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**Measuring Retail's Contribution to the Tri-Cities Economic Base**

Introduction

We define firms or industries that produce goods and services for sale to customers outside the Tri-Cities region as *basic industries*. These (exporting) industries bring income and employment into the region that would otherwise not exist. These firms constitute the region's *economic base*. Basic industries normally include manufacturing, mining, warehousing, medical centers, company headquarters, tourism, and state or federal facilities like universities, prisons, and military bases.

Firms or industries that support basic industries by providing services or inputs, and firms that provide goods and services to households in the region are called *non-basic industries*. The economic health of non-basic industries depends on the economic health of the region's basic industries. In the extreme, the survival of non-basic industries depends on the vitality of the region's economic base.

The retail sector is often the largest non-basic industry in any regional economy. This is certainly true for the Tri-Cities as employment in the retail sector currently is around 26,000, accounting for 13 percent of total employment. However, retail has been described as a *zero-sum game* in which gains by one retailer tend to be offset by losses among other, competing retailers, with no net benefit to the local economy. This view holds that retail trade is supported by the economic base of a region but contributes little to the expansion of the economic base.

The tendency for competition among retailers to be a zero-sum game is lessened by *import substitution* and *nonresident spending*. New retail development may induce residents to forego some of the shopping they previously did online or in stores outside the Tri-Cities (import substitution). By the same token, the new retail stores may draw shoppers from outside the region, and in doing so, increase the customer base. Attracting shoppers from outside the region is especially critical if new retail development is to add to the region's economic base.

Purpose of Paper and Methodology

The purpose of this study is to estimate the extent to which the existing retail sector in the Tri-Cities contributes to the region's economic base and the extent to which new retail development adds to the economic base. The Tri-Cities region (combined statistical area or CSA) consists of the Kingsport-Bristol and Johnson City metro areas as defined by the U.S. Census Bureau. The

CSA includes Carter, Hawkins, Sullivan, Unicoi, and Washington counties in Tennessee; Virginia locations include Bristol city and Scott and Washington counties.

### Location Quotient

We use the Location Quotient (LQ) statistic to estimate the portion of retail sales in a local economy that is attributable to purchases by nonresidents. The LQ for the Tri-Cities retail sector is computed as follows:

$$LQ = (R_{tc}/T_{tc}) / (R_{us}/T_{us}), \text{ where}$$

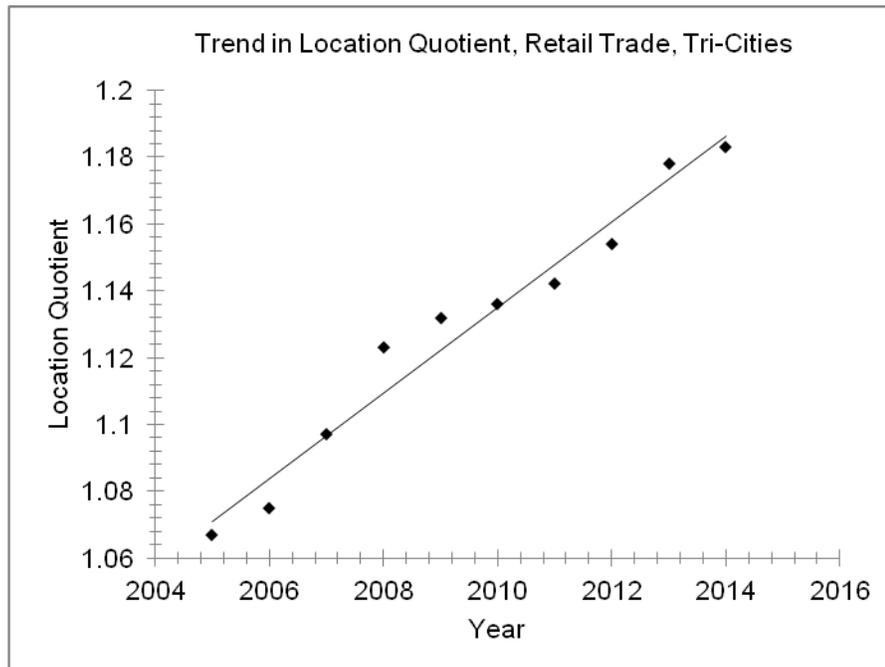
$R_{tc}$  = retail employment in the Tri-Cities,  $T_{tc}$  = total employment in the Tri-Cities,

