	Food Manufacturing	2	33		
321	Wood Product Manufacturing	1	26	Yes	
326	Plastics and Rubber Products Manufacturing	3	205	Yes	
332	Fabricated Metal Product Manufacturing	11	147	Yes	Yes
337	Furniture and Related Product Manufacturing	1	15	Yes	Yes
339	Miscellaneous Manufacturing	1	13	Yes	Yes

The business services group of industries in Table 8 comprises the highest number of estimated new establishments. These businesses cover legal, insurance, finance, management, scientific, and technical services. Health care, arts and entertainment, lodging, a large array of “other” services, and even retail will be needed based on the Kia impact assessment. These establishments are generally small and formed from entrepreneurial activity.

However, as with the manufacturing establishments, where they locate will depend on where their client businesses are located and which communities provide the best “environment” to nurture small businesses. A strategy focusing on the needs of small businesses would heighten the probability of having these service industries locate in Troup County. Because most of these types of companies

⁸ The average weekly wages in Table 8 cannot be used to determine whether an industry is high-wage because these figures include benefits.

locate in cities (as shown by existing business services establishments in Figure 8), each of Troup's three cities should spearhead this effort.

Focusing on Existing High-Wage Industry

The location quotient analysis of existing industries in Troup County resulted in several industry categories recommended for recruitment and business retention strategies. A "high-wage" criterion was used to filter the complete list of existing industries to just those above the cutoff (10 percent above the 2006 average private-sector wage). The logic here is that strategies to grow and retain industries should be directed toward industries that can raise the average wage in the county, thus increasing citizens' standard of living.

Troup County has a fairly strong manufacturing sector, which will only get stronger with the Kia plant opening. The manufacturing industries from Table 12 that should receive the most priority, based on their average weekly wages, projected national growth rates, location quotients, and ability to further diversify the county's manufacturing sector are:

- 327 Nonmetallic Mineral Product Manufacturing (low LQ so higher concentration would diversify)
- 332 Fabricated Metal Product Manufacturing (low LQ so higher concentration would diversify)
- 333 Machinery Manufacturing (high LQ, high average wage, decent national output growth)
- 334 Computer and Electronic Product Manufacturing (good LQ, very high national output growth)
- 335 Electrical Equipment, Appliance, and Component Manufacturing (high LQ, high average wage)
- 339 Miscellaneous Manufacturing (high LQ, high average wage).

Wholesale trade isn't usually included in a recruitment or retention strategy; however, given the large number of these establishments needed to accommodate the impact analysis and the high wage of NAICS 425, Troup County should pay this sector some attention. Similar reasoning can be used to justify a strategy to recruit transportation and warehousing establishments.

To really diversify the county's economy, growth in the business and consumer services sector is necessary. Table 14 shows five of the three-digit NAICS industries in this category that pass the high-wage cutoff. All five are predicted to show positive growth in jobs and output nationally over the 2004-to-2014 period. Only one of these has a location quotient higher than 1.0 in 2006 – NAICS 551, *management of companies and enterprises*. But all of them are predicted to grow from the Kia impact analysis, so to some degree these services will gain a stronger foothold in the county regardless. How much these businesses grow will depend on how well the county can provide for their needs.

Other Considerations

There are many factors to consider when deciding on which industries to spend resources as part of a recruitment and retention strategy. Because resources are always less than what is needed to explore all opportunities, the ability to rationally narrow choices is important. Following is an attempt to add three more considerations when deciding on how to prioritize industries.

Water Intensity. Whether the current drought will become a fixture and, therefore, affect planning for the foreseeable future, it is still wise to consider the water needs of prospective firms because of infrastructure costs and the need to balance water needs of all land uses in the county. Unfortunately, there is no central source of information on the average water usage of industries that could be used as another factor to consider when deciding on which industries to spend the most effort recruiting. However, even if there were, it may not be very useful because water demand is related more to the process used to make products than to a whole industry. The more aggregated the industry (such as the three-digit NAICS industries used in this analysis), the worse this problem becomes. That said, we offer this comment based on long years of experience working with industry.

Major water using industries are typically: Pulp and Paper (NAICS 322), Food processing (NAICS 311), and Textiles (NAICS 313 and 314). Within the textiles industry, dyeing and finishing processes use the most water.

R&D Intensity. Another consideration is whether a firm is known for its innovation. Innovative firms tend to hire skilled scientists and engineers that conduct research to strengthen the firm’s competitive position. One way to measure this is by patents. This is useful for examining which specific firms in your existing industries issue the most patents to help in retention programs. The following table shows companies in either LaGrange or West Point that have issued two or more patents over the past 10 years, ordered by the number of patents. Some of these companies are no longer in the county or have changed names or been sold.

