

Data Analysis

When is Too Much Data Too Much?

With so much county level economic data readily available from sources such as the Bureau of Economic Analysis, Regional Economic Information System (BEA REIS) or Wisconsin's Department of Workforce Development, it is possible to become overwhelmed with "too much data". This can present a challenge to the economic development practitioner or Extension educator. From an economist's perspective the more data that we have available to us the more robust our analysis; each piece of data is potentially an important bit of a complex puzzle and to not use each piece may yield an incomplete picture. But at the same time, too much data can be overwhelming, particularly when working with a community to help them understand the local economy. The challenge to the practitioner or educator is to balance the need for a complete analysis (make use of as much of the data as possible) and the potential to overwhelm the community and alienate them from the process.

A useful way to approach data analysis is to make a distinction between the role of the practitioner or Extension educator and the needs of the community. The practitioner or educator should approach the role as a technical resource, as someone who understands the local economy well enough to lead a conversation about the economy. This does not require the practitioner or educator to become an expert on the local economy, but rather someone who has explored the relevant data and has an appreciation of what the data are attempting to tell us. Because of local knowledge the community will be aware of many of the insights the data analysis provides, but that knowledge may not be in context of the larger economy. The role of the data analysis is to help the community think through the local economic strengths and weaknesses, as well as any threats and opportunities.

Using the tools outlined by Shaffer and his colleagues such as simple growth indices and location quotients, among others, to shift and filter through the data one can gain significant insights into the local economy. By getting one's hands "dirty with the data" one can come to better appreciate of the story of the local economy. By sifting through the analysis for the key pieces of information to share with the community the practitioner's and/or educator's own knowledge of the economy is expanded. Because the practitioner and/or educator have spent the time and energy getting their hands "dirty with the data" they become an invaluable asset to the local community as the community explores economic issues in greater depth. Recall the goal is to move from data to information which provides knowledge upon which innovations can be created.

There are two potential traps that the practitioner and/or educator can fall into: (1) initially being overwhelmed with the volume of data at our disposal and becoming lost in the data and (2) being able to select the key pieces of information to share with the community (i.e., doing a “data dump” on the community). But by developing a framework to analyze and sort through the data in a systematic manner can minimize the size of these two potential traps. One such framework might be three steps: (1) analyzing trends (growth indices) “big picture” metrics such as population, per capita income and total employment; (2) compute location quotients for two points in time and compare and contrast the current level of location quotient and the change over time, this allows the identification of specific industries more closely; (3) examine trends (growth indices) of employment or earnings from the key industries of interest identified in the second step. While this may only be scratching the surface of the vast volume of data that is available, it is a reasonable approach to begin.

The next step is to explore the characteristics of population and income in more detail. This can be changes in age and gender profiles as well as changes in sources of income (e.g., wage and salary income, different types of transfer payment, dividends, interest and rental income, social security income). The level of industrial detail can also be expanded upon. These more detailed analyzes may or may not be part of the initial set of materials shared with the community but are held in reserve to help address any questions that arise in the community discussions.

In thinking through the analysis there are several issues to keep in mind.

Looking for Patterns: these patterns are the story that we are seeking to better understand the local economy.

Looking for Challenges or Surprises: an excellent way to engage the community in a conversation about the local economy is to ask about anomalies in the data. This could be an unusual spike or drop in a growth index, or an unusually larger or small location quotient. It could be growth in one sector while the state and/or nation have been experiencing decline.

Looking for Insights, Not Precision: Just because one can calculate a location quotient or growth index to the fifth decimal place does not mean the analysis is more accurate. A location quotient or pull factor taking the value of 0.9 or 1.1 is pretty close to 1.0, the threshold value. Does a location quotient going from 1.1 to 1.2 mean the industry is a potential cluster? Probably not. Keep in mind that the volume of data and potential ways to analysis the data can lead to “paralyze by analysis”. At what point do we have a sufficient understanding (knowledge) of the local economy so that we can act (innovate)?

In the end we want the community to think about their local economy, which in turn is based on solid data and sound analysis. If the community is asking more detailed questions then the community is moving in the right direction.