Evaluating the Feasibility and Economic Impact of a Small Federally Inspected Cattle Harvest Facility

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Outline

- Study Justification
- Barriers to Developing a Facility
- Financial Analysis (cost, revenue, profit)
- Economic Impact
- Summary

Study Justification

- Anecdotal evidence, various studies, indicate interest in smaller, locally oriented livestock slaughter facilities
- Need for increased TN slaughter capacity
  - TN beef farmers survey results
  - Discussions with local, regional, and state agricultural leaders
  - National-based trends
    - Growth in grass-fed beef
    - Growth in local foods

Our Facility

- Cattle only, custom operation, USDA Inspected Facility
- Start out small (5,800 square feet)
- Slaughter, deboning, cutting and wrapping of major cuts of meat and grinding less desirable cuts into hamburger
- Interest by several TN communities
- Visit to Marksbury Farm slaughter facility in Lancaster, KY (follow-up visit January 10th, 2018)

But Many Barriers

- Supply of cattle (Big issue)
- Non-utilized animal parts, i.e. 'drop' (less of big issue for TN)
- Other waste disposal (assumed access to sewer and solid waste)
- Food safety & animal welfare (Big Issue)
- Financial solvency (Big issue)

Supply of Cattle

- We assume 1,800 cattle annual-36 per week
- Cash flow, worker utilization requires **steady supply or throughput of cattle**
- Committed business relationship between livestock producers and processor is key
  - Facility owner can self-supply share of cattle
  - Producers have financial investment in facility
- Active scheduling systems, variable pricing, and penalties to incentivize stable throughput

TN Cattle Producers Survey Data (Mcleod 2017)

- 804 respondents
- 62,647 cattle marketed
- 2,869 (4.7%) retained ownerships finished at feedlots
- 4,493(7.2%) were finished on their farm
- 618 (76.9%) indicated interest in supplying an in-state federally inspected facility
- **High level of <u>potential</u> interest (39K statewide?)**

The Drop or Offal (Non-meat part of the animal)

- Components include organs, fat or lard, skin, feet, abdominal and intestinal contents, bone and blood
- Profit center for larger operations; render themselves or sell to renderer
- Smaller operations
  - Finding and dealing with a renderer can be problematic
  - Pay for disposal
  - Other options such as composting but these tend to be more costly; biogester may hold promise in the future

Inspection System

- Federally-inspected facility:
  - USDA inspector on-site for the entire process
    - live animal arrival, post-mortem inspection, fabrication
- TN has Custom-Exempt:
  - Animal processed for animal owner(s)
  - Meat cannot be sold to general public
- State Inspection (certain states):
  - Protocols at least equal to federal
  - Can’t sale across state-lines (unless Talmadge-Aiken)

Food Safety & Animal Welfare

- Must have facility that meets all federal (HACCP-SSOP Plans), state, and local food safety requirements
- Federal inspection also includes humane kill requirements
  - Big challenge for smaller operations
  - Experienced operator is very important
  - Can result in shutdown

Financial Analysis

Breakdown of Construction Cost and Equipment Purchase

5800 square feet facility	$200,000
Refrigeration	$110,000
Interior construction	$130,000
Dirt work-roads (road)	$110,000
Building construction Subtotal:	**$550,000**
land (3 acre)	$45,000
Holding pens and Livestock unloading area	$24,000
Construction Subtotal:	**$619,000**
Equipment Purchase	$131,345
Total	**$750,345**

Equipment ($131,345)

- Equipment items based on prior studies & discussions with industry experts
- Published prices or quotes
- Larger Cost Items:
  - Mixer grinder $14k 10.7%
  - Vacuum packaging machine $14k 10.7%
  - Hide Puller $9.5k 7.2%
  - Saw Sterilizer $9k 6.9%
  - Knocking box $7k 5.3%
    - Various saws, rails, other larger costs

Selected Other Annual Costs for Custom- Slaughter Operation

Item	Cost	% Total
Packing Cost ($47.5 per head)	$85,500	32.2%
Electricity	$72,000	27.1%
Insurance	$16,315	6.1%
Gas	$18,000	6.8%
Water	$12,000	4.5%
Sewer	$12,000	4.5%
Renderer pick-ups	$7,500	2.8%
Total Other Annual	$265,727	100%

Labor Cost for Custom-Slaughter Operation

Labor Category	Salary	Benefits	Total Labor Cost
Plant Manager	$63,000	$22,050	$85,050
Butcher	$39,750	$13,913	$53,663
Packaging/Cutting	$28,120	$9,842	$37,962
Sales-Clerical	$40,000	$14,000	$54,000
Packaging/Cutting	$28,120	$9,842	$37,962
Packaging/Cutting	$28,120	$9,842	$37,962
Total Labor Cost	$227,110	$79,489	$306,599

Total Annual Cost of Slaughter Operation

Category	Cost
Total Labor & Other annual costs[1]	$572,326
Annual Payment for loan[2]	$100,025
Total Annual Costs	$672,351

[1]Total Labor Costs of$306,599 plus Other Annual Costs $265,727.
[2]Amortizing the $750,345 over ten years at a 5.6% rate of interest.

