Estimation of the Employment Multiplier for the Seven Counties in the Middle Georgia Regional Development Center

by

Dr. Allen K. Lynch
Associate Professor of Economics
Stetson School of Business and Economics
Mercer University
Macon, GA 31207
(478) 301-4055
Lynch_AK@Mercer.edu

and

Dr. Wm. Stewart Mounts, Jr.
Professor of Economics
Stetson School of Business and Economics
Mercer University
Macon, GA 31207
(478) 301-2837
Mounts_WS@Mercer.edu

March 2004

Estimation of the Employment Multiplier for the Seven Counties in the Middle Georgia Regional Development Center

The purpose of this report is to describe the procedure and the data that were employed to estimate the employment multiplier for the seven county study area (Bibb, Crawford, Houston, Jones, Monroe, Peach, and Twiggs) provided by the Middle Georgia Regional Development Center (MGRDC). As described below, we estimate the employment multiplier to be 2.364. This means that for every one job lost in a firm in the local basic economic sector (for example, Robins Air Force Base or Brown & Williamson) an additional 1.364 jobs would be lost.

The economic impact felt by an entire locality or region when, for example, a producer of goods and services leaves the area is not just seen in the lost jobs connected to that employer. Formally people employed in "export" related activities will leave the area or search for other work. Therefore, spending in the area declines and other jobs are lost. This is to say, one job supports other jobs. This dynamic economic progress is referred to as a multiplier. To understand the multiplier is essential to understanding the workings of a local economy.

Economic Base Theory is a widely used format for analyzing regional economic activity and for estimating the multiplier. In this approach a local or regional economy is seen as having two sectors, basic and non-basic. The basic sector of a local economy is represented by those local businesses that are dependent, in large part, on business conditions and factors that are *external* to the local economy. The basic sector *exports* goods and services to others outside of the local economy. From another perspective, the basic sector is a source of new spending inflows into an area. The non-basic sector, on the other hand, represents local businesses that are largely dependent local business conditions.

According to Economic Base Theory the vitality of a local or regional economy is largely dependent on the vitality of its basic or exporting sector. In a sense, the size of a local economy is supported by the size of the basic sector. More formally, the base or impact multiplier is defined as the ratio of total employment in the local or regional economy to the total employment in the basic sector of the local economy. This is also referred to as an employment multiplier.

From the above discussion it is clear that before a multiplier can be estimated for a locality, the size of a local economy's basic or exporting sector must be determined. This requires that local business exporters be identified in some way. While there are several alternative methodologies for this identification, we employed the Minimum

Requirements Technique.[1] (For comments on the use of the Location Quotient Method see our report prepared for the MGRDC entitled "Comments on the Methodology Used by the Middle Georgia Regional Development Center in the 1990s to Develop an Impact Multiplier for Robins Air Force Base.")

Under the Minimum Requirements Technique, the study area (Bibb, Crawford, Houston, Jones, Monroe, Peach, and Twiggs) is compared to many similar regions in other parts of the country. It should be noted that no distinction is made between the former Macon-Warner Robins MSA and the newer Macon MSA and the Warner Robins MSA. The area of our study was determined by the staff of the MRDC.

The comparison of Middle Georgia to the other areas is based on employment in each of ten general industries (agriculture, mining, construction, manufacturing, transportation etc., wholesale trade, retail trade, financial etc., services and government). The data came from the Bureau of Economic Analysis' Regional Economic Accounts database. The most recent available data were collected for the year 2000. This data is available on the website of the Bureau of Economic Analysis. The choice of comparison regions impacts the value of the minimum requirements upon which the base multiplier is based. For this study, mid-sized metropolitan areas (with populations between approximately 50,000 and 350,000) generally located in the southeast were selected. Specifically, the other areas include:

