

Regional Impact of a New Plant: A Study of the Effects on Insurance Exposure Bases

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The construction of a new plant or a facility relocation can have a substantial influence on a regional economy. Scanning regional newspapers and other information sources can be of significant help to an insurance company planning its distribution system and marketing efforts. Agent force size and appointments, claims and service facility requirements, and marketing and advertising support and timing are all planning variables that can benefit from early identification of these regional economic changes. Critical questions, however, involve quantifying: 1) the extent of the economic impact within the immediate region, 2) the time involved, and 3) the geographic scope of the economic impact.

Introduction

This paper is written to provide an insurance carrier with one more tool when determining new markets to enter: namely, scanning regional news and information sources for new plant and facilities construction. The data presented in this paper support the theory that when a company establishes a new plant in a region, there will be a

multiplied impact on total employment, income, and the housing market. The primary impact will occur within the immediate area, defined in this paper as the county in which the new plant or facility will be located, and the scope of the overall impact will depend on several factors related to the regional economy. The timing from initial groundbreaking to the establishment of a new equilibrium will also depend on the regional economy, but normally can be expected to run four to six years.

This paper examines the regional impacts of three new plant openings in the United States: Mitsubishi, Toyota, and Saturn. Toyota had their groundbreaking ceremony in Scott County, Kentucky in May 1986 and full production began in July 1988. Saturn's groundbreaking ceremony took place in Maury County, Tennessee in July 1986 and test production began in March 1990. Mitsubishi's groundbreaking occurred in late 1985 in McLean County, Illinois and in September 1988, production began.

While this report attempts to quantify the impacts of these plants, there are many significant economic influences affecting the regions studied that could distort the data. For example, in the

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twin-cities of Bloomington-Normal in McLean County, Illinois, Mitsubishi is the third largest employer behind State Farm and Illinois State University. Therefore, shifts in census data can be affected by these other large employers. Another, and special, impact on the Bloomington-Normal case has been the [now settled] Caterpillar-United Auto Workers situation in nearby Peoria, Illinois, which, to some extent, provided a pool of potential skilled workers for Mitsubishi.

We will see that the Bloomington-Normal data present a somewhat different picture of regional impact than that of the other two cases examined. Similarly, in the suburbs surrounding Nashville, Tennessee, Nissan established a plant in 1983 about 30 miles from the Saturn location. Even though the data may be affected by economic events other than the events studied, these studied regions are attractive places to do business.

By expanding presence in these markets insurance companies can generate an increase in premium volume in two ways. First, more business can be written in the region. There will be existing potential customers that can be insured. In addition, new insureds may move to the area and be looking for a new insurance carrier. Second, more premium for an insurance company can be created as existing insureds experience growth in their insurable exposure. Retention of profitable business in this situation can result in substantial rewards.

While economic impact studies are important tools in determining new markets to enter, these studies have limitations. Since most economic impact studies are performed from a tax revenue viewpoint, basic information necessary from an insurer standpoint is usually included. Although these studies will provide figures such as the estimated number of jobs that will be produced, and the number of families migrating to the area, these estimates, on average are 10-30% above the actual numbers. [1]

Therefore, when using an economic impact study to determine the attractiveness of a new market, one must remember that the data is estimated.

Business unit effects

The following is a brief description of the effects by business unit type. A business unit comprises one specific type of business that is underwritten on a policy rather than line of business basis.

Public entities: Since a growing population leads to a greater exposure for both municipalities and school boards, insurance companies can generate more premiums from an influx of new families and businesses to the region. An increase in grand list property values has a positive impact on the tax revenues for local governments. Tennessee municipalities used one-time payments from Saturn, in lieu of taxes, to purchase fire-fighting equipment and other capital investments such as a new city hall and a fire station. [2] The Normal Police Department hired three additional officers because of additional territory and traffic-related duties. [3]

Contractors: The new plant, new roads, and new housing developments for the workers may be constructed by local construction firms. In addition, there will be new construction of restaurants and strip malls, as an indirect result of the plant. These benefits may be relatively short-lived, since the bulk of the construction will occur only until supply catches up with demand.

Manufacturing: Manufacturers may experience a surge in new business from the new plant. The automobile plants, studied here, not only purchased supplies from local manufacturers, but also purchased them from other states and countries. In addition, many overseas manufacturers have opened up branches in the region surrounding foreign automobile plants. For example, Japanese auto suppliers followed Toyota and Mitsubishi into the United States.

