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Export Strength and Opportunities for Kentucky Industries

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Export Strength and Opportunities for Kentucky Industries

Final Report

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Executive Summary

This project's primary goal is to quantify export strengths and opportunities in Kentucky industries. We measure export strength as the relative dollar value of exports per worker in four digit industries using U.S. dollar value of exports per worker as the base. Tables were prepared for total exports and a selection of 50 countries representing 98.5% of Kentucky exports and 93.2% of U.S. exports. In addition to the export index, a measure of industry strength based upon labor and comparisons to regional competitor states is provided.

- Industries with a low index value, either overall or for specific countries, present opportunities for exports as they reflect low exports relative to the rest of the country and controlling for industry strength and overall U.S. exports of that industry to that country.

- Industries with a low industry strength index may be opportunities for Kentucky Economic Development Cabinet intervention. These smaller industries may lack resources necessary to establish trading agreements. Broad intervention on the part of the Cabinet may overcome this lack of resources and lead to higher exports and industry growth.

- Some focus on the dollar value of exports per worker is warranted and these data are provided for the U.S. as a whole. These industries may present opportunities for high dollar value exports, which can lead to higher wages for workers.

Methodology and Interpretation

The tables provided below quantify export strengths and opportunities in Kentucky industries. We measure export strength as the relative dollar value of exports per worker in four digit industries using U.S. dollar value of exports per worker as the base. Fifty one tables are constructed, with each export industry presented on each table. The first table presents total exports to all countries. The remaining fifty tables present exports to specific countries. These countries receive at least $20 million in total exports (across all industries) from Kentucky and represent 98.5% of Kentucky exports and 93.2% of U.S. exports. We also present an export index for the twelve state competitor region (Ohio, Indiana, Illinois, Missouri, Tennessee, Virginia, West Virginia, Mississippi, Alabama, Georgia, South Carolina and North Carolina) and a ranking of Kentucky within this region. In addition to the export index, a measure of industry strength based upon labor is provided to present a measure of the size of the industry in Kentucky.

The data used in this study derive from two sources: World Institute for Strategic Economic Research (WISER) trade data and the Bureau of Labor Statistics (BLS) regional industry employment data. The WISER data are the most comprehensive trade and export data currently available. These data were downloaded from the WISER web site during the month of September 2012, and provide 2011 data on exports by industry from Kentucky (and other states) to all world countries. We used four digit North American Industry Classification System (NAICS) level coding to classify industries. The four digit industry level was chosen in order to be sufficiently detailed to provide focused information. As noted above, the report focuses on fifty countries representing over 98% of Kentucky exports. The BLS employment data were obtained from the BLS web page during this same period and represent the best estimates of industry employment in Kentucky. For some industries, the BLS data were not available for 2011. In that case, industry estimates were obtained by using either 2010 labor data or by interpolating based upon regional patterns.

The tables each have ten columns. The first column indicates the specific four digit industry, represented by both the four digit NAICS number and the name of that industry. This is a

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standard industry numbering system used by the U.S. government. For example, the beverage manufacturing industry is 3121. They are ordered by this number.

The second column is the U.S. dollar value of exports per worker for the specific industry. For example, in the all countries table we can see that the beverage industry exports $36,690.70 per worker to all countries. If we then consider a specific country, for example Canada, we see that the U.S. exports $8417.50 of beverages per worker.

The third column presents the dollar value of exports per worker for the competitor states. The competitor region is made of up the twelve states contiguous to Kentucky or in the southeast: Alabama, Georgia, Illinois, Indiana, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Tennessee, Virginia and West Virginia. The total exports from these state were divided by the total employment in that industry for these states. As an example, in the all countries table, we can see that the competitor region exports $63.928.80 of beverages per worker, nearly twice that of the U.S. average. Considering the table for exports to Canada, we see that our competitor states export $9,011.80 beverages per worker to Canada.

The fourth column presents the dollar value of exports per worker for Kentucky. As with both the U.S. and competitor states, the total dollar value of exports from Kentucky to the country (or all countries) is divided by the total employment in the industry. We can see that Kentucky exports $62,750.30 beverages per worker to all countries combined and $9,191.70 per worker to Canada.

The fifth column presents the first of two indices used to evaluate the export intensity. The fourth column presents the index for our competitor states. The index is constructed by taking the dollar value of exports per worker for the competitor states in that industry and dividing it by the dollar value of exports per worker in the U.S. as a whole and then multiplying by 100. Hence the comparison here is the competitor region average to the U.S. average. In the case where this number is larger than 100, this indicates that the competitor region exports more per worker than the U.S. as a whole. When this index is less than 100, the region exports less than the U.S. as whole. This index provides a context for a similar index constructed for Kentucky. The region

in which Kentucky is located has specific resources - natural, human and infrastructure - which provide advantages or disadvantages in the production of particular products relative to the U.S. as a whole. Hence this index provides some indication of products Kentucky may have advantages in producing.

The sixth column, the Kentucky Index, is the key column, providing a measure net of industry strength of export intensity at the four digit industry level to specific countries. The Kentucky Index column takes the export to labor ratio for the Kentucky industry and divides it by the export to labor ratio for the U.S. for that industry. Thus an index of 100 would mean that Kentucky exports the same dollar amount per worker as the U.S. A number higher than 100, indicates that Kentucky exports more per worker, while a number lower than 100 indicates less exports per worker. For example, in the all countries table, we see that the Kentucky Index for beverages is 171. This indicates that Kentucky exports 71% more beverage products per worker than the U.S. beverage industry as a whole. If we consider beverage exports to Canada, we see that the index is 109, indicating that Kentucky exports 9% more beverage products per worker to Canada than the U.S. as a whole.

