Caution: Location Quotients at Work

The Mis-Use of Location Quotients

You will see Location Quotients used and abused in many ways. Watch out for them. The best way to avoid being taken in by the mis-use of location quotients is to understand what an LQ does and does not tell you.

Many analysts incorrectly use LQs to determine if an industry is an exporter. Unfortunately, the best way to measure exports was directly by the US. Department of Commerce, but since they eliminated their regional export series it has gotten harder to identify export industries. As a result, there is renewed interest in the use of LQs to define export industries.

If an industry’s local share exceeds its national share then local production is assumed to exceed local demand. So a PORTION of local employment in that industry is assumed to be EXPORT. If the local share is less than or equal to the national, then it is assumed that local production serves only local demand. Be aware that this assumes that local consumption and labor productivity are uniform across the nation/world.

Furthermore in an analysis of a small area – a municipality or small county, the small economy of that region may distort the location quotient. If a small area has a specialized manufacturing facility, it may very well have a high LQ in that industry. But does this really represent a competitive concentration in that industry. One facility that employs 500 people in a small economy with only a few thousand workers could produce a high LQ. The analysis has to consider whether one firm and 500 employees represents enough of a base to build a development strategy upon.

It is also sensitive to the level of industry aggregation – food services in Atlanta – may approach 1.0, which suggests that it serves local demand, but Atlanta is the headquarters of Coca-Cola, do we really think it serves only local demand. What happens if you look at soft drinks, then you would expect to see a higher location quotient.

Exercise: Calculate the LQs for Atlanta for food services and soft drinks. Compare and discuss what this might tell us.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Georgia -- Statewide</th>
<th>Atlanta-Sandy Springs-Marietta, GA MSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAICS 311 Food manufacturing</td>
<td>1.47</td>
<td>0.88</td>
</tr>
<tr>
<td>NAICS 31193 Flavoring syrup and concentrate manufacturing</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>NAICS 3121 Beverage manufacturing</td>
<td>0.65</td>
<td>ND</td>
</tr>
<tr>
<td>NAICS 312111 Soft drink manufacturing</td>
<td>0.43</td>
<td>0.57</td>
</tr>
</tbody>
</table>
For Atlanta, NAICS 484 Truck transportation has an LQ = 1.12, but the NAICS 484122 General freight trucking, long-distance LTL has a much higher LQ = 2.43. In this case, the area specialized in long distance freight trucking, but other trucking is probably less represented in the economy.

Also – today’s economy is so much more globally linked. If you go the grocery store or shopping for clothes – are the things you buy likely to be made locally?

Can retail even be considered “local” anymore?

You may also need to use what is called the assumption approach – you assume that certain industries are export or local – and some by definition are: Local government for instance, other than that the lines are breaking down, Banking, utilities and even education.

Location Quotients are not useful for estimating how much production is exported for the following reasons:

- Sensitivity to level of industry aggregation
- Global production and consumption networks
- LQs don’t distinguish intermediate goods that might be consumed by a local producer that exports the end product. In this case the intermediate good might be wholly consumed locally, but the end product is not.

**Proper Use of Location Quotients**

Location quotients are a useful technique for identifying an industry that is concentrated in a region. Location quotients compare the share of local employment in a cluster to the share of national employment in that cluster. A location quotient of 1 indicates the local share of employment in an industry cluster is equal to the national share. A location quotient of less than 1 indicates the local area is less specialized than the nation in the cluster, and a value greater than 1 indicates the local area has a higher concentration of employment in the industry cluster relative to the nation.

\[
\text{Location Quotient} = \frac{\text{(Regional Cluster Employment / Total Regional Employment)}}{\text{(National Cluster Employment / Total National Employment)}}
\]

The caution here is that for smaller geographies, like MSAs and even small states, the threshold of 1.0 is too crude. Furthermore, many analysts will recommend that an industry with an LQ slightly above 1.0 represents a concentration when it is more likely to be a statistical artifact. If you are using the U.S. economy as a base to compare your region, and you are looking at some detailed industries – then the base of your LQ will include large parts of the country that have very little industry whatsoever. For some
detailed industries, they may only exist in a few parts of the country. The easiest way to handle this issue is to establish a higher threshold for the LQs to identify a concentration. For smaller geographies like MSAs or municipalities you might require an LQ of 1.5 or higher to identify a concentration. There is no hard and fast rule here, but the analyst should use some judgment regarding whether an LQ of 1.01 or even 1.1 really represents a concentration.

In determining whether an industry is truly concentrated in a region, and if that industry represents a strategic advantage, an LQ is only one piece of information. The analyst should also consider the number of firms and total number of employees. This helps to determine whether the region has the critical mass of firms and employees to provide a stable or growing base for the future. Furthermore, the average size and sales of the firms and how that compares to the US average can also be helpful. If regional firms are much smaller or much larger than their counterparts, then that may influence the development potential of the industry in your region and it certainly influences the development strategy. How you approach them and what resources they have or need will be very different.

Clusters with low location quotients and sub-par employment growth are probably some of the least-promising targets for regional industry cluster strategies.

Clusters with location quotients below 1, but increasing employment can be important growth generators in the local economy in the future. More research
should be conducted to determine the regional potential of these associated industries.

- Clusters with location quotients above 1 and declining employment growth relative to the nation or in absolute terms can be targets for policy action designed to strengthen important components of the local economy. This decline may prompt an examination of the potential of these collective industries, and future prospects for cluster workers.

- Clusters with a high location quotient and increasing employment are important to the local economy, as they are key industries with growth potential. Cluster strategies can focus on creating and maintaining an environment where firms can thrive.

Additional matrices of LQs versus average employment size or other criteria will help to identify the development potential of the industries / region.