On April 19, 2017, Exxon Mobil and Saudi Arabia Basic Industries Corp. (SABIC) announced a joint project of building the world’s largest ethylene cracker plant near Portland in San Patricio County. The chemical products are used to make polyester found in a variety of products, including clothing and construction materials. Capital investment for the five-year construction project is estimated at $10 billion, and the plant is expected to be operated with 600 full-time employees.

This project, known as Gulf Coast Growth Ventures, represents the second largest private investment in South Texas history, exceeded only by Cheniere Energy’s $14.5 billion liquefied natural gas (LNG) facility currently under construction also in San Patricio County. How would this development project affect various parts of the economy and local businesses during the construction phase as well as the subsequent operation of the facility?

$10 Billion

Indeed, $10 billion is an enormous amount for the region. That is more than three times the value of entire San Patricio County’s annual production estimated at $2.8 billion in 2016. The project team is planning for a total of 11,000 construction job-years during the five-year construction phase, and 6,000 workers on the construction site during the peak time. The construction workforce will most likely be filled by construction companies and contractors in the region, particularly the Corpus Christi metro area. The localized nature of construction activity is key to estimating the ripple effects on the rest of the regional economy.

Ripple Effects

The Gulf Coast Growth Ventures group estimated that the project’s construction phase will generate more than $22 billion in economic output, or gross business sales, for the state of Texas. The most popular way to measure the economic impact of any new spending on the region is to estimate the spinoff, also known as secondary or multiplier, effects using an input-output type model, such as IMPLAN.

Input-output analysis has been found to be a reliable tool to evaluate the potential impact of especially large-scale capital development projects on the regional economy. In addition to estimating changes in key economic measures, such as jobs, income earnings and output, the IMPLAN model...
provides insights into how changes in one industry affect all other industries within the region. Such spinoff effects are key to our understanding of the extent to which a large-scale facility affects local businesses.

The plastics manufacturing plant is expected to involve a total of 11,000 local workers on site during its five-year construction period. According to the IMPLAN model for the Corpus Christi metro area, another 2,669 jobs will be created by local businesses that serve as direct suppliers for the construction project, including retailers and professional service companies. Because of the expanded regional output, which totals about $2.3 billion, those local businesses will hire more workers and replenish their own supplies. As a result, gains among those businesses and their employees in turn contribute to gains in businesses in other industries across the region. Such effects are called secondary economic impacts. According to IMPLAN, the metro area will gain another 7,754 jobs as a result of the 11,000 construction workers hired directly for the project. This means that one more construction job in the area generates another 0.7 job position in other local industries.

**Another Tale of Two Counties**

As for the region as a whole, how the construction project affects San Patricio County depends on its existing economic landscape as well as its capability to accommodate future growth. Nueces County, which includes the city of Corpus Christi, makes up nearly 90 percent of the regional workforce, whereas San Patricio County accounts for slightly more than 10 percent. Largely due to direct employment on the construction site, the Gregory-Portland area of San Patricio County will experience much of the impact in the region. Still Nueces County is expected to experience a total gain of more than 5,000 jobs.

The following bar chart compares the direct job impacts between the two adjacent counties in the Corpus Christi metro area. The impact estimates are based on where the activity occurs, instead of which county that the affected businesses are located or where their employees live. For this reason, most of the impact on the construction industry occurs in San Patricio County, although a number of construction companies and contractors are located elsewhere.

Particularly for the health care, business services, and trade sectors, the direct impact is relatively higher in Nueces than San Patricio County. Those businesses and providers are concentrated in the city of Corpus Christi, and thus, unlike construction, activity can take place away from the construction site.

Because of substantially fewer businesses and service providers in San Patricio than Nueces County, the latter is expected to reap the majority of the secondary economic impacts. A notable exception is the construction industry, which includes construction of new homes occupied by migrants to the area during the project construction phase. Overall, three-quarters of the secondary job impacts (3,819 job positions) are expected to take place in Nueces County.

The total economic impact of the construction project on the region as a whole is estimated to be $3.2 billion in output or gross business sales. Despite the sizable spillover effect of the construction activity on Nueces County, San Patricio County will experience about 80 percent of that estimated economic impact. Most of the impact will take place in the construction industry itself.

**Labor Market Slack**

Bear in mind that all impact estimates are based on the assumption that industries are not operating at full capacity, meaning that firms should have sufficient slack to take up more production and purchase orders. For the construction project, the hiring of 11,000 workers on site represents near-
ly half (45%) of the regional construction workforce. Despite the booming construction activity, the construction industry is still experiencing an unemployment rate of 18 percent, according to EMSI. Construction unemployment is the highest among all industries in the region.

During the first quarter of 2017, the number of unemployed persons who have previously worked in the construction industry is 2,281, which exceeds the number of unemployed persons (2,275) who have no previous work experience. Given that amount of slack in the construction labor market, the region will be more likely to absorb the increased workforce demand.

**Plant in Operation**

Once construction of the plastics manufacturing plant is completed, the regional economic impact of this facility in operation will be drastically different. At first glance, the plan to hire 600 full-time employees pales in comparison with the estimated 11,000 workers during the construction phase.

The two types of employment are, however, drastically different. First, construction job estimates are not measured on a permanent basis because employment will end whenever construction ends. By contrast, the employees who staff the facility are permanent positions.

Second, the size of economic impact from each direct job is substantially higher during the operational phase than during the construction phase. The industrial manufacturing industry pays the highest average wages among all industries. Those 600 employees responsible for the plant’s operations are expected to earn an average of $90,000 annually, which is about twice as much as the current average wage earnings in the region. The higher income earnings of employees working at the plant contribute to a much larger multiplier effect than that from the typical construction worker.

According to the IMPLAN model, those 600 direct jobs will generate an estimated total of 2,620 additional jobs as a result of the secondary effects on other industries within the metro area. This implies a job multiplier of 5.4, compared to the corresponding estimate of 1.7 for construction.

The two donut charts show on this page estimated gains in local employment and output that are directly and indirectly related to the plant’s operations. The total economic impact of $2.2 billion per year seems comparable to the estimated $3.1 billion impact from construction, but the estimated impacts from the plant in operation are expressed on a permanent basis.

The bar chart to the left shows the distribution of job impact on different industries between Nueces and San Patricio counties. Because of the jobs directly associated with the plant, most of the impact on the manufacturing sector occurs in San Patricio County. As for the impact estimates from construction, the plant in operation will generate relatively more gains to Nueces County as a whole than to San Patricio County due to different industries’ own capacities and resources between the two counties.

**Variation by Industry**

The following bar chart shows the estimated impacts for different private industries. The trade sectors are expected to realize the most gains, followed closely by construction, transportation, health care, and professional services.

Small businesses, such as those with fewer than 20 employees, are concentrated in the industries of professional services, retail trade and construction. As such, the economic impact will tend to be larger for smaller business establishments particularly in those industries.

**Note:** This article benefits from conversations with Mark Weaver and Russell Franques at TAMUCC.
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