Pensacola, FL MSA	Huntsville, AL MSA	Dothan, AL MSA
Asheville, NC MSA	Columbus, GA-AL MSA	Ocala, FL MSA
Tallahassee, FL MSA	Tuscaloosa, AL MSA	Wilmington, NC MSA
Victoria, TX MSA	Tyler, TX MSA	Tulsa, KS MSA
Topeka, KS MSA	Texarkana, TX MSA	Sumter, SC MSA
Savannah, GA MSA	St. Joseph, MO MSA	Roanoke, VA MSA
Pine Bluff, AK MSA	Panama City, Fl MSA	Myrtle Beach, SC MSA
Mobile, AL MSA	Joplin, MO MSA	Youngstown, PA MSA
Shreveport-Bossier City LA MSA		

For middle Georgia and each of the above MSA areas, the percentage of total employment in each of the ten industries (agriculture and mining have been combined) is calculated. Next, the lowest percentage in each industry in the group is identified. This is called the *minimum shares region*. This minimum shares region is considered to be the minimum necessary employment to support only local economic activity. Next, the minimum shares region is subtracted from the percentage for middle Georgia. For example, if the minimum shares employment in retail was equal to 15 percent for the comparison MSA and the percentage of retail employment in middle Georgia was equal to 20 percent, then it would be assumed that 5 percent of middle Georgia's workers would be exporting retail services to residents in the area outside of the seven county area that makes up the local MSA. This difference is multiplied by the employment in the

[1] For a detailed description of the theoretical foundations and estimation techniques associated with the economic base theory used to develop base multipliers, please visit the following web site housed at Florida State University: http://garnet.acns.fsu.edu/~tchapin/urp5261/topics.htm.

middle Georgia area. The result is the number of individuals in the middle Georgia area in a given industry that are considered in basic employment. If there are 150,000 employees in the middle Georgia economy, this would imply that 5% or 7,500 would be exporting retail services. Since the income earned by these employees represents an inflow of purchasing power, these jobs would be considered basic jobs. As this new income is spent locally, it would serve to support non-basic jobs. The total employment in the MSA divided by the sum of basic employment in all ten industries is the employment multiplier.

Several points should be identified.

1. Every industrial sector of the middle Georgia economy is involved, to some degree, in export activity.
2. The multiplier is based on all basic sector jobs. Therefore, a loss of a job at GEICO for example, will have the same impact on middle Georgia as the loss of a similar paying job at Robins Air Force Base. From the data, every sector of the local economy is contributing to the vitality of middle Georgia – every sector is exporting something to someone.
3. Next, the construction and interpretation of employment multipliers is as much art as it is science. A job could be lost in one of the basic sector industries, but if that person is employed in another basic sector industry in middle Georgia, there will be no jobs lost.
4. There seems to be a belief that because Robins Air Force Base is so big, it must have a big multiplier. The estimated multiplier of 2.364 is for all basic sector industries. If Robins were to close and, for the sake of estimation, 19,500 jobs leave the area, the total impact on middle Georgia would be a loss of approximately 46,098 jobs, or 22.26% of the jobs in the area. This is sizeable even though the multiplier is less than ones that are part of the local urban legends.

a. Notes calculated by Ron Carbon 05/21/04
    i. Robins 2004 Econ Impact Statement shows 27,020 jobs at Robins
    ii. 27,020 * 2.364 = 63,875 total jobs
    iii. If 46,098 = 22.26 % then 63,875 = 30.84%

b. AS of June 23, 2004, per WR-ALC/PA there are 23,376 Civ, Mil, Hosted Units, NAF, and Contractors working on Robins.
    i. 23,376 * 2.364 = 55,260
    ii. If 46, 098 = 22.26 % then the total is ~= 207,089
        1. Then 55,260 ~= 26.7% of the jobs in the area.

5. This impact of closing Robins does not include the impact of retirees that might leave the area due to a closing. The multiplier only estimates the

regional impact of losses associated with export based employment. Should additional inflows of income (i.e. retirement income from Washington, D.C. flowing into the area) be lost, the economic impact of base closures would actually be greater than the base multiplier might suggest.