The seventh column highlights cases where the Kentucky index is less than 75 and more than 50 points below the region index. These may be industries where opportunities for exporting Kentucky products can be found. This indicator is a crude measure and does not necessarily indicate any problem or failure of that industry in Kentucky. A number of reasons why the dollar value of exports could be lower in Kentucky than in the region exists. For example, while four digit industries are relatively homogenous, there is some variation in product. If, for example, differences in the specific product between industries could have tremendous effect on the price. It could be that Kentucky exports all of a low priced good, while other states export some of a high priced good. Another example would be if Kentucky produces the good, but the good is shipped to a firm in Cincinnati to be packaged and exported. The data we have would place the export value in Cincinnati but the production workers in Kentucky. *This indicator is only suggestive and should not be considered a complete analysis of the industry.*

The eighth and ninth columns present the top competitor state in the region.   Continuing with the beverage example in the total exports to all countries, we see that Kentucky ranks behind Tennessee. The comparable index for Tennessee is 407, indicating that Tennessee exports 4 times the dollar value per work of beverages than the rest of the country.   When we consider Canada, we note that Indiana has the highest index of 172.9 compared to 109 for Kentucky.

The tenth and final column measures Kentucky's industry strength in terms of employment relative to the region. This will be the same across all tables. This index is the number of workers in that industry in Kentucky compared to the average number of workers in that industry across all states in the region.   For example, we see that Kentucky has an index of 193.4 for the beverage industry.   This implies that Kentucky employs 93% more beverage manufacturing workers than the typical state in the region.

Methodological Limitations

A number of methodological decisions were made. The WISER data represent 2011 dollar value of exports. In some cases, 2011 employment level for specific industries in Kentucky (or specific states) were not available. In order to continue at the four digit industry level, we used 2010 employment in Kentucky (which was available) in cases where this was not available, we used regional employment patterns and Kentucky employment patterns to interpolate and provide a proxy.   This effects only a handful of industries.

A key assumption in comparisons between regions is that the labor productivity is similar.   That is that it takes the same amount of labor to produce the same dollar value of goods in Kentucky as it does in other states. We acknowledge that this may not be entirely true, but differences should be relatively small. A key concept in competitive markets is that technology diffuses through the industry rapidly and evenly.   If Kentucky industries are significantly less efficient, that is they use more labor, than comparable industries in other states, then the Kentucky export index will be lower.   This assumption is generally supported when directly investigated and does not represent a significant limitation of this study.

Analysis:

The primary column to examine is the Kentucky Index.   Certainly any zeros or numbers significantly below 100 are industries where improvement could be made.

One note of caution is that in some cases, in particular raw agricultural products, this number may be somewhat misleading if the product is processed and shipped from another state. However, this still presents opportunities for Kentucky. For industries where processing and shipping take place in other states, attracting these processing plants would increase demand for the products in Kentucky and would likely create jobs.

It may be tempting to use the Kentucky Industry Strength column to "excuse" a low value for the Kentucky Index. However, the main index measures exports relative to employment.   Even if Kentucky has relatively low employment in the industry, a low index in column three implies that *per worker* they are exporting at a lower rate than the rest of the country.   Indeed, these cases may present the best opportunities for Kentucky.   These smaller industries may fail to export because they have smaller firms and the fixed costs of establishing trade agreements - learning how to export - are too high for these small firms. Firm size is one of the most important determinants for exporting.   Industries where there are many small firms, but little exports, may represent a situation where Cabinet for Economic Development may be able to provide support for the industry in Kentucky to begin exporting relationships.   Exports would rise, and potentially, so too would employment.

Industries where the industry strength is high while the export index is low may also be places where significant opportunities exists, but not necessarily.   For example, consider the motor vehicle manufacturing (3361) industry.   The overall (all countries) export index is 44.1, while the industry strength index is 161.6.   A number of auto manufacturers are located in Kentucky. However, as we all know, Toyota is one major component of this.   The Toyota plant, however, was located here in order to provide manufacturing primarily for the U.S. market. It is unlikely that Toyota will suddenly decide to export more of these products.

Finally, we note that the index varies considerably across countries. Countries with low index for an industry with a high export index as a whole may represent substantial opportunities. Recalling that the index is relative to U.S. exports per worker to that country, our measure controls for aggregate demand for products in this industry for this country. . This may be a situation where intervention establishing trade agreements is highly warranted.

Recommendations

We recommend that intervention focus on industries with low primary index numbers. Focus may be particularly on industries which also have low industry strength, as these may represent firms where establishing exports is difficult due to size constraints. We also recommend attention be paid to specific country cases where the index is low for that country, but otherwise quite high.

Finally, we also recommend some focus on the second column: the dollar value per worker of exports in the U.S. While not a perfect measure, it does provide information on the likely rate of return: high dollar per worker will likely translate into higher wage workers for these products. Hence, low dollar value goods, such as canned seafood products (3117), are less desirable than high dollar value goods such as audio and video equipment (3343).

List of Countries:

Argentina, Australia, Austria Belgium, Brazil, Canada, Chile, China, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, France, Germany, Hong Kong, Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, Kuwait, Luxembourg, Malaysia, Mexico, Netherlands, New Zealand, Nigeria, Panama, Peru, Philippines, Poland, South Africa, Russia, Saudi Arabia, Singapore, Spain, Sweden Switzerland, Taiwan, Thailand, Trinidad and Tobago, Turkey, United Arab Emirates, United Kingdom, Venezuela, Vietnam.