Identify Important Industries for the Region

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ABSTRACT: To ensure that policy priorities are aligned with the realities and needs of the region's economy, each region needs to regularly assess its key economic sectors. However, it can be difficult to determine which regional industry is important because the definition of "important" is not always accepted by regional participants. Hard data is a necessary part of this planning process so as not to appeal to multiple requests or word of mouth. Quantitative methods are also much faster and cheaper than qualitative methods and are also less prone to political pressure. This does not mean that there is no place for quality methods. Rather, quantitative methods should identify the most promising opportunities so that qualitative approaches can be more focused and cost-effective.

Also, the numbers don't usually speak for themselves. To make them useful, it is necessary to turn them into clear indicators whose meanings and boundaries are clearly understood. This document is intended to provide a starting point for regional planners to understand and apply such indicators.

KEYWORD: industries, appropriate metrics, gathering data, transforming the metrics, developing measures.

Industry vs. Business Perspective

Identifying key regional industries is not the same as identifying key regional companies, but it is just as important, if not more important. Why? Why don't planners focus exclusively on the region's top employers? Certain companies need to be retained and supported, but this is a limited prospect. Recent research suggests that regions should equally focus on creating industry clusters (company types) that complement and reinforce each other. Thus, the region creates stronger competitive advantages and a more favorable environment for companies in these clusters. It also means that cross-sectoral spending keeps more money in the region, which translates into higher employment and higher incomes than the same number of companies that are less closely related. Thus, by giving due consideration to industries, regional decision makers can create sustainable development plans that are less dependent on a handful of large employers.

Establishing the Purpose of the Research

Before attempting to identify key industries, planners must decide what their purpose is. Are you trying to support and preserve existing industries? Invest in emerging industries? Recruiting in other industries? Increase the regional labor supply for existing industries? Once a goal has been established, planners can select appropriate metrics (see "Selecting the Appropriate Metrics" below). Some of the discussions in this document relate to "basic" and "non-basic" industries. Underlying

industries are those that depend on income from outside the region and thus bring money to the region. Non-basic industries are industries that are usually sold to residents or businesses that are already in the area. The theory of economic development emphasizes the importance of the main industries as "pillars" of the region's economy.

Brief description of the main approach

The basic approach can be summarized in 4 basic steps:

1. Choose the appropriate metrics based on the purpose of your research.

2. Collect data and calculate indicators by sector and specific branch.

3. Transform the metrics into the definition of keys that are established and emerging in the region Industries as well as trends in each.

4. Develop measures to remedy weaknesses and to use existing strengths and opportunities major established and emerging industries in the region.

Choose appropriate metrics.

Quantifying the importance of the industry is not an easy thing. We can start with the question: "What makes an industry important?" Depending on the goal, we can then choose different measures. The following table summarizes important metrics for different goals:

Goal	Important Metrics
Identify industries with strong workforce demand	Large recent/projected total job growth. Supplement with industry staffing pattern.
Identify key existing industries to support & retain.	LQ >> 1.0, multipliers >> 1.0, non-trivial number of total jobs, acceptable earnings per worker, positive growth. (">>" means "significantly greater than.")
Identify emerging industries that could take on increased importance.	Strong % growth, rising LQ, positive competitiveness effect.
Identify key existing industries that are faltering.	LQ >> 1.0, declining LQ, multipliers >> 1.0, non-trivial total jobs, negative growth, low or negative competitiveness effect.
Identify potential industries to recruit.	Produces outputs that rank highly as missing regional industry inputs; national multiplier >> 1.0. Confirmed by survey-based investigation.

Find basic job and income data. Total jobs, growth and income can be measured from several sources, including the Regional Economic Information System (REIS; Bureau of Economic Analysis), the Quarterly Employment and Wage Census (QCEW; Bureau of Labor Statistics), and local employment dynamics (LED ; Census Bureau) .1 These numbers are easy to calculate growth and earnings per worker. Forecasts are available for national industries, while most states issue national 10-year industry forecasts. Some states also produce sub-state regional forecasts. You can also purchase built-in databases and analytics tools from private companies so you don't waste time collecting data from dozens of sources.

