

Examining the Southeastern US Beef Industry through Economic Base Analysis

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INTRODUCTION

The beef industry's importance spans beyond supplying high quality beef and value added products. Some industries, namely agriculture and manufacturing, are considered "export base industries" (EBIs) as they largely function to produce goods for export out of a region and serve as the region's primary drivers of economic growth. Other industries such as retailers are considered "local support industries" as their primary role is to provide products and services to local consumers. Here, the Southeastern beef cattle on-farm production and post-farm harvest and processing activities were analyzed from an economic base perspective to determine their roles in driving economic growth in 2016 through export base activities, or in maintaining the economy through the support of local industries.

METHODS

In contribution analysis, it is important to consider the roles of all players involved in the production of beef products. Available national-level economic data were not adequate to detail the complexity of the beef industry. Therefore, methods were developed to estimate beef sales for several sub-industries involved in the production, harvest, and processing of beef products. Six major sub-industries were identified and placed into two main categories: On-farm beef cattle production (cow-calf, stocker-background and feedlot) and post farm cattle harvest and beef production (cattle harvest, beef processing, and beef byproducts).

Using IMPLAN, LLC (2018) data for 2016, sales were estimated for each sub-industry and then used as inputs for the economic base analysis. A regional input-output model was built and was extracted from IMPLAN and modified to account for the new sub-industries. This modified model was imported into the Automated Social Accounting Matrix (ASAM) software where Symmetric Input-Output Tables (SIOTs) were derived (see English et al, 2020). Data found in the SIOTs were used to estimate the economic contribution of the Southeastern beef industry. Contributions are reported three ways:

Gross Contributions - a count of all of the measures of economic activity (sales, jobs, employee compensation and value added) generated from beef industry sales. It tells us how much economic activity exists within a region in the beef industry itself.

Export Base Contributions - gives the beef industry credit for bringing new dollars into the region through exports. The total base contribution is the sum of the direct exports, plus indirect stimulation of sales from other sectors within the region (indirect beef exports).

Export Support and Local Consumption Contributions - actual value attributed to the beef industry from local beef consumption and sales of other industries' products for export. This represents the economic activity not related to the production of beef exports.

Table 1: Southeastern Beef's Gross Contribution

Sector	Sales (\$M)	Jobs	Employee Comp (\$M)	Total Value Added (\$M)
Cow-Calf	2,995	63,443	58	818
Stocker/Backgrounding	1,219	25,829	24	333
Feedlot	56	1,197	1	15
On-farm Total	4,270	90,469	82	1,166
Cattle Harvest	4,611	6,549	314	688
Beef Processing	3,787	7,256	355	548
Beef By-products	695	1,371	92	113
Post-farm Total	9,092	15,176	761	1,349
Beef Industry Total	13,363	105,645	843	2,515

Table 2: Beef's Direct Export Contribution

Sector	Sales (\$M)	Jobs	Employee Comp (\$M)	Total Value Added (\$M)
Cow-Calf	250	5,292	5	68
Stocker/Backgrounding	97	2,062	2	27
Feedlot	5	96	0	1
On-farm Total	352	7,450	7	96
Cattle Harvest	2,444	3,471	166	365
Beef Processing	1,431	2,741	134	207
Beef By-products	427	843	57	69
Post-farm Total	4,301	7,055	357	641
Beef Industry Total	4,653	14,504	364	737

Table 3: Beef's Indirect Export Contribution

Sector	Sales (\$M)	Jobs	Employee Comp (\$M)	Total Value Added (\$M)
Cow-Calf	247	1,840	59	123
Stocker/Backgrounding	105	837	24	51
Feedlot	5	43	1	2
On-farm Total	356	2,720	85	177
Cattle Harvest	2,892	30,773	553	1,377
Beef Processing	1,495	11,369	295	653
Beef By-products	585	3,457	146	273
Post-farm Total	4,972	45,599	994	2,304
Beef Industry Total	5,329	48,319	1,079	2,480

Table 4: Beef's Export Support and Local Contributions

Sector	Sales (\$M)	Jobs	Employee Comp (\$M)	Total Value Added (\$M)
Cow-Calf	2,745	58,152	53	749
Stocker/Backgrounding	1,122	23,767	22	306
Feedlot	52	1,101	1	14
On-farm Total	3,919	83,020	76	1,070
Cattle Harvest	2,167	3,078	148	323
Beef Processing	2,356	4,515	221	341
Beef By-products	268	528	35	43
Post-farm Total	4,791	8,121	404	708
Beef Industry Total	8,710	91,141	479	1,778

RESULTS

Results show that the Southeastern Beef Industry was an economic engine in 2016 contributing to both growth (primarily through processing) and supporting local industries in the region (primarily through production). Subsector contributions are presented in tables but omitted from text due to space limitations. Full discussion can be found in English et al., 2020

In 2016, the beef industry generated more than \$13.3B in gross sales, representing 105,645 jobs and adding \$2.5B to the economy through employee compensation, proprietary income, returns to capital, and indirect business taxes (Table 1). The tables show that subsectors displayed different levels of importance in export and local contributions.

Direct beef exports (economic activity generated within the beef industry due to beef exports) amounted to ~\$4.7B in sales, 14,504 jobs and \$737M in value added (Table 2), most of which was generated through its post-farm activities. However, production of beef exports requires inputs from other industries (such as animal feed, processing machinery and packaging). When beef businesses purchase their inputs from local industries, this generates additional economic activity within the region. In economic base analysis, the value is credited to the beef industry, as it is exports from beef that are ultimately responsible for generating these sales. In 2016, regional beef exports were indirectly responsible for generating over \$5B in sales, equating to ~48,300 jobs, \$1.1B in compensation and almost \$2.5B in value added to other parts of the economy (Table 3). Again, post-farm activities (particularly cattle harvest) dominated these contributions.

Beef also supports the regional economy by providing beef products to local purchasers. These products may be consumed within the region (i.e. by households), or used as inputs for the production of exports for other industries (i.e. leather produced by the on-farm beef industry sold to shoemakers). By supplying these inputs and finished goods, the beef industry keeps money in the local economy, as businesses would otherwise have to import these goods from outside. In 2016, regional non-beef businesses and consumers purchased \$8.7B worth of goods from the Southeast beef industry. These export support / local consumption sales were responsible for generating over 91,100 jobs, \$479M in employee compensation and \$1.8B in total value added (Table 4) with much of this credited to on-farm beef activities.

Citations

English, L., J. Popp, G. Alward and G. Thoma. 2020. Economic Contributions of the US Beef Industry. Final report. Download from the Arkansas page of economic-impact-of-ag.uada.edu

IMPLAN. 2018. IMPLAN PRO (data and software): 2016 51 State Totals Package. 16740 Birkdale Commons Parkway, Suite 206, Huntersville, N.C.