Changes in Technology Use in the Beef Industry

Lia Nogueira
Assistant Professor
Agricultural Economics
University of Nebraska – Lincoln
E-mail: lia.nogueira@unl.edu

Kathleen Brooks
Assistant Professor
Agricultural Economics
University of Nebraska – Lincoln
E-mail: kbrooks4@unl.edu

David Bullock
Professor
Agricultural and Consumer Economics
University of Illinois
E-mail: dsbulloc@illinois.edu


Copyright 2015 by Lia Nogueira, Kathleen Brooks and David Bullock. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.
Changes in Technology Use in the Beef Industry
Lia Nogueira¹, Kate Brooks¹ and David Bullock²
¹ Department of Agricultural Economics, University of Nebraska-Lincoln
² Department of Agricultural and Consumer Economics, University of Illinois

Motivation
Technology used to enhance beef production
• Hormone implants
• Beta-agonists
Trade disruptions due to production practices
• Consumer driven or protectionist policies?
• Trade agreements: TPP, TTIP
Economic benefits of technology improvements in the US cattle industry
• Most studies fail to fully characterize all stages of the cattle industry

Objective
To build a detailed theoretical model to describe the US beef industry to analyze welfare changes due to technology use

Assumptions – Beta-agonist ban
Beta-agonist used as a substitute for feed
• Handle feed grain and DDGs: D→, P ↑
  • Feed grain at elevator: P ↑
• Fed cattle: S↔, D →, P ↑
• Packed beef: S↔, D →, P ↑, Qs ↓
• Wholesale & retail beef: S↔, D →, P ↑, Qs ↓

Model
New measure of the change in producer welfare
• Does not generally require estimation of the supply curve beyond the range of data
• Increased statistical confidence on the estimation of the change in producer welfare
Key is to use data from input markets in the measurement of producer welfare change

Effect of Beta-agonist ban \( p_b = \infty \) on feedlot welfare, measured using new method

To analyze ban of hormones and Beta-agonists:
1. Calculate and compare the cost of US beef production
2. Determine how the supply curve and input demand curves would shift with ban
3. Quantify consumer and producer welfare changes