Calculation changing share of indicators. An analysis of the proportion of a shift in a regional industry can reveal a "competitiveness effect" (C), sometimes referred to as a "shift component" or "shift change".

a. The formula is C = G - (N + I) , where:

i.   G is the regional industry's total job growth over a given timeframe.

ii. N is the "national growth component," sometimes called the "share change" (total regional industry jobs at the beginning of the timeframe multiplied by the growth rate of the entire national economy over the whole timeframe).

iii. I is the "industry mix component," sometimes called the "mix change"(the total regional industry jobs at the beginning of the timeframe multiplied by the difference between the national growth rate of the industry and the overall national growth rate).

iv. (N + I) could be called the "expected" regional job change in the industry. We could also write the equation as G = C + N + I.

Calculating location quotient. The location quotient of an industry at a given time can be calculated simply as L= $\{(R_i/R)/(N_i/N)\}$, where Ri and Ni are the industry-only jobs in the region and nation respectively, and R and N are the total jobs in the regional and national economies respectively. Once annual LQs are known, % change in LQ over a given timeframe is easy.

Calculating multipliers. Finding multipliers for regional industries requires specialized models and large amounts of data. So there is no need to reinvent the wheel and re-calculate it from scratch. Useful national and regional multipliers are available in the RIMS II model, which is available in the US for a small fee. Some private companies use much more sophisticated methods and additional data to estimate regional multipliers; the two most widely used and inexpensive models are being developed by the Minnesota IMPLAN Group and Economic Modeling Specialists Inc. (EMSI). EMSI's Economic Impact Tool also includes built-in custom analytical reports on economic fundamentals.

Estimated economic base. As mentioned earlier, there are several ways to determine the economic base of a region, including simple guesswork, location conditions, and the use of an input-output model. The last method is the most accurate and strict. An input-output model would include export data for each industry - for example, how much of its sales come from regional or non-regional companies. Based on the relationship between jobs and sales in an industry, we can estimate how many jobs depend on exports. This number, combined with the industry's employment multiple, provides an estimate of the industry's share of the region's economic base in terms of jobs. In this case, jobs in the branch that are not dependent on exports are relocated to other branches.

Finding missing input industries. This is another process that requires a specialized regional model. Identifying these industries begins with data on how different industries buy goods and services from each other. These include the "inputs" of the industry, or the goods / services that they need to operate, and the "products" of the industry, or the goods / services that they produce and sell. All regional industries are examined and their total resource requirements are compared with the total corresponding production volumes produced in the region. This allows us to calculate the largest gaps in the regional needs of the industry.

Interpret the metrics.

Interpreting total jobs: First, some types of jobs depend on other, simpler jobs. In many regional economies, retail and hospitality offer a large number of jobs, but these industries tend to already have money circulating in the region (and often cause money to "run out" of the region) instead of bringing money into the region (see location quotient and basic industries below). This is the difference between "basic" and "non-basic" industries. A regional economy cannot exist without

basic industries that bring money into the region from outside. While these regional export industries rank high in terms of total employment, they are actually more important.

Second, industries with high employment may decline. If so, the economy will need to restructure to replace these jobs. Therefore, employment data should complement overall employment data (see below).

Third, emerging industries may not yet offer a large number of jobs, but because they are growing rapidly, they are important areas for planning future growth in the region. This is another reason to add growth numbers to total employment.

Interpreting growth: When other indicators suggest an industry is important but is either stagnating or declining, the region needs to identify the causes and translate those into future growth. An important and mature industry can show steady but not high growth. This does not necessarily diminish its importance. It can still be an important primary industry and the demand for labor can still be strong due to replacement jobs. Comparing the industry's regional growth rate to the national rate can help determine if the region needs to take action (see Shift Share below).