Table 16: Patents by Company in Troup County

Company	Count
Milliken & Company	114
Milliken Research Corporation	79
Interface, Inc.	23
Sara Lee Corporation	7
Diversified Products Corporation	6
Kimberly Clark Worldwide, Inc.	6
West Point Pepperell, Inc.	5
Rubbermaid Specialty Products Inc.	4
Durand Wayland, Inc.	3
Gillette Company	3
Hesco, Inc.	3
Southwire Company	3
Trackmobile, Inc.	3
Amca International Corporation	2
Carpets International Georgia (Sales), Inc.	2
Goetze Corporation Of America	2
Jac Products, Inc.	2
Kaydon Corporation	2
Kimberly Clark Corporation	2
Terra Technologies, Inc.	2
West Point Foundry & Machine Company	2
Source: U.S. Patent Office	

For recruitment purposes, a different measure is needed to determine which industries conduct the most research and development, which means they hire the most scientists and engineers. Some researchers have attempted to define high technology companies based on occupations rather than industry type. The authors of the article “Gauging Metropolitan ‘High-Tech’ and ‘I-Tech’ Activity,” examined the percentage of jobs in an industry that can be categorized as being in or related to science and technology, using occupational data. However, that study was based on SIC codes.

The National Science Foundation collects and publishes statistics on R&D funding and jobs by industry. These data can be used to examine which industries spend the most on R&D and which have the highest ratios of scientists and engineers to total workers. Table 17 shows industries ranked by the number of full-time equivalent R&D scientists and engineers per 1,000 employees. Some industries are not shown because data could not be disclosed. NAICS aggregation levels vary throughout the table from two-digit to four-digit. For example, all of wholesale trade (NAICS 42) is also broken down into four sub-sectors, but only two have values that can be disclosed (4222 and 42 - other).

Of the industries recommended for recruitment and retention, the column “Rec’d” indicates whether the industry is found in Table 17. Wholesale trade was recommended under the economic impact strategy above because of the large number of establishments the region is expected to receive. For that reason, the industry is checked in Table 17.

Table 17: Full-Time Equivalent R&D Workers per 1,000 Employees by Industry, 2003

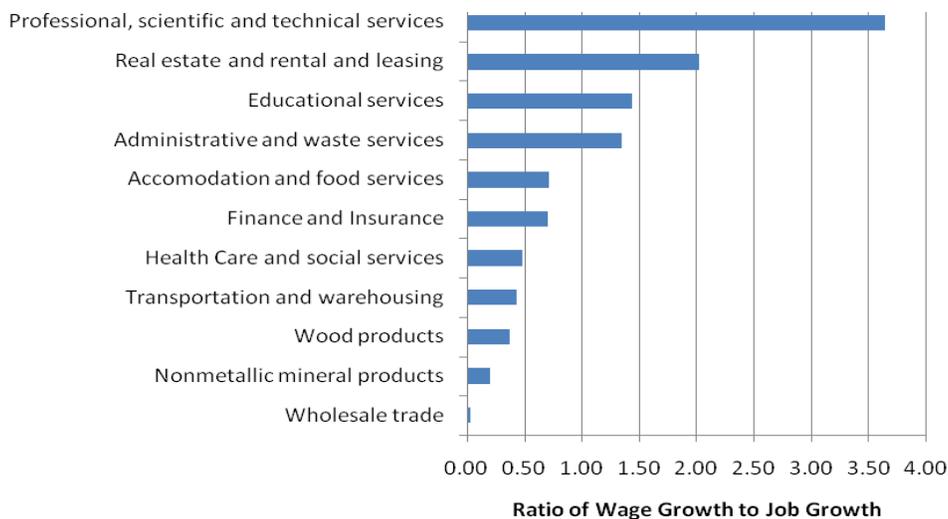
NAICS	Rec'd	Title	Per 1,000 Employees
5112		Software	391
3342	x	Communications equipment	290
5417	x	Scientific R&D services	260
511		Publishing	259
3344	x	Semiconductor and other electronic components	201
5415	x	Computer systems design and related services	200
334	x	Computer and electronic products	193
3341	x	Computers and peripheral equipment	192
54	x	Professional, scientific, and technical services	166
5413	x	Architectural, engineering, and related services	165
3254		Pharmaceuticals and medicines	158
3345	x	Navigational, measuring, electro-medical, and control instruments	156
334 - other	x	Other computer and electronic products	137
4222	x	Drugs and druggists' sundries	134
42	x	Wholesale trade	106
325		Chemicals	102
621-23		Health care services	80
333	x	Machinery	78
336	x	Transportation equipment	67
3391	x	Medical equipment and supplies	61
339	x	Miscellaneous manufacturing	58
325 - other		Other chemicals	57
513 - other		Other broadcasting and telecommunications	57
54 - other	x	Other professional, scientific, and technical services	54
55	x	Management of companies and enterprises	54
339 - other	x	Other miscellaneous manufacturing	52
3364	x	Aerospace products and parts	49
335	x	Electrical equipment, appliances, and components	47
42 - other	x	Other wholesale trade	37
5111		Newspaper, periodical, book, and database	37
332	x	Fabricated metal products	27
52, 53	x	Finance, insurance, and real estate	26
326		Plastics and rubber products	24
327	x	Nonmetallic mineral products	24
56, 61, 624, 71, 72, 81		Other nonmanufacturing	22
324		Petroleum and coal products	21
23		Construction	18
312		Beverage and tobacco products	15
331		Primary metals	15