Mercantile/Service: Regional mercantile and service industries can be positively impacted; for example, local data processing centers experienced growth from the Saturn plant. [2] There are also indirect effects on local mercantile businesses as additional customers utilize new and existing shops.

Habitational/Recreational: More residential housing, apartments, condominiums, and recreational activity centers may be needed to satisfy the new population.

Personal lines: More people and higher incomes may lead to an increase in existing property prices and an expansion of the housing market. In addition, there may be a change in the automobile buying habits of households with the average number and value of vehicles per household increasing.

Life insurance: Similar to the premium growth potential for personal lines carriers, life insurers can also benefit. Since there will be a larger population with a higher income, additional policies with increased limits may be written.

The following sections provide statistical support of a new plant's effects on a region. Insurance premiums based on property values, payroll, and receipts are shown to increase in the years

following the opening of a plant.

Population effects

Census data for the time period between 1980 and 1990 show that the county population of a new plant location grew at a higher rate than the overall statewide population. The average population within a 60 mile radius of the plant grew at a rate parallel to the statewide growth. Figure 1 shows a comparison of population growth rates for the county, counties within a 60 mile radius of the plant, and the state.

An influx of young families in Maury County put pressure on the educational system. Forty-five teachers were hired due to a 12.8% increase in the student population between the 1988-1989 and 1990-1991 school years. [2]

Bloomington-Normal schools were projecting a 22% increase (1,500 additional students) in enrollment between the 1986-1987 and 1989-1990 school years. However, the schools only saw an

Figure 1

Population Growth by County, Region, and State

<u>Plant County, State</u>	<u>County Growth</u>	<u>60 Mile Growth</u>	<u>State Growth</u>
Maury, Tennessee	7.3%	11.9%	6.2%
McLean, Illinois	8.4%	-3.7%	0.0%
Scott, Kentucky	9.4%	1.9%	2.3%

increase of about 500 additional students over this time period. This forecasting error was due to an overestimation of the number of newly created manufacturing jobs. Of the 5,800 community manufacturing jobs forecast for 1990, only 3,600 new jobs were generated. [3] Not all of the 3,600 workers were new to the Bloomington-Normal region, and therefore the number of students did not significantly increase.

To entice new plants to their jurisdiction, state governments often offer education for the work force as part of their incentive package. Illinois offered Mitsubishi \$40 million for education, while the corporation added \$70 million for worker training. [3] Kentucky earmarked \$55 million for education for Toyota employees and Tennessee allocated \$20 million for Saturn employees. [4,2] This produces a lasting positive effect, since the workforce now has an education that will provide long term benefits.

A negative effect noted in Bloomington-Normal was an increase in the welfare rolls. When the opening of the new Mitsubishi plant was first announced, a number of uneducated and unskilled people moved to the area in hopes of finding a job. However, since this was a state of the art plant, these people were unqualified for employment. They ended up staying in the area, still jobless and on the public dole. Maury County, Tennessee saw a similar increase in poverty statistics following the statewide changes.

Housing effects

In general, homeowners are less mobile than renters. A homeowner typically relocates to a new community if the additional commuting savings are greater than the moving cost. There are other factors that affect the decision to relocate, including the mortgage rate, number and age of children, and marital status. For example, a study performed on Mitsubishi employees found that 36% of the employees relocated to the Bloomington-Normal area, 42% continued to live outside of Bloomington-Normal, and the remaining 22% continued to live in the Bloomington-Normal community. [3]

Following the theory of supply and demand, when more families relocate to a region there will be upward pressure on housing and rental prices. The impact of the Saturn and Toyota plants facilitated housing appreciation at a greater than average rate for both the county and the region within a 60 mile radius of the plant. The geographic concentration of Saturn workers spurred median housing values in Maury County to increase by 91% between 1980-1990. In 1987, when Mazda built a plant in Flint Rock, Michigan, a 54% surge in housing sales was seen. [3] This large increase in sales was partly due to a depressed housing market caused by an unhealthy local economy prior to Mazda's arrival.

The Bloomington-Normal housing market increased by 7.1% from the fourth quarter 1986 to first quarter 1988, while the CPI housing index grew by 3.8%. Indeed, during this time period Mitsubishi employees purchased a larger percentage of new and more expensive homes compared to pre-existing homes. The next year this market experienced a 1% growth while the CPI index again grew by 3.8%. It was in this and in subsequent years that Mitsubishi employees purchased older and less expensive homes, providing corroboration for the hypothesis that "existing homeowners benefited while first-time buyers in the community bore the brunt of housing inflation." [3] Figure 2 shows census data for the median housing growth for the selected counties and the comparable statewide statistics for 1980-1990.

