The Economic Impact of Agribusiness and the Return on the Certified South Carolina Grown Campaign

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INTRODUCTION

Since the colonial era, agribusiness has been in the forefront of South Carolina's economic development. The state is fortunate to have a strong, growing agribusiness sector based on an abundance of arable land and driven by sophisticated, highly productive, and diversified private enterprise. Recent studies estimate that the value of the agribusiness commercial footprint in the state is more than $30 billion. This enormous impact surpasses that of any other sector of the economy, according to recent research. From the rich bottomland of the coast to the fertile fields of the Piedmont, the cluster of economic activities around agribusiness offers the potential for even greater economic impact in the 21st century through the development of new products and the opening of new markets.

The Division of Research in the Moore School of Business at the University of South Carolina has studied the effects of South Carolina Department of Agriculture's (SCDA's) Certified South Carolina program. The researchers examined how local agricultural producers, processors, wholesalers, and retailers together can have an ever greater effect on South Carolina's economic development over time.

The report presents results from the analysis of the Certified South Carolina Grown program. It also provides a synopsis of agribusiness's economic footprint in South Carolina in order to better understand the campaign's economic potential. The review summarizes the results of recent studies of agribusiness and then turns to an original analysis of Certified South Carolina.

To help determine the potential for Certified South Carolina to grow the economy over the next decade, the study assessed South Carolina's neighbors in terms of local agribusiness purchases. It will be seen that if South Carolina reaches the share of locally sourced demand for major farm products similar to neighbouring states, there will be an increase in demand of about $335 million for the state's economy that would otherwise not be there. The total economic impact for the South Carolina economy is around $558 million. This increase in local demand would add approximately 10,000 jobs to the S.C. economy. These are annual impacts, so they would bolster the state economy by these amounts every year.

At a time when the South Carolina's employment opportunities are contracting at an alarming rate, these new jobs are crucial to stimulating the overall economy. The research in this report also shows that the Palmetto state's economy will grow along with the Certified South Carolina Grown campaign. Higher local consumption of food--bolstered by state-supported Certified South Carolina Grown—engenders substantially higher levels of *private sector* business activity.

Compared with a $2 million average annual investment by the state in SCDA's program, this is an exceptionally positive return. Based on our analysis of increased local purchasing, we calculate that the annual boost to state government revenue would be $23 million. In other words, $23 million in additional revenue for the state (not counting local) government would potentially be generated from a $2 million appropriation.

Taxpayers should expect the best possible economic return on any investment, especially in an era of limited public funds. Finally, it should be stress that supporting the consumption locally grown products not only pays off economically, it can bolster the quality of life, health, and well being of the Palmetto state.

The Value of Farm Land

For perspective, the report begins with the overview of agribusiness, highlighting a wealth of information found in recent studies of South Carolina's agribusiness (primarily Carpio, Hughes and Isengildna 2008a). According to the U.S. Census of Agriculture, South Carolina has approximately 20 million acres of land. Of that, 4.85 million (25.1 percent) is farmland. Cropland and woodland (including woodland pasture) account for 46.8 percent and 38.2 percent of farmland, respectively, with the remainder divided among rangeland, house lots, ponds, roads and wasteland. From 1995 to 2006, the number of farms increased, with the average size of farms decreasing to 197 acres by 2006, or 44.2 percent of the national average size. In 2002, 93 percent of South Carolina's farms were individually or family owned, with 18,476 of the state's 20,541 farmers being full owners. The number of corporate farms in South Carolina decreased by 26 percent from 1997 to 2002.

The average value of South Carolina farms in 2002 was $410,897; however, more than 52 percent of farms had land and buildings valued at less than $200,000. The average value per acre of farmland in South Carolina was $700 in 2006, 37 percent greater than the national average. Despite the difference in state and national per acre value being at its peak in 2003, the average South Carolina farmer had a debt-to-asset ratio of 13.7 percent, compared with 12.7 percent nationally. This number was up from 11.9 percent in 1997, while the national average had dropped from 15.2 percent. The total net farm income for 2006 was $722 million, yielding an average farm income of $29,400. This number remained relatively constant, between $29,000 and $30,000, during the period 2000-2006, except for 2002, when the average dropped to $9,800 (Carpio, Hughes and Isengildna 2008a).