Interpreting shift share: If the growth rate of a regional industry is significantly higher than expected (i.e. there is a significant competitive effect), the region can be assumed to have some competitive advantage in that industry. The causes of this benefit need to be identified so that it can be supported and developed.

If the regional rate roughly corresponds to the expected rate, the industry only follows national trends - its growth is average. If the region is to become more competitive in this industry, it must find ways to outperform.

If the regional indicator falls below the expected level, the regional industry has a disadvantage that keeps its growth below average and it loses its share of the national market. If other metrics determine the importance of an industry, planners need to find ways to ensure that the industry is at least keeping up with national trends.

Interpreting location quotient: Sectors with a high location ratio (LQ) (LQ well above 1.0) are usually, but not always, basic industries (also called tradable or export-oriented industries). They are also industries in which the region has a competitive advantage, as indicated by the regional economy's specialization in those industries. This interpretation of LQ should be supported by the multiplier analysis (below).

Low LQ industries (LQ significantly lower than 1.0) have a below-average share of the regional economy. They are likely not important basic industries.

Industries with a growing LQ are growing at a relatively faster rate regionally than nationally. The industry is becoming even more important to the region, gaining national market share.

Industries with a declining LQ are growing at a slower rate regionally than nationally. They are growing less and less important to the regional economy.

The importance of LQ is reduced if the industry provides very few total jobs or low earnings per worker.

Interpreting multipliers and economic base: Industries are vital to the existence of the regional economy if they have (1) a nontrivial number of jobs, (2) a relatively high multiplier, and (3) a large percentage of their sales to entities outside the region. You may even be able to identify a handful of specific large employers that account for most of the region's economic base.

Interpreting input gaps: The significance of input gaps depends on assumptions about how much of their inputs that industries will buy in-region versus outside the region. Cost of the inputs is the biggest factor.

This may not be cost effective or feasible for a particular void filling industry to locate in the region. For example, important raw materials may not be nearby, regional labor is too expensive, or economies of scale may not make the company profitable.

Some firms may have specialized input needs not captured by the model, which uses average data for the whole industry.

Because of these issues, it is advisable to use the data as a starting point for further survey-based investigation.

Create action steps based on the insights. These methods allow important industries to be divided into several groups, such as "industries needing a skilled workforce," "key retention industries," "emerging basic industries," "potential industries to recruit," and so on.

Planners should organize the data and present it to regional stakeholders, including representatives from local industry, education, government, human resource development, and economic development. Trends in the data should be confirmed and / or refined.

A blueprint of action steps can then be drawn up for each group of key industries. These steps should first include further investigation of the specific industries and contact with representatives of regional companies in those industries. Once additional qualitative information has been obtained, the action steps can be made more specific and tailored to the needs of each industry, always keeping the larger regional perspective in mind.

Conclusion.

The main obstacle facing regional researchers is the lack or incompleteness of regional data compared to the vast amount of detailed data available at the national and state levels. A specific problem with detailed industry data is the presence of suppression. Suppressions, often marked with a (D) in databases, are numbers that the government is not allowed to disclose in order to comply with confidentiality regulations that prohibit the publication of statistics that could be associated with a specific person or company. Often times, these guidelines result in government data analysts suppressing additional data to avoid simply calculating the original suppressed number (s).

One solution is to reduce the geographic or industry-specific details. For example, check that data is available for an entire metropolitan area and not a county in the metropolitan area. Or use 3-digit NAICS industry codes instead of 4 or 5-digit NAICS codes. This often allows researchers to get more numbers, but these numbers are often not as useful as more detailed ones. Another solution is to use a data source that is for regional use, such as the Census Bureau's Local Employment Dynamics (LED), which attempts to provide more detailed data while adding statistical "noise" to protect confidentiality. LED is an improvement on previous systems, but still contains suppressions.

Finally, it is possible to purchase specially processed datasets based on the official public data, but also use sophisticated estimation techniques with multiple data sources to populate the suppressed data points.

References

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