513	Broadcasting and telecommunications	14
5133	Telecommunications	14
44, 45	Retail trade	13
337	Furniture and related products	11
321	Wood products	10

Source: National Science Foundation, Division of Science Resource Statistics.

Prosperity Index. Although the industries recommended in this section all pass the high-wage cutoff, a “point-in-time” estimate of wages only provides part of the picture. One way to examine how much an industry contributes to a community’s overall wealth and prosperity is through the prosperity index.⁹ Figure 11 shows this index for Troup County’s growth industries.

Figure 11: Prosperity Index for Troup County’s Growth Industries 2001-2006



Source: Georgia Department of Labor

The index is calculated by taking the ratio of percentage growth in wages to percentage change in jobs over the 2001-to-2006 period. Therefore, values greater than 1.0 indicate that wages were growing faster than jobs. These are the industries that are adding to the county’s prosperity, increasing the standard of living for its citizens, and raising the overall average wage in the county.

Maximizing the Potential of the Auto Industry

With the Kia plant and the location of several of its first-tier suppliers in Troup County, bringing thousands of direct jobs to the county, it is inevitable that the county’s economy will become more dependent on the auto industry. County leadership recognizes that being too dependent on a single industry is not healthy and so they want to diversify their economy by also growing its other sectors. The first two strategies discussed above point to opportunities for accomplishing that goal.

With clear strategies that seize the opportunities already discussed, the county has a chance to grow its fledgling auto industry and not become overly dependent on it. Even if the next auto plant that

⁹ The prosperity index is from the *Preparing for the Future in Troup County, Georgia: Sustainable Development Report Card* report.

locates in the region does so in another county, suppliers will likely continue to locate in Troup County given the auto-related labor and business infrastructure that will develop from the Kia location. Each new auto-related manufacturer should not need the level of incentives it takes to land the initial manufacturers, because as the auto cluster grows in Troup County the county becomes more and more attractive to these companies regardless of incentives offered.

Summary of Business Sector Growth Opportunities

Strategies for business sector growth in Troup County were discussed above. Here, a summary of the business sectors recommended is presented so that readers can easily reference the recommendations in one place. The three strategies discussed above are (1) focusing on opportunities from economic impact-induced growth, (2) growing existing high-wage industry, and (3) maximizing the potential of the auto industry. The major recommendations for each of these three strategies are:

- (1) There are six industries that are most recommended for recruitment based on the results of regional economic impact analysis related to Kia. See Table 8 for further information.
 - 311 Food manufacturing
 - 321 Wood product manufacturing
 - 326 Plastics and rubber products manufacturing
 - 332 Fabricated metal product manufacturing
 - 337 Furniture and related product manufacturing
 - 339 Miscellaneous manufacturing

- (2) Based on a location quotient analysis of high-wage industry (average wage 10 percent above the county's overall average) the following business sectors are recommended for further growth (two of these are also in the list above):
 - 327 Nonmetallic Mineral Product Manufacturing (low LQ so higher concentration would diversify)
 - 332 Fabricated Metal Product Manufacturing (low LQ so higher concentration would diversify)
 - 333 Machinery Manufacturing (high LQ, high average wage, decent national output growth)
 - 334 Computer and Electronic Product Manufacturing (good LQ, very high national output growth)
 - 335 Electrical Equipment, Appliance, and Component Manufacturing (high LQ, high average wage)
 - 339 Miscellaneous Manufacturing (high LQ, high average wage).
 - 425 Wholesale trade (high wage and should see considerable growth from Kia impact)
 - 522 Credit Intermediation and related activities (high wage business sector)
 - 523 Securities, commodity contracts, and other financial investments and related activities (high wage business sector)
 - 524 Insurance carriers and related activities
 - 541 Professional, scientific, and technical services
 - 551 Management of companies and enterprises

- (3) The location of Kia and many of its suppliers in Troup County represents the potential for creating an automobile cluster in this area of the state. This economic activity demonstrates that the area is a good location for auto assembly plants and the many supplier industries that serve these plants. It is recommended that the county continue to sell itself as a good location for this industry.