Agricultural Production and Food Processing

Agricultural production and food processing are particularly important industries in South Carolina. In 2006, total cash receipts from agricultural commodities reached $2.1 billion, a nominal increase of 26 percent for 2000. Crop and animal production increased by 23 percent from $531 million in 1997 to $655 million in 2005. In 2006, South Carolina exported agricultural and livestock products to 49 countries, totalling $232 million in exports (Carpio, Hughes and Isengildna 2008a).

To be sure, the numbers reported in previous studies need to be updated to account for the protracted recession from late 2007 through 2009.

Productivity Trends

In economics, an important measure of progress is Total Factor Productivity (TFP). Total Factor Productivity (TFP) is the portion of output (farm products for example) not explained by the amount of inputs used in production (land, labor, fertilizer etc.). It measures how efficiently and intensely the basic inputs are used in production. For agriculture in South Carolina TFP rose from 0.55 in 1960 to 1.12 in 2004, a 1.61 percent annual growth rate. During this period, farm output increased 1.08 percent and inputs decreased 0.53 percent annually. Comparatively, TFP growth rates in North Carolina and Georgia were 1.91 percent and 1.84 percent respectively over the same period. South Carolina went from 21st in agricultural productivity nationally in 1960, to 26th in 2004 (Carpio, Hughes and Isengildna 2008a).

Major Agribusiness Products

South Carolina is one of the nation's leading producers of peaches, tobacco, peanuts, watermelons, cantaloupe, cucumbers, turkeys, tomatoes, and broilers. Of the $2.1 billion in cash receipts, five commodities–broilers, green industry (greenhouse, nursery, floriculture), turkeys, cattle and calves, and cotton production–accounted for more than 67 percent, with each contributing more than $100 million in cash receipts. South Carolina saw important growth rates in corn (up 136 percent), soybeans (up 23 percent), hogs (up 34.7 percent), peanuts (up 307 percent), wheat (up 23 percent) and watermelons (up 85 percent) between 2000 and 2006. While there was growth in some agricultural commodities, livestock inventories in all categories, except for broilers and turkeys, are down, with beef and milk cows and cattle showing a decreasing trend. Green industry accounts for about 15 percent of cash receipts, with nearly two-thirds of that coming from nursery and other greenhouse crops. In 2004, South Carolina had the highest average sales per floriculture grower in the country with $2.5 million sales per grower. In 2002, the green industry production sector accounted for 4,882 jobs with a total economic impact of $445 million (Carpio, Hughes and Isengildna 2008a).

Food and Other Processing

Food processing offers an opportunity to add value to agricultural products grown in South Carolina. Of the 33 agribusiness processing sectors in South Carolina, two had per worker earned incomes that exceeded their U.S. counterparts. Two of the agribusiness sectors that showed growth nationally had a large presence in the state: poultry processing with 8,869 jobs and frozen food manufacturing with 1,220 jobs. Overall, 14 of the 33 agribusiness processing sectors had growth in earned income from 2001 to 2006; however, nine of those sectors had fewer than 250 workers. Two of those sectors, poultry processing and non-poultry slaughter, showed growth of 26.6 percent and 22.5 percent, respectively, and employed 10,194 workers. There was also a decline in earned income in frozen food manufacturing and bread-other bakery products, two significant sectors in regards to employment (Carpio, Hughes and Isengildna 2008a).

The Economic Impact of Agribusiness

Clearly, agribusiness is a vital force in the South Carolina economy. To assess the extent of agribusiness, studies have estimated the direct, indirect, and induced effects of all agribusiness activities (see sidebar). The sum of these three measures can be used to gauge the total impact:

Direct Impact: The effects of agribusiness expenditures–mostly local purchases and wages–that are injected into the state's economy.

Indirect Impact: The ripple effects of spending on in-state suppliers.