$R_{us}$  = retail employment in the United States and  $T_{us}$  = total employment in the United States.

This technique is based on the assumption that Tri-Cities residents have the same pattern of preferences for goods and services as the aggregate of U.S. residents. A location quotient greater than 1.0 means retail accounts for a greater share of total employment in the Tri-Cities than is the case for the U.S. Therefore, a LQ greater than 1.0 indicates that some portion of retail sales occurring in the Tri-Cities is to satisfy nonresidents' purchases (export sales).

The U.S. Bureau of Labor Statistics (BLS) provides a LQ calculator for a large number of industries/sectors for state, county, and metro areas. We used the calculator to derive LQ's for 2009-2014 for the local retail sector. The BLS calculator may be accessed at [http://data.bls.gov/location\\_quotient/ControllerServlet](http://data.bls.gov/location_quotient/ControllerServlet).

The LQ for the retail sector in the Tri-Cities was 1.183 for 2014. There is a pronounced upward trend in the retail sector LQ for the Tri-Cities as shown below. By way of contrast, the retail LQ for Sevier County, a well-known tourist destination, was considerably larger at 1.58. Basic industries have even larger LQs; the LQ for chemical manufacturing was 12.9 in 2014 for the Kingsport-Bristol metro area.



## Margined Retail Sales

Several steps are required to estimate retail's contribution to the Tri-Cities economic base. First, we need to estimate the share of retail sales attributable to nonresidents. The share of retail sales in 2014 attributable to nonresidents (export sales) is calculated as follows:

Export sales share =  $1.0 - (1.0/LQ) = 1 - (1/1.183) = 0.155$ , or 15.5 percent.

Second, we need an estimate of total retail sales in 2014 in the Tri-Cities CSA. We use the estimates presented in *Tri-Cities Retail Sales Reports* published by the ETSU Bureau of Business and Economic Research (see <http://faculty.etsu.edu/hipples/RS15q1.htm>). According to ETSU, combined "retail and food service" sales were \$ 6,943 million in 2014. Nationally, retail sales, on average, account for 89.1 percent of the combined total. Therefore, we use \$6,186 million as our estimated retail sales figure for 2014.

Broadly defined, Retail Trade corresponds to North American Industry Classification System (NAICS) codes 44-45. Specific types of establishments within codes 44-45 may be viewed via the following link: [http://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart\\_code=44&search=2012%20NAICS%20Search](http://www.census.gov/cgi-bin/sssd/naics/naicsrch?chart_code=44&search=2012%20NAICS%20Search)

Estimating the economic impact of a change in retail sales on earnings and employment requires some care. The appropriate measure to use is *margined* sales rather than total retail sales. The economic impact of new retail sales is considerably smaller when the products are sold, but not manufactured in the region nor shipped by firms located in the in the region. This is normally the case for the Tri-Cities. The retail gross margin is defined as sales receipts less the cost of goods sold. These costs include the cost of goods purchased from manufacturers and the cost of transporting these goods to retailers in the Tri-Cities.

A simple example will explain the logic of using margined sales rather than gross sales. Suppose a local retailer sells a product for \$100 and that factory and shipping costs are \$70. The sale is recorded as a \$100 increase in retail sales, but only \$30, the gross margin, stays in the local economy. Retailers depend on gross margins to pay employees, purchase inputs from other businesses in the region, and earn a profit.