REFERENCES

Georgia Employment and Wages, 2001 Averages, Georgia Department of Labor.

Georgia Employment and Wages, 2002 Averages, Georgia Department of Labor.

Georgia Employment and Wages, 2003 Averages, Georgia Department of Labor.

Georgia Employment and Wages, 2004 Averages, Georgia Department of Labor.

Georgia Employment and Wages, 2005 Averages, Georgia Department of Labor.

Firm-level ES202 data, years 2001-2006, Georgia Department of Labor.

County-level ES202 data, unmasked, years 2001-2006, Georgia Department of Labor.

“Economic and Employment Projections: 2004-2014,” U.S. Bureau of Labor Statistics
<http://www.bls.gov/news.release/ecopro.toc.htm>, 2006.

Chapple, Markusen, Schrok, Yamamoto, Yu, “Gauging Metropolitan ‘High-Tech’ and ‘I-Tech’ Activity,”
Economic Development Quarterly, Vol. 18 no. 1, February 2004 10-29.

National Science Foundation web site at www.nsf.gov, Statistics pages.

APPENDIX A - DETAILED IMPLAN RESULTS

NAICS	NAICS Title	Output	Employee Compensation	Jobs
31133	Confectionery Manufacturing from Purchased Chocolat	\$4,836	\$592	0
31142	Fruit and Vegetable Canning, Pickling, and Drying	\$33,274	\$3,560	0
311611	Animal (except Poultry) Slaughtering	\$17,183	\$1,422	0
311612	Meat Processed from Carcasses	\$4,243,489	\$372,822	10
311811	Retail Bakeries	\$2,271,238	\$643,663	14
311821	Cookie and Cracker Manufacturing	\$1,751,745	\$274,315	4
311823	Dry Pasta Manufacturing	\$71,398	\$10,158	0
311911	Roasted Nuts and Peanut Butter Manufacturing	\$17,906	\$1,242	0
311919	Other Snack Food Manufacturing	\$1,320,436	\$82,598	3
311941	Mayonnaise, Dressing, and Other Prepared Sauce Man	\$481,984	\$44,793	1
311942	Spice and Extract Manufacturing	\$625,995	\$65,255	2
31211	Soft Drink and Ice Manufacturing	\$120,961	\$12,116	0
3131	Fiber, Yarn, and Thread Mills	\$615,777	\$107,502	2
31321	Broadwoven Fabric Mills	\$1,882,604	\$402,033	10
31323	Nonwoven Fabric Mills	\$1,827,854	\$315,670	6
31324	Knit Fabric Mills	\$2,111	\$231	0
31331	Textile and Fabric Finishing Mills	\$580,662	\$146,796	2
31411	Carpet and Rug Mills	\$2,444,495	\$276,642	5
31412	Curtain and Linen Mills	\$999,886	\$153,226	5
31491	Textile Bag and Canvas Mills	\$4,845	\$1,002	0
314992	Tire Cord and Tire Fabric Mills	\$62	\$27	0
314991	Rope, Cordage, and Twine Mills	\$25,363	\$6,914	0
315111	Sheer Hosiery Mills	\$1,074	\$313	0
3152	Cut and Sew Apparel Manufacturing	\$1,511,906	\$244,486	13
3159	Apparel Accessories and Other Apparel Manufacturing	\$57,502	\$4,367	1
3169	Other Leather and Allied Product Manufacturing	\$215,392	\$50,700	2
321113	Sawmills	\$1,201,392	\$217,594	4
321114	Wood Preservation	\$6,627	\$1,100	0
321219	Reconstituted Wood Product Manufacturing	\$120,046	\$17,752	0
321211	Hardwood Veneer and Plywood Manufacturing	\$309,852	\$72,077	2
321213	Engineered Wood Member (except Truss) Manufacturin	\$292,036	\$70,118	2
321911	Wood Window and Door Manufacturing	\$470,571	\$117,865	3
321918	Other Millwork (including Flooring)	\$62,692	\$10,984	0
32192	Wood Container and Pallet Manufacturing	\$1,657,438	\$506,849	14
321992	Prefabricated Wood Building Manufacturing	\$642	\$148	0
321999	All Other Miscellaneous Wood Product Manufacturing	\$189,751	\$55,175	1
32212	Paper Mills	\$9,035	\$1,214	0
32221	Paperboard Container Manufacturing	\$218,628	\$37,730	1
322221	Coated and Laminated Packaging Paper and Plastics	\$1,614,374	\$309,550	4
323116	Manifold Business Forms Printing	\$44,106	\$14,938	0
323117	Books Printing	\$60,031	\$11,032	0
323111	Commercial Gravure Printing	\$1,383,848	\$818,707	18
323122	Prepress Services	\$21,844	\$9,633	0
324121	Asphalt Paving Mixture and Block Manufacturing	\$188,473	\$39,417	0
32512	Industrial Gas Manufacturing	\$54,849	\$4,128	0
325211	Plastics Material and Resin Manufacturing	\$394,543	\$34,187	0
325212	Synthetic Rubber Manufacturing	\$1,098,937	\$133,467	1
325314	Fertilizer (Mixing Only) Manufacturing	\$58,498	\$7,126	0
32532	Pesticide and Other Agricultural Chemical Manufactu	\$18,010	\$460	0