Induced Impact: The state-wide ripple effects of expenditures from wages and salaries.

gross state product, employment, and total economic impact.

The three core agribusiness sectors–farming, food processing and forest-based products–accounted for $11.6 billion in economic activity measured by *gross state product* (GSP) in 2006 (latest figures). GSP is the net contribution to the state's economy; it is a measure of "value added" and is similar to gross domestic product, which is commonly reported by the media. The agribusiness GSP contribution to the state's economy comprises 7.9 percent of total economic activity in South Carolina ($11.6 billion of a total $146.3 billion in gross state product) (Carpio, Hughes and Isengildna 2008a).

Employment is the most easily understood measure of economic activity. Recent studies estimate that agribusiness–including forestry, agriculture, and manufacturing related to farming–directly employed 98,425 South Carolinians in 2006, with indirect employment contributing an additional 89,892 employees. The average earned income for workers associated with agribusiness was $36,814, amounting to 7.3 percent of the total state earned income and 93 percent of the state average of $39,611.

Next consider the *direct* and *total economic impact* of this important sector of the state's economy. The agribusiness direct output for 2006 was $20.5 billion. Through the economic multiplier effect this yields a total output of $30.3 billion, meaning $1 in sales in this sector led to $1.48 in sales throughout the state economy. Again, this is the contribution to overall economic activity. It measures the annual value of goods and services associated with agribusiness-related economic activities. Technically, total impact is called gross output and is the basic measure economic impact analysis. Essentially total impact includes all sales in South Carolina associated with the direct impact (agribusiness in this case). These sales would be to local vendors, who may sell goods manufactured elsewhere (tractors sold in South Carolina, but made in Illinois, for example). In this case, the only value added included in the GSP impact is the retail or wholesale margin.

Impacts of Farming

Farming constitutes a significant component of the overall agribusiness cluster. There are an estimated 42,362 direct jobs in farming in South Carolina. The total economic impact of the farming sector is 63,168 jobs, meaning 1.49 jobs are generated for every direct job in farming. The direct impact of $0.764 billion in earned income leads to a total impact of $1.45 billion, with a total impact of $22,924 average earned income per worked. The farming sector directly generates a $1.18 billion in Gross State Product with a total impact of $2.28 billion throughout the state, or $1.93 dollars for every $1 dollar in direct GSP. Farming also generates $2.64 billion in total output, with the total impact of the sector equalling $4.48 billion in sales.

In the food-processing sector, there are 18,687 direct jobs, with a total economic impact of 53,458 jobs; meaning 2.86 jobs are generated for every direct job in food processing. The food processing sector has direct earned income of $0.74 billion leading to a total impact of $1.863 billion throughout the state. Average annual earned income per worker in terms of total impact is $34,854. In terms of total output, the food processing sector creates $6.34 billion in direct output, $10.34 billion in total impact. The food processing sector generates $1.07 billion in direct GSP, which leads to $3.04 billion in total impact, meaning for every $1 in GSP, there is a $2.85 in GSP in the state economy.

The Certified South Carolina Grown Campaign

Next consider the potential for growth in farm products through greater local consumption of South Carolina-produced food. This is the goal of the SCDA's Certified South Carolina initiative.

A movement to buy more local food has swept across the United States in the past decade. The result has been to bolster local food systems, once a mainstay of U.S. agribusiness. Local food systems include the sale of local products to local markets. The main focus of these systems is to emphasize the origin of the product. Consumers want to be confident that the produce they are buying is the best option. There are many benefits that supporters claim exist from these local food systems, including access to fresher, more nutritional food options, and an increase in both social and economic activity. The existence of local food systems creates strong linkages between the local farmers and consumers. Supporters also point out that there are environmental benefits from the existence of local food systems, for example, the reduction in transportation can lead to less pollution and less energy use. Surprisingly, there is little published research concerning the impact of all different types of local food systems on a given economy. South Carolina is reported to have a similar direct marketing structure of local food systems as compared to the national average and neighboring states.