Estimated Annual Revenue

Category	Value
Hanging (hot carcass weight (lbs.) per head):	700
Base Slaughter Fee per Head	$75.00
Boning/Cutting/ Packaging Fee Per Pound	$0.49
Total Revenue Per Head ($75 + (700*0.49))	$418.00
Annual Number of Head[3]	1,800
Total Annual Revenue (1,800 head * $418 per head)	$752,400

Annual Pre-Tax Profit & Sensitivity Analysis

Total Annual Revenue	$752,400
Total Costs	$672,351
Pre- Income Tax Profit	$80,049
Break-Even Price Per Pound	$0.438
Break-Even Price Kill Charge Per Head	$67.02
Break-Even Price, Per Pound, All Nonfinancial Costs	$0.373
Break-Even Price Kill Charge Per Head, All Nonfinancial Cost	$57.05
Break-Even, Number of Cattle Processed Annually	1,584

Economic Impact

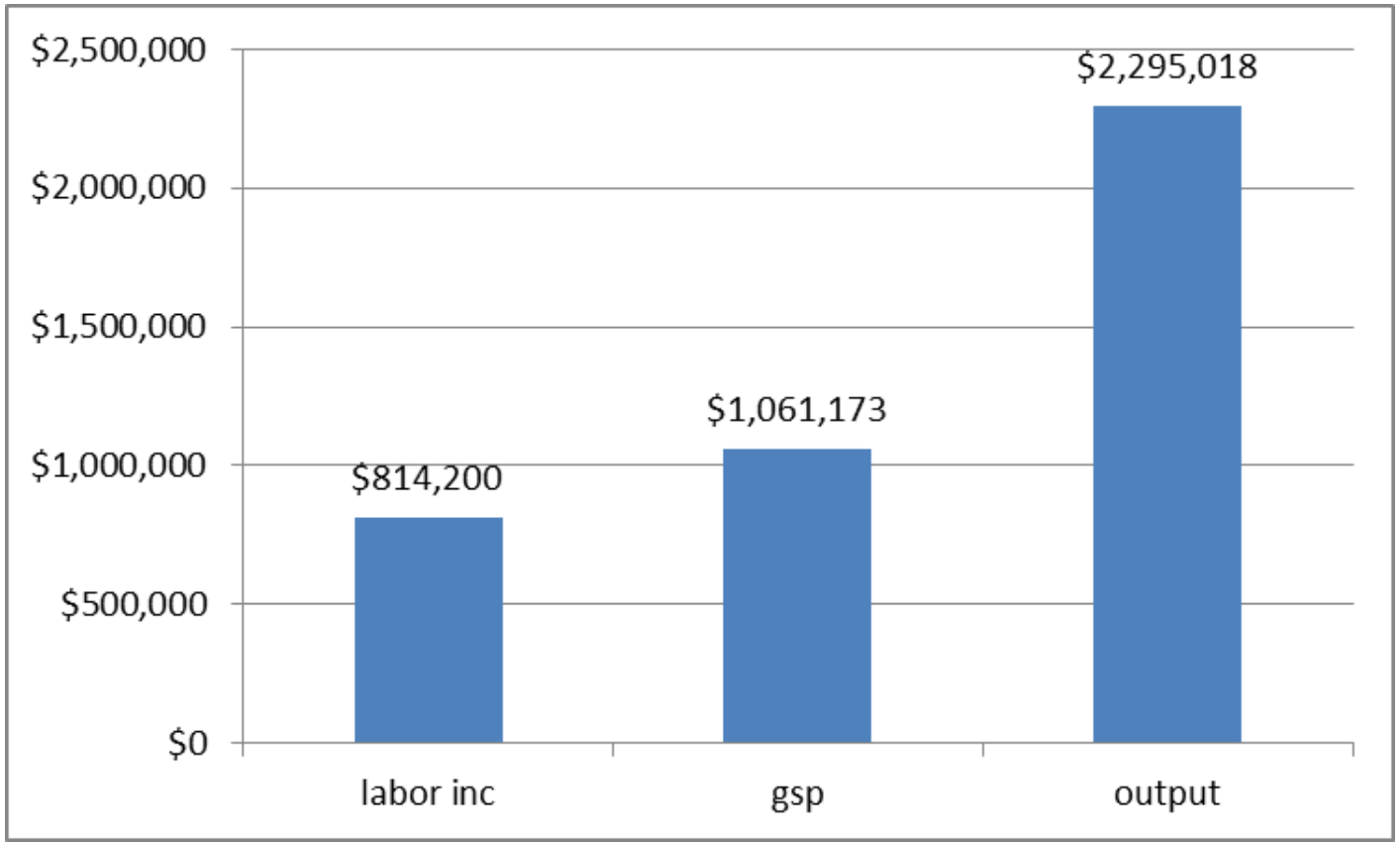
Unique we think; don’t know of a study that has combined feasibility and economic impact

Procedure

- IMPLAN-based input-output model of TN economy 2013
- Translated spending for plant construction and operation into economic model terms
- Estimated impact of farmers feeding out cattle (mostly feed, some veterinary, some profit)
- Results: total sales or output, jobs, labor income, gross state product (GSP) across all parts of the TN economy

Operating Cost: Annual Economic Impact

- 13.8 jobs (6 direct)
- $3.41 output multiplier (large due to farm feeding)
- $1.56 output multiplier (if farm treated as base)



Summary

- Facility is feasible given right approach and adequate supply of cattle
- In terms of farmer needs, expanding current slaughter operations maybe an option
- Small economic impact but would be relatively significant in poorer counties
- Matching demand by farmers to location of current operations would be useful additional research

Questions, Comments,
Thank You!

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