32541	Pharmaceutical and Medicine Manufacturing	\$176,288	\$43,610	0
32551	Paint and Coating Manufacturing	\$63,343	\$7,975	0
32552	Adhesive Manufacturing	\$4,497,697	\$405,852	11
325611	Soap and Other Detergent Manufacturing	\$1,450,274	\$81,656	2
325612	Polish and Other Sanitation Good Manufacturing	\$33,953	\$1,222	0
325613	Surface Active Agent Manufacturing	\$4,051,953	\$312,453	4
32562	Toilet Preparation Manufacturing	\$15,159	\$1,302	0
32591	Printing Ink Manufacturing	\$720,130	\$132,016	1
325992	Photographic Film, Paper, Plate, and Chemical Manu	\$310	\$39	0
32611	Unsupported Plastics Film, Sheet, and Bag Manufactu	\$4,008,697	\$678,990	12
326191	Plastics Plumbing Fixture Manufacturing	\$31,446,080	\$6,837,904	170
32614	Polystyrene Foam Product Manufacturing	\$5,903,739	\$1,100,635	22
32621	Tire Manufacturing	\$65,832	\$15,019	0
32622	Rubber and Plastics Hoses and Belting Manufacturing	\$114,220	\$23,853	1
32629	Other Rubber Product Manufacturing	\$40,547	\$9,377	0
327112	Vitreous China, Fine Earthenware, and Other Potter	\$20,604	\$6,134	0
32732	Ready-Mix Concrete Manufacturing	\$1,339	\$293	0
327331	Concrete Block and Brick Manufacturing	\$49	\$10	0
327332	Concrete Pipe Manufacturing	\$734	\$148	0
32739	Other Concrete Product Manufacturing	\$9,761	\$2,962	0
327991	Cut Stone and Stone Product Manufacturing	\$33,089	\$13,002	0
327993	Mineral Wool Manufacturing	\$324,472	\$51,416	1
327999	All Other Miscellaneous Nonmetallic Mineral Produc	\$28,448	\$5,759	0
33121	Iron and Steel Pipe and Tube Manufacturing from Pur	\$114,521	\$7,608	1
331221	Rolled Steel Shape Manufacturing	\$266,672	\$53,550	1
331222	Steel Wire Drawing	\$95,815	\$35,522	0
331312	Primary Aluminum Production	\$93	\$16	0
331314	Secondary Smelting and Alloying of Aluminum	\$5,067	\$287	0
331315	Aluminum Sheet, Plate, and Foil Manufacturing	\$6,934	\$688	0
331316	Aluminum Extruded Product Manufacturing	\$1,722,426	\$287,882	5
331319	Other Aluminum Rolling and Drawing	\$142,584	\$15,043	0
33151	Ferrous Metal Foundries	\$641,748	\$180,529	3
331521	Aluminum Die-Casting Foundries	\$275,550	\$70,640	2
332116	Metal Stamping	\$118,297	\$28,694	1
332311	Prefabricated Metal Building and Component Manufac	\$2,163	\$309	0
332312	Fabricated Structural Metal Manufacturing	\$27,360	\$5,368	0
332313	Plate Work Manufacturing	\$39,403	\$7,058	0
332321	Metal Window and Door Manufacturing	\$57,435	\$12,858	0
332322	Sheet Metal Work Manufacturing	\$143,541	\$35,222	1
332323	Ornamental and Architectural Metal Work Manufactur	\$8,294	\$2,204	0
33242	Metal Tank (Heavy Gauge) Manufacturing	\$129,429	\$38,328	1
33243	Metal Can, Box, and Other Metal Container (Light Ga	\$264,876	\$35,952	1
3325	Hardware Manufacturing	\$593,920	\$130,140	3
3326	Spring and Wire Product Manufacturing	\$4,932,459	\$1,300,631	24
33271	Machine Shops	\$8,172,341	\$2,890,691	69
33272	Turned Product and Screw, Nut, and Bolt Manufacturi	\$5,037,604	\$1,392,468	30
332812	Metal Coating, Engraving (except Jewelry and Silve	\$893,565	\$218,572	6
33291	Metal Valve Manufacturing	\$1,201,975	\$258,202	5
332991	Ball and Roller Bearing Manufacturing	\$1,307,390	\$220,992	5
332994	Small Arms Manufacturing	\$167,740	\$49,799	1
332997	Industrial Pattern Manufacturing	\$333,127	\$76,402	2
332999	All Other Miscellaneous Fabricated Metal Product M	\$4,487	\$860	0
333111	Farm Machinery and Equipment Manufacturing	\$58,373	\$7,201	0
33312	Construction Machinery Manufacturing	\$162,512	\$17,296	0