South Carolina implemented the Certified South Carolina Grown Campaign on May 2007. The campaign was initially funded from a $500,000 grant supported by the South Carolina Department of Agriculture. The goal of the campaign is to promote and support growth of agricultural products in the state of South Carolina. Five steps make up the campaign. The first is to connect all farmers, processors, and distributors to help meet the increase in demand for local products. The second step is to create a brand that would tie consumers to locally grown produce. The third is to create a multimedia campaign in order to advertise and sell the South Carolina brand. The fourth is to create labels and advertisements for local stores to help consumers clearly distinguish the locally grown produce and the specific farm location from the out of state produce. Consumers would be able to easily identify any local produce from South Carolina farms and would be confident in the quality they are receiving. The fifth goal is to create brand identities for individual product categories (Carpio and Isengildina-Massa 2008).

The main objective for the South Carolina local campaign is to reach all consumers. Technology plays a major role in making the agriculture information available to consumers. Research shows that if all consumers are informed about the South Carolina campaign the total sales could increase for local produce and animal products by about $17 million dollars per year. In order to reach all consumers, expenditures on the campaign would need to increase in order to increase advertising, and the amount of producers who participate within the program would also need to increase (South Carolina Grown, 2009).

Carpio and Isengildina-Massa (2008b) evaluated South Carolina's consumer preferences and the demand for South Carolina grown products. A survey of 500 South Carolina consumers was conducted in order to measure the attitudes and perceptions of the consumers concerning South Carolina grown agricultural products. The study's findings state that South Carolina consumers have a strong demand for local grown products. The survey results found that South Carolina consumers are willing to pay on average a premium around 27 percent for South Carolina State grown produce and around 23 percent for South Carolina local animal products. Despite the low awareness of the branding campaign in its early stages (as of September 2007 only 29.5 percent of respondents were aware of the campaign), the mean willingness to pay was approximately 3.4 percent higher for South Carolina grown produce when compared to surveys prior to the campaign. Under the assumption of total awareness of the campaign by all consumers, that number increased to 7.1 percent for produce and 4.4 percent for animal products. The 7.1 percent increase in the premium consumers were willing to pay has a long run effect of a $2.9 million increase in producer surplus, meaning that for every dollar of the initial $500,000 grant, there would be a return of $5.8 (South Carolina Grown, 2009)

Other states have also performed similar research concerning the demand for local grown products and how much consumers are willing to pay for these local grown products. Colorado found that there is

evidence of consumers willing to pay a higher premium for local products, specifically potatoes in this study. (Loureiro and Hine, 2002) In the state of Indiana research found that consumers did have a high demand for locally grown products, approximately 60 percent of consumers were willing to pay a premium for local products (Jekonowiski, Williams, and Schiek, 2000). Darby et al. 2008, studied the demand for strawberries in the Midwest, the results indicated that the Midwestern consumer valued locally grown strawberries more than strawberries grown anywhere else in the U.S. In relation to local grown campaigns New Jersey and Arizona have performed studies on the effectiveness of each of their local campaigns. The New Jersey campaign is called "Jersey Fresh" and the Arizona is called "Arizona Grown". The results from both of these studies were found to be inconclusive.

Potential Economic Impact of Certified South Carolina

It is still early in the program to evaluate the efforts of the Certified South Carolina Grown campaign to increase the purchase of locally grown goods in the state. As of 2007, five of the 14 agricultural products measured had less than 10 percent of their in state sales come from South Carolina grown products. With this in mind, the Division of Research at the Moore School of Business evaluated the impact that an increase in the purchase of locally grown agricultural products would have on the South Carolina economy. For a target, the regional purchase coefficient (RPC) for local products was set equal to the highest of Georgia, North Carolina or South Carolina. The rationale for this target is the due to the states similar geographies and therefore agricultural capabilities, Georgia and North Carolina serve as good representatives for attainable levels of local purchase. The evaluation also excludes farming of sugarcane and sugar beet, oilseed, grain, tobacco and cotton.