Employment and income effects

As of 1992, an estimated 16,945 jobs resulted from Toyota's move to Kentucky: 4,350 are directly attributable to Toyota while 12,595 are indirectly attributable. [4] Indirect employment is comprised of many components. For example, new restaurants and shopping centers may be needed to accommodate an influx of new workers in the region. As one can see in Figure 3, actual Toyota employment is one-quarter of the total employment affected by Toyota's move to Kentucky. Based on this information, for every Toyota job created, three additional jobs were

Figure 2

Housing Value Growth by County, Region, and State

<u>Plant County, State</u>	<u>County Growth</u>	<u>60 Mile Growth</u>	<u>State Growth</u>
Maury, Tennessee	91.5%	67.9%	62.9%
McLean, Illinois	31.7%	21.4%	52.1%
Scott, Kentucky	56.8%	50.9%	47.4%

created. In economic parlance, this is a multiplier of 3 for additional job creation.

A steady state employment of 6,000 Toyota workers in Kentucky is estimated by 1996, with an indirect employment of more than 22,500 workers. The 1992 economic impact was greater than \$550 million and is estimated to be \$650 million by 1996, including a payroll of \$275 million. [4] By 1992, Saturn employed about 5,900 employees. [2] If we were to use the multiplier from Toyota, it is estimated that 16,000 jobs will be indirectly created by Saturn.

By the summer of 1994, Mitsubishi had 3,600 employees. This is approximately 1,100 more than was estimated when the plant was announced. Initially in 1985, the estimated number of supplier jobs in central Illinois totaled 8,000. Eleven hundred were to be in McLean County. However, reality was different, since by August of 1988 only 500 Bloomington-Normal supplier jobs materialized. There are several reasons for this: 1) Mitsubishi picked their

suppliers slowly, 2) several chosen suppliers were already established in Bloomington-Normal, and 3) due to JIT (Just In Time) inventory practices at Mitsubishi, there was no need for suppliers to relocate to the area since suppliers up to 400 miles away could meet the JIT requirements. [3] Payroll at Mitsubishi for 1990 was approximately \$115 million. The total economic impact in the central Illinois region was many times more, once supplier salaries and other indirect spending by these households flowed through the economy.

Saturn's influence contributed to a 67% growth rate of personal income for the residents of Maury County between 1985 and 1990. Tennessee experienced an overall growth of 45% for the same period, 22 percentage points lower than Maury County. This growth can be attributed to Saturn's construction activity and Saturn wages. Earnings for construction, manufacturing of durable goods, and wholesale trade significantly outgrew the earnings of other sources. Each of these categories registered five year annualized changes in excess of 20%. Other industry earnings, for this time

Figure 3

Employment Effects from Toyota Plant

<u>Source of Employment</u>	<u>Employees</u>
Spending by Toyota Employees	5,051
Toyota Supplier Employees	4,681
Toyota Employees	4,350
Suppliers of Construction Firms	1,580
Spending by Construction Employees	1,283

Source: Haywood, 1992

period, increased by the following annualized amounts: Retail Trade +9.0%; Finance, Insurance, and Real Estate +7.9%; and Services +13.4%. [2]

Figure 4 shows the census median household income growth rates for 1980-1990. Note that all three counties and two of the three regions grew at a faster rate than the statewide average. The compounding of the changes in population and household income leads to a county whose wealth (income x households) has increased faster than other counties in the state.

Construction effects

Residential and commercial development in Maury County significantly increased because of Saturn's presence. Annualized growth in construction earnings from 1985-90 was 25%. The greatest increase was in heavy construction, with an annualized growth of almost 45% per year. General building and special trade showed annualized growths of 17% and 21% respectively per year. [2] All of these classes experienced a

decrease in the fifth year of the experience period. This suggests that the bulk of construction will occur until supply catches up with demand.

The cost of construction for the original plants and subsequent expansions are: Toyota, \$1.1 billion; Saturn, \$3.5 billion; and Mitsubishi, \$1.9 billion. These corporate investments are what would help fuel construction earnings to exhibit significant growth in the early years and tail off when the plants are completed.

As of 1995, much indirect growth has been seen in McLean County with six new shopping areas and one under construction. At least one of these projects is directly related to Mitsubishi, as it was part of the incentive package from the state. [3] The number of hotel/motel rooms has doubled, with nine new hotels/motels. In addition, pre-Mitsubishi malls have been undergoing renovation and expansion. All of this has had an impact on the region's earnings, construction, and retail and service businesses.