333131	Mining Machinery and Equipment Manufacturing	\$1,033	\$223	0
333292	Textile Machinery Manufacturing	\$318,856	\$101,157	2
333293	Printing Machinery and Equipment Manufacturing	\$163,737	\$43,937	1
333315	Photographic and Photocopying Equipment Manufactur	\$10,770	\$882	0
333319	Other Commercial and Service Industry Machinery Ma	\$19,126	\$2,168	0
333411	Air Purification Equipment Manufacturing	\$580	\$151	0
333415	Air-Conditioning and Warm Air Heating Equipment an	\$34,168	\$4,992	0
333511	Industrial Mold Manufacturing	\$102,839	\$40,059	1
333515	Cutting Tool and Machine Tool Accessory Manufactur	\$91,027	\$26,312	1
333618	Other Engine Equipment Manufacturing	\$43,203,460	\$3,606,032	64
333612	Speed Changer, Industrial High-Speed Drive, and Ge	\$2,523,167	\$581,300	14
333913	Measuring and Dispensing Pump Manufacturing	\$30	\$5	0
333922	Conveyor and Conveying Equipment Manufacturing	\$22,201	\$4,355	0
333924	Industrial Truck, Tractor, Trailer, and Stacker Ma	\$10,903	\$1,535	0
333997	Scale and Balance (except Laboratory) Manufacturin	\$569,283	\$139,905	2
33421	Telephone Apparatus Manufacturing	\$1,318,328	\$109,458	2
334412	Bare Printed Circuit Board Manufacturing	\$2,209,323	\$568,419	11
334512	Automatic Environmental Control Manufacturing for	\$511,950	\$152,120	2
334513	Instruments and Related Products Manufacturing for	\$124,590	\$39,250	1
334518	Watch, Clock, and Part Manufacturing	\$15,690	\$1,959	0
334612	Prerecorded Compact Disc (except Software), Tape,	\$37,117	\$5,901	0
334613	Magnetic and Optical Recording Media Manufacturing	\$419,040	\$62,309	1
335221	Household Cooking Appliance Manufacturing	\$203,248	\$33,817	1
335311	Power, Distribution, and Specialty Transformer Man	\$13,219	\$2,230	0
335312	Motor and Generator Manufacturing	\$63,807	\$16,967	0
335911	Storage Battery Manufacturing	\$723,845	\$205,155	3
335912	Primary Battery Manufacturing	\$218,815	\$42,226	1
33611	Automobile and Light Duty Motor Vehicle Manufacturi	\$3,486,171,648	\$246,098,816	2,505
336211	Motor Vehicle Body Manufacturing	\$20,893,848	\$5,115,882	78
336212	Truck Trailer Manufacturing	\$343,113	\$79,633	1
3363	Motor Vehicle Parts Manufacturing	\$1,584,529,792	\$268,893,248	4,634
336411	Aircraft Manufacturing	\$316,073	\$54,154	1
336412	Aircraft Engine and Engine Parts Manufacturing	\$163,860	\$26,411	0
3365	Railroad Rolling Stock Manufacturing	\$21,821	\$1,764	0
336612	Boat Building	\$5,277	\$985	0
336992	Military Armored Vehicle, Tank, and Tank Component	\$19,017	\$2,615	0
336999	All Other Transportation Equipment Manufacturing	\$642,709	\$78,787	1
33711	Wood Kitchen Cabinet and Countertop Manufacturing	\$874,154	\$302,894	7
337121	Upholstered Household Furniture Manufacturing	\$299,285	\$94,865	3
337122	Nonupholstered Wood Household Furniture Manufactur	\$120,322	\$32,185	1
337124	Metal Household Furniture Manufacturing	\$537,014	\$134,845	3
337125	Household Furniture (except Wood and Metal) Manufa	\$64,789	\$15,852	0
337211	Wood Office Furniture Manufacturing	\$6,193	\$1,389	0
337212	Custom Architectural Woodwork and Millwork Manufac	\$1,071	\$594	0
337215	Showcase, Partition, Shelving, and Locker Manufac	\$103,054	\$32,911	1
33791	Mattress Manufacturing	\$167,199	\$23,651	1
339113	Surgical Appliance and Supplies Manufacturing	\$99,650	\$29,458	0
339115	Ophthalmic Goods Manufacturing	\$56,644	\$17,624	0
339116	Dental Laboratories	\$375,047	\$231,845	5
33992	Sporting and Athletic Goods Manufacturing	\$2,463	\$948	0
33995	Sign Manufacturing	\$166,750	\$69,500	2
339991	Gasket, Packing, and Sealing Device Manufacturing	\$816,454	\$294,094	5
339993	Fastener, Button, Needle, and Pin Manufacturing	\$9,952	\$4,757	0
42	Wholesale Trade	\$155,027,424	\$58,364,540	1,168