To establish the new level of local demand, the difference between the highest RPC of the three states and South Carolina's RPC is multiplied by the total amount of the product purchased in South Carolina in 2007. This is then added to the amount produced in South Carolina in 2007 to establish the overall level of production required to reach the desired RPC. This new level of production reflects only a growth in the local consumption of the good, holding domestic and foreign exports constant. By raising the RPC of agricultural products, the analysis is evaluating a substitution of imports for increased South Carolina production. The increased output is then used to establish the new level of employment needed to reach the target by multiplying it by the average worker per unit of output level from 2007. Once the new levels of production and employment are established, the economic benefits can then be estimated by means of the multiplier effect, an accepted and widely practiced technique used to assess the total economic impact. To obtain the multipliers used in the research, the IMPLAN model was used.

RESULTS

Of the ten agricultural areas investigated at in the research, South Carolina had the highest RPC for three of them: fruit farming, cattle ranching and farming, and greenhouse-nursery and floriculture products. The research's focus is therefore on the remaining seven areas– vegetable and melon farming, tree-nut farming, all other crop farming, dairy cattle and milk production, poultry and egg production, animal production (excluding cattle), and commercial fishing. The biggest differential in RPC was in tree-nut farming, with a difference of 80 percent; this was also the area with the lowest level of 2007 production, with output of only $2.2 million. The smallest differentials were in poultry and egg production and commercial fishing, with differences of 1.3 percent and 2.2 percent, respectively. Poultry and egg production were also the largest area evaluated and accounted for $949.4 of the $1,716.8 million in output for these products.

The estimated change in direct output by South Carolina producers varied greatly, from a low of $2.5 million in commercial fishing to a high of $118.7 million in vegetable and melon farming. Overall, the total increase in direct output would have to be $335.1 million, an increase of 19.5 percent. The resulting increase in direct employment to meet the new demand also varied greatly, with a need of 51 employees in poultry and egg production to 4,272 in non-cattle animal production. The total change in direct employment was estimated at 7,350 employees, an increase of nearly 39 percent from 18,855.

Using the multipliers obtained from the IMPLAN results, it is possible to estimate the indirect, induced, and total impact resulting from increasing the local purchase of agricultural products. The estimated total impact on the output was $558.1 million dollars from a direct impact of $335.1 million, meaning every additional $1 generated due to local purchasing there results in $1.66 in the state economy. The direct value-added amounted to $162.4 million, with a total value added of $265.1, so for every additional $1 there would be $1.63 throughout the state. The estimated total impact on employment was 10,053 employees from a direct impact of 7,350, meaning every additional job created would generate a total of 1.37 jobs throughout the economy.

Based on the additional annual value added of $265.1 for South Carolina, state tax revenue would increase by $23 million. This estimate results from the ratio of general fund revenue (from the U.S. Census Bureau) to South Carolina's nominal GDP (from the U.S. Department of Commerce, Bureau of Economic Analysis). The tax revenue is assumed to be generated from all new economic activity related to a successful Certified South Carolina program to increase local demand.