The same example can be used to illustrate the rationale for basing the economic impact of retail on the value of margined export sales. Suppose the \$100 product is purchased by a Tri-Cities' resident. There is no injection of "new" money into the regional economy. And, if the \$100 spent for this particular product is simply \$100 not spent at another store, we have an example of the zero-sum nature of retail – one retailer's gain is another retailer's loss. However, if the purchase is by a nonresident, a tourist, the regional economy receives a \$30 injection of new money. This injection of money into the local economy is the basis for a positive economic impact.

The average retail gross margin for the United States is 27-28 percent according to the U.S. Census Bureau, although it varies considerably from one type of retail establishment to another, ranging from less than 20 to nearly 50 percent. Additional information on retail margins may be viewed at <http://www.census.gov/retail>.

## Economic Impact Analysis

We define the economic impact of retail as the net change in the region's economic base that can be attributed to the sector. The net change in the economic base depends heavily on margined export sales - new revenues brought into the region via sales to nonresidents. We use a gross margin of 35 percent to estimate total margined sales, that is, sales to both residents and nonresidents. A gross margin of 35 percent is near the midpoint of the range in margins noted above.

Margined total sales equal 0.35 times \$6,186 million, or \$2,165 million. Margined export sales are equal to 0.155 times \$2,165 million, or \$336 million. We use economic impact multipliers to estimate the total impact of margined export sales of \$336 million.

### Economic Impact Multipliers

The Bureau of Economic Analysis (BEA) in the US Department of Commerce makes employment and earnings multipliers available through its Regional Input- Output Modeling System (RIMS II). These multipliers allow us to estimate the extent to which a one-time or a sustained change in economic activity will be supplied by businesses within a region and, consequently, how this change in economy activity will affect total employment and earnings in the region. The RIMS II multipliers are based on interindustry relationships in the 2010 national input-output (I-O) accounts developed by BEA. To develop multipliers for the Tri-Cities, the national I-O relationships were adjusted by BEA to reflect the industry structure and trading patterns in the region's economy.

We use the following RIMS II multipliers for the retail sector in the Tri-Cities to estimate the economic impact of the retail sector in 2014:

- (1) Final demand earnings multiplier: 0.522 ... the change in total earnings of households employed in all industries for each additional dollar of margined export sales (2014 dollars).
- (2) Final demand jobs multiplier: 16.73 ... the change in total employment (full-time and part-time) in all industries for an additional \$1 million of margined export sales (2014 dollars).
- (3) Direct effect employment multiplier: 1.3662 ... the change in total employment in all sectors for each additional job in the retail sector.

The total economic impacts of the retail sector in 2014 are:

Earnings: \$336 million times 0.5222 = \$175 million ... additional labor income arising from sales to nonresidents (export sales).

Jobs: 336 times 16.73 = 5,621 jobs ... increase in full-time and part-time jobs in all sectors arising from margined export sales of \$336 million. New jobs in the retail sector are estimated at  $5,621/1.3662 = 4,114$  jobs.

## Conclusions

The vast majority of the \$6,186 million in retail sales recorded in the Tri-Cities in 2014 were to local residents. That portion of retail trade does not produce an economic impact, *per se*. Our location quotient analysis indicated that 15.5 percent of retail sales were to nonresidents. That portion of retail trade can be considered a basic industry to the region, yielding the economic impacts noted above.

Our analysis should provide, at the least, a starting point to assess the economic impact of new retail development. The economic impact of new retail development must consider the potential for the new development to attract nonresident spending. Development which competes with existing retail stores likely will have an insignificant net impact on jobs and earnings in the region – a zero-sum game. On the other hand, new stores which are unique to the region and surrounding regions have the potential for a more significant impact. We caution, however, that the appropriate measure to use in such impact analyses is margined export sales, however estimated. Basing the economic impact on margined total sales will, in nearly all instances, overstate the economic impact.

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