481	Air Transportation	\$5,074,124	\$1,293,653	24
482	Rail Transportation	\$15,780,673	\$5,232,841	66
483	Water Transportation	\$271,530	\$39,890	1
484	Truck Transportation	\$51,810,184	\$15,913,456	465
485	Transit and Ground Passenger Transportation	\$662,438	\$250,268	17
486	Pipeline Transportation	\$1,814,528	\$220,504	3
487	Scenic and Sightseeing Transportation	\$85,381,392	\$46,605,996	905
491	Postal Service	\$5,232,597	\$4,011,005	76
492	Couriers and Messengers	\$5,724,068	\$2,792,027	59
441	Motor Vehicle and Parts Dealers	\$17,214,684	\$7,875,004	179
442	Furniture and Home Furnishings Stores	\$3,835,661	\$1,384,570	50
443	Electronics and Appliance Stores	\$1,487,895	\$965,658	40
444	Building Material and Garden Equipment and Supplies D	\$9,490,950	\$3,623,842	112
445	Food and Beverage Stores	\$10,869,514	\$4,607,947	207
446	Health and Personal Care Stores	\$5,451,795	\$2,495,994	87
447	Gasoline Stations	\$5,702,530	\$1,773,028	76
448	Clothing and Clothing Accessories Stores	\$5,859,324	\$1,897,725	115
451	Sporting Goods, Hobby, Book, and Music Stores	\$2,272,622	\$913,723	58
452	General Merchandise Stores	\$12,876,307	\$5,629,929	213
453	Miscellaneous Store Retailers	\$3,797,934	\$2,053,598	124
454	Nonstore Retailers	\$8,885,165	\$1,859,636	114
51111	Newspaper Publishers	\$3,107,696	\$1,253,052	30
51112	Periodical Publishers	\$522,868	\$98,865	3
51113	Book Publishers	\$10,504	\$2,401	0
51114	Database and Directory Publishers	\$1,224,276	\$251,559	4
5112	Software Publishers	\$122,606	\$34,860	1
5121	Motion Picture and Video Industries	\$5,119,475	\$1,264,066	30
5122	Sound Recording Industries	\$44,203	\$7,341	0
5151	Radio and Television Broadcasting	\$8,513,929	\$2,987,389	45
5152	Cable Networks and Program Distribution	\$106,846	\$4,533	0
517	Telecommunications	\$31,342,564	\$5,816,099	115
5141	Information Services	\$3,343,479	\$774,038	12
51821	Data Processing Services	\$2,532,855	\$756,929	16
5222	Nondepository Credit Intermediation	\$13,606,740	\$5,465,104	101
523	Securities, Commodity Contracts, and Other Financial	\$7,714,195	\$3,556,033	60
5241	Insurance Carriers	\$24,662,780	\$5,974,796	107
5242	Agencies, Brokerages, and Other Insurance Related Ac	\$3,479,759	\$1,502,025	25
525	Funds, Trusts, and Other Financial Vehicles	\$525,634	\$136,654	2
521	Monetary Authorities - Central Bank	\$49,455,420	\$12,023,381	226
531	Real Estate	\$37,927,436	\$6,364,933	261
5321	Automotive Equipment Rental and Leasing	\$7,501,510	\$1,977,220	41
53223	Video Tape and Disc Rental	\$601,796	\$125,921	15
5324	Commercial and Industrial Machinery and Equipment Re	\$3,654,257	\$721,334	10
53221	Consumer Electronics and Appliances Rental	\$1,258,468	\$732,697	21
533	Lessors of Nonfinancial Intangible Assets (except Cop	\$29,244,030	\$1,395,705	6
5411	Legal Services	\$9,318,278	\$4,608,862	89
5412	Accounting, Tax Preparation, Bookkeeping, and Payrol	\$16,266,154	\$7,446,012	189
5413	Architectural, Engineering, and Related Services	\$21,085,982	\$10,108,127	201
5414	Specialized Design Services	\$20,517,984	\$7,310,694	147
541511	Custom Computer Programming Services	\$131,148	\$120,865	2
541512	Computer Systems Design Services	\$442,267	\$397,442	7
541513	Computer Facilities Management Services	\$3,946,273	\$1,430,986	37
54162	Environmental Consulting Services	\$781,202	\$240,056	6
5417	Scientific Research and Development Services	\$9,949,752	\$5,936,612	80