Figure 1: South Carolina Grown Output Impact

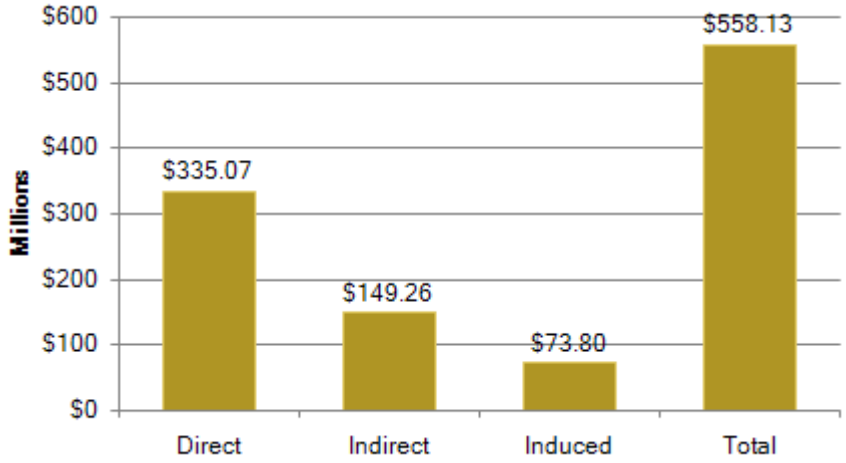


Figure 2: South Carolina Grown Value-Added Impact

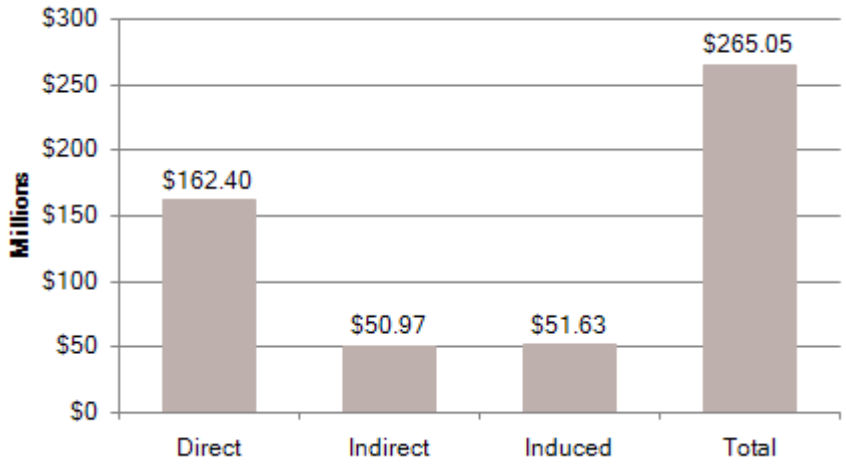
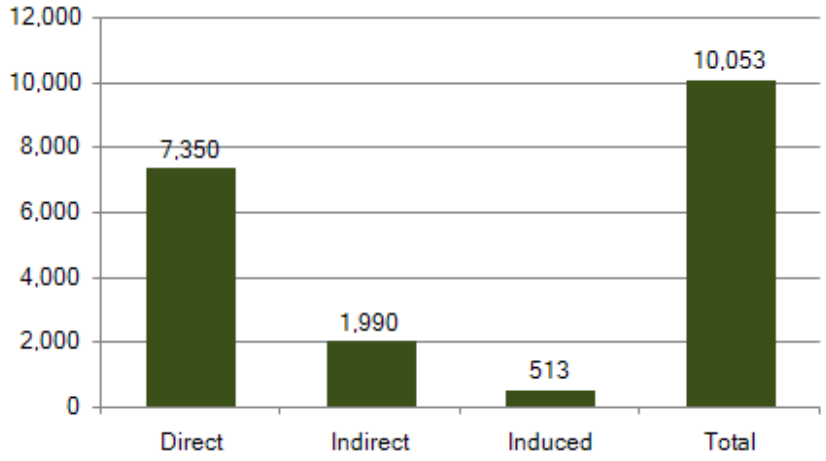


Figure 3: South Carolina Grown Employment Impact



Conclusion

In economic development, agriculture and related business activities have long been taken for granted. Some analysts and pundits even contend that regional economies in South Carolina and across the United States are in a post-industrial phase—having transformed from agriculture, to industrial, and now to a service economic base. This is nonsense. This report has argued that agribusiness not only remains the largest sector of the South Carolina economy, but has the potential to expand significantly in the decades ahead. Today, South Carolina has about 188,000 direct and indirect jobs associated with agribusiness. The economic output generated by this sector has been estimated to be more than $30 billion.

One important channel for expansion of agribusiness is through local demand. This report has shown that with reasonable assumptions, the additional employment generated by greater local purchasing of South Carolina-grown agricultural products would be 10,053. At a time when the state's job base is shrinking, these new jobs are crucial to the overall economy. The research also shows that the Palmetto state will also enjoys an additional total economic impact of $558.1 million by this higher local consumption buoyed by the Certified South Carolina Grown campaign.

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