As part of the incentive package to lure Toyota to Kentucky, the following amounts were spent by the state (in millions of dollars): \$20 for site preparation, \$32 for highway improvements, and \$12 for a waste water facility. Over \$20 million was spent by local governments on road upgrades, new classrooms, and fire stations in Maury County. The incentive package for Mitsubishi included \$13 million for improvements in water and sewage treatment plants and \$20 million for improvements to local highways. While the spending by local governments pales in comparison to other indirect spending effected by the new plant, it provides infrastructure for future growth of the region.

Manufacturing effects

Earnings for durable goods manufacturers in Maury County increased by almost 30% annually in the years 1985-1990. Saturn is considered a durable goods manufacturer and therefore greatly affected this category. Primary and fabricated metals and stone, clay, glass, and concrete

earnings all showed growth at over 10% per year. [2] As expected, the categories representing construction materials tended to follow the overall construction activity of a region.

As of 1992, a minimum of 22% (\$48 million) of Toyota's purchase of parts and materials from Kentucky were within a 60 mile radius of the plant. More than 50 suppliers (10,000 employees) have located to the area around the Toyota plant, though not all are Toyota suppliers. [4] Non-auto suppliers may be moving to the region, since an improved infrastructure and supply of workers now exists. This corroborates what was said in the introduction, that these regions are attractive to a variety of industries.

The inventory practices of Mitsubishi, and their use of a number of different suppliers, provided little incentive for many manufacturers to relocate. More than 25% of Mitsubishi's suppliers are within a 200 mile radius of the plant. Ten percent of the total suppliers have relocated or are relocating closer to the Mitsubishi plant. More

Figure 4

Household Income Growth by County, Region, and State

<u>Plant County, State</u>	<u>County Growth</u>	<u>60 Mile Growth</u>	<u>State Growth</u>
Maury, Tennessee	78.2%	76.1%	75.4%
McLean, Illinois	69.1%	56.0%	66.9%
Scott, Kentucky	80.9%	65.3%	61.4%

than one-half of all suppliers state that Mitsubishi comprises less than 10% of their sales volume; thus, it is not cost-effective for them to relocate. On the other hand, firms that are 100% sales dependent on Mitsubishi are located in Bloomington-Normal. [3] The effects of all of these automotive plants spread to many states, not just Kentucky, Tennessee, and Illinois. Toyota's total outlay for 1992 was \$1.8 billion; roughly one-third of this was spent in Kentucky. [4] Saturn's expenditures in Tennessee, are estimated to be \$300 million (1989 estimate) and are approximately 20% of all Saturn's expenditures. [2] These host states received more benefits than any other state where goods and services were purchased.

Miscellaneous examples

Of course, not only auto plants have an impact on a region. Certainly, these plants will have a large impact due to their size. However, there are many types of projects that can have an impact on a community. For example, here are two projects that are projected to have an impact on their respective communities:

1) The creation of a new intrastate or interstate highway, such as the new I-840 in Tennessee, can cause a large economic boom to an otherwise dormant area. [5] The potential impact of an increase in traffic can lead to a gain in sales for existing and new businesses, such as hotels, restaurants, and housing developments.

2) In 1991 the Mudcats, a AA baseball team, moved to Zebulon, North Carolina. An impact of \$11 million in tax revenues and an additional 800 direct and indirect jobs in a ten year period is expected as a result of their arrival. At least one additional industry providing 200 jobs and a payroll of \$3.5 million is expected to move to the Zebulon region in the same time frame. [1]

Conclusions

When a company establishes a new plant in a region, there are many positive occurrences from the perspective of an insurer. First, as the census data and studies have demonstrated, *the immediate*

regions have experienced growth rates for a variety of indices that exceed statewide rates. Second, this growth involves four to six year time frames. Third, the growth involves multipliers of between 2.9 and 3.1 for *additional job and income creation.* Fourth, a knowledge of the larger region can help identify factors that will affect the timing and scope of economic impact.

There are many new plants that are going to be built, each of which will have some impact on the local economy. Within each plant opening lies a potential for an insurance company to realize premium growth with less effort than would normally be required, so long as it has done the distribution, service, and marketing planning in order to reap the benefits. The future dividends received by developing a marketing plan for regions experiencing an economic boom will be well worth the effort for an insurance carrier.

Endnotes

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