5418	Advertising and Related Services	\$5,064,561	\$1,832,156	43
54192	Photographic Services	\$573,358	\$145,373	9
54194	Veterinary Services	\$1,992,682	\$692,274	33
54191	Marketing Research and Public Opinion Polling	\$8,598,866	\$748,311	16
55	Management of Companies and Enterprises	\$67,888,848	\$29,266,784	389
5611	Office Administrative Services	\$4,225,935	\$1,093,087	37
5612	Facilities Support Services	\$179,996	\$103,925	3
5613	Employment Services	\$10,358,288	\$8,454,512	538
5614	Business Support Services	\$5,698,671	\$2,381,713	111
5615	Travel Arrangement and Reservation Services	\$1,641,321	\$545,512	11
5616	Investigation and Security Services	\$2,715,896	\$1,781,213	64
5617	Services to Buildings and Dwellings	\$8,080,960	\$3,084,308	164
5619	Other Support Services	\$2,495,019	\$700,592	24
562	Waste Management and Remediation Services	\$3,892,597	\$955,522	32
6111	Elementary and Secondary Schools	\$1,950,747	\$1,147,160	59
6112	Junior Colleges	\$2,234,801	\$1,159,863	40
6114	Business Schools and Computer and Management Trainin	\$1,018,251	\$301,893	31
6216	Home Health Care Services	\$2,123,024	\$1,241,445	39
6211	Offices of Physicians	\$37,708,672	\$22,799,042	343
6214	Outpatient Care Centers	\$6,976,927	\$2,239,244	58
622	Hospitals	\$21,712,348	\$9,563,810	214
623	Nursing and Residential Care Facilities	\$8,615,132	\$5,177,140	190
6244	Child Day Care Services	\$3,939,879	\$1,478,444	118
6241	Individual and Family Services	\$3,304,649	\$1,888,419	99
7111	Performing Arts Companies	\$171,410	\$86,078	7
7112	Spectator Sports	\$305,930	\$183,669	5
7115	Independent Artists, Writers, and Performers	\$766,310	\$139,129	14
7113	Promoters of Performing Arts, Sports, and Similar Ev	\$964,558	\$345,692	33
712	Museums, Historical Sites, and Similar Institutions	\$491,552	\$236,748	9
71394	Fitness and Recreational Sports Centers	\$1,123,125	\$502,575	41
71395	Bowling Centers	\$267,791	\$76,753	7
7131	Amusement Parks and Arcades	\$5,012,327	\$1,613,797	80
72111	Hotels (except Casino Hotels) and Motels	\$11,833,544	\$4,130,190	210
72119	Other Traveler Accommodation	\$84,892	\$19,035	1
722	Food Services and Drinking Places	\$43,990,580	\$13,572,792	964
811192	Car Washes	\$810,562	\$258,942	18
81111	Automotive Mechanical and Electrical Repair and Mai	\$92,164,400	\$31,477,518	1,227
8112	Electronic and Precision Equipment Repair and Mainte	\$302,787	\$68,123	3
8113	Commercial and Industrial Machinery and Equipment (e	\$4,753,004	\$1,418,039	41
8114	Personal and Household Goods Repair and Maintenance	\$1,706,192	\$203,348	14
8121	Personal Care Services	\$3,089,514	\$1,074,862	67
8122	Death Care Services	\$961,716	\$471,928	15
8123	Drycleaning and Laundry Services	\$1,737,319	\$808,830	51
8129	Other Personal Services	\$2,355,099	\$295,907	15
8131	Religious Organizations	\$3,086,547	\$501,545	30
8132	Grantmaking and Giving Services	\$1,644,830	\$1,277,722	36
8134	Civic and Social Organizations	\$7,672,236	\$4,925,674	225
814	Private Households	\$1,583,266	\$1,833,155	203