



DIVISION OF AGRICULTURE
RESEARCH & EXTENSION

University of Arkansas System

Price Determination versus Price Discovery in Cattle Markets

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**Managing for
Today's Cattle Market
and Beyond**

March 2002

Price Determination versus Price Discovery

By

Clement E. Ward, Oklahoma State University

Ted C. Schroeder, Kansas State University

Fed Cattle Price Discovery Issues and Considerations



E-1053

**Division of Agricultural Sciences and Natural Resources
Oklahoma State University**



EXTENSION

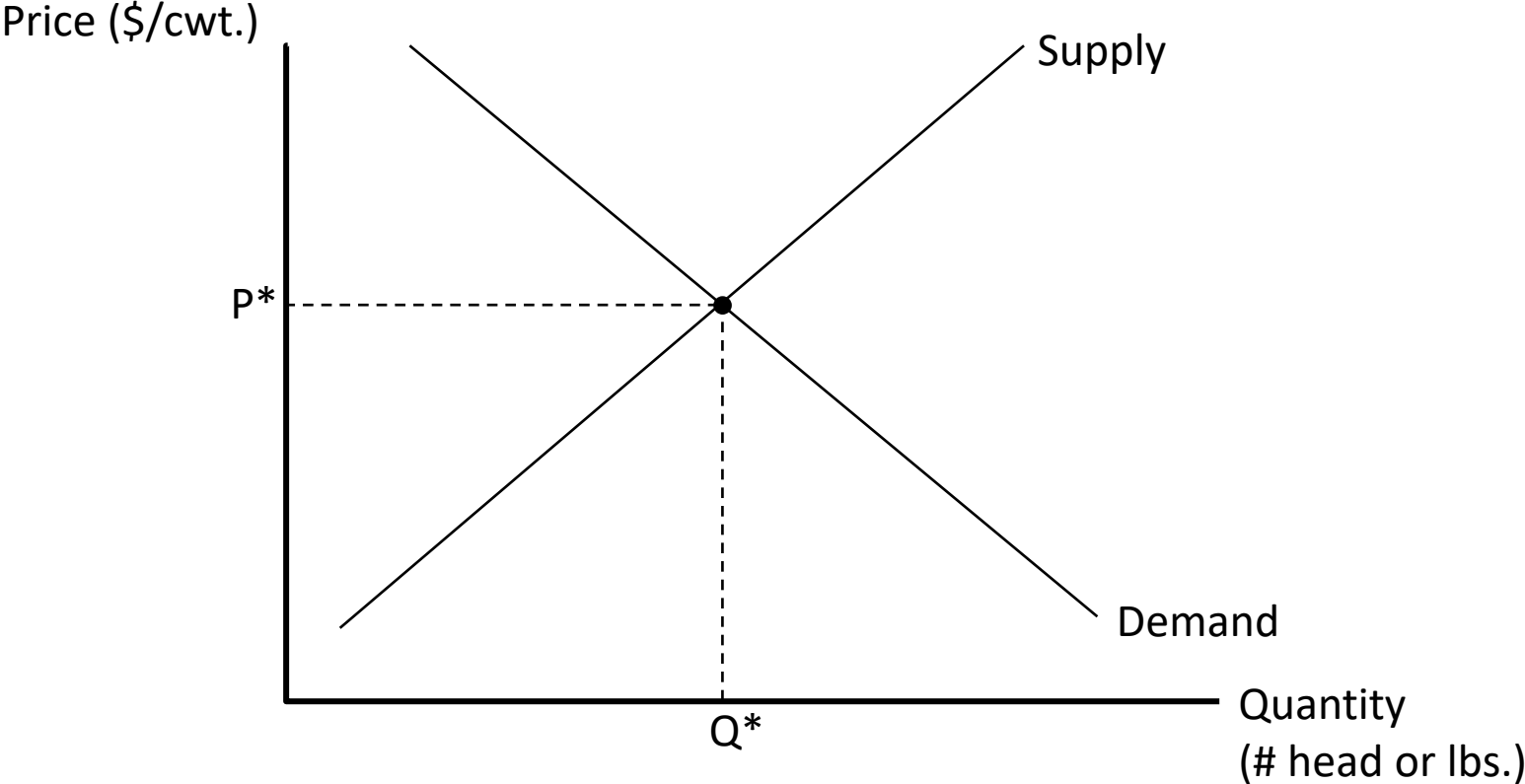
Objectives

1. Defining Price Determination
2. How are cattle and beef markets related?
3. Defining Price Discovery

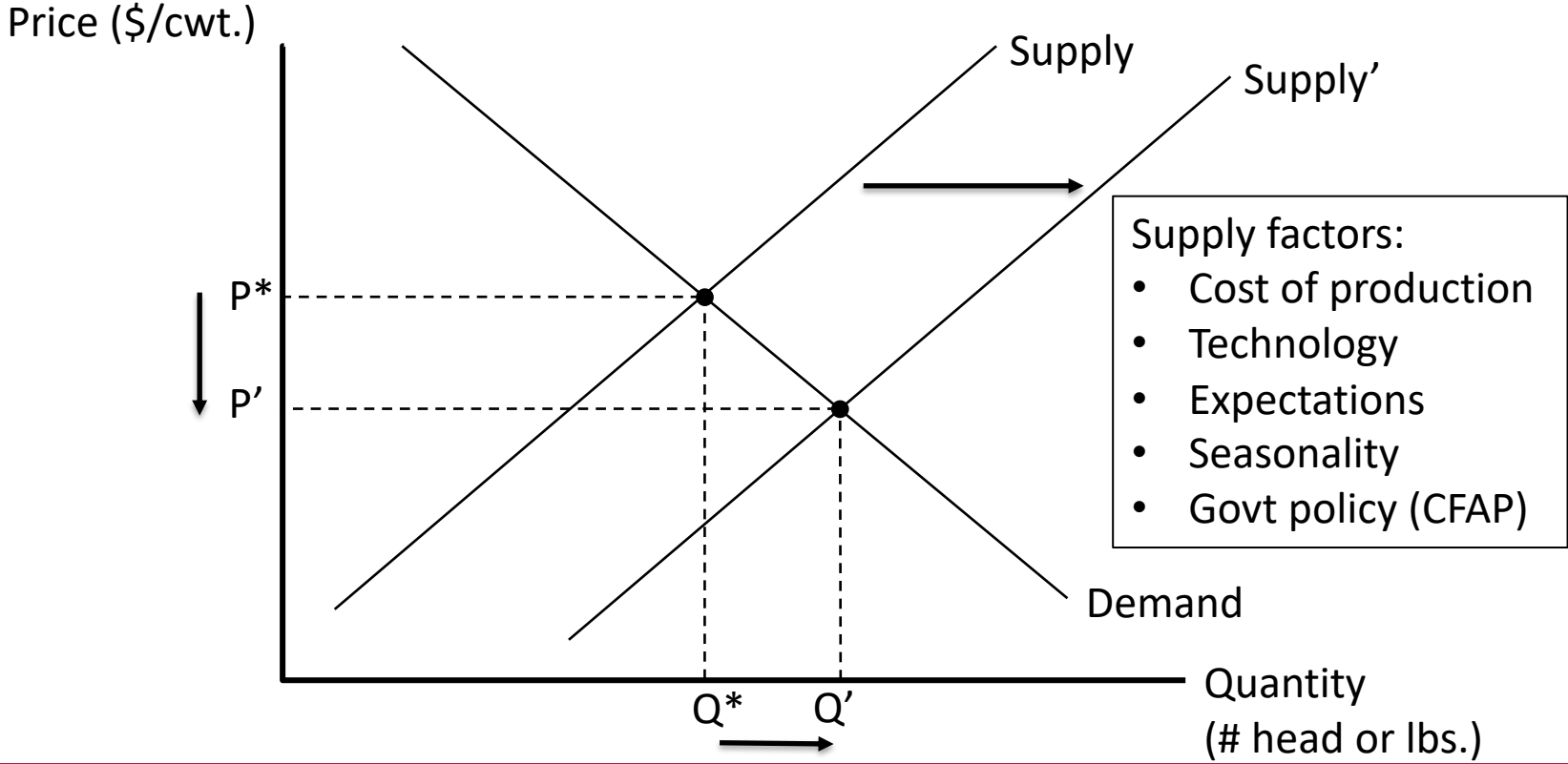
Price Determination

- The interaction of broad supply and demand forces which “determine” the market price level
- Concerned with equilibrium or average price level
- Macro-level perspective based on supply and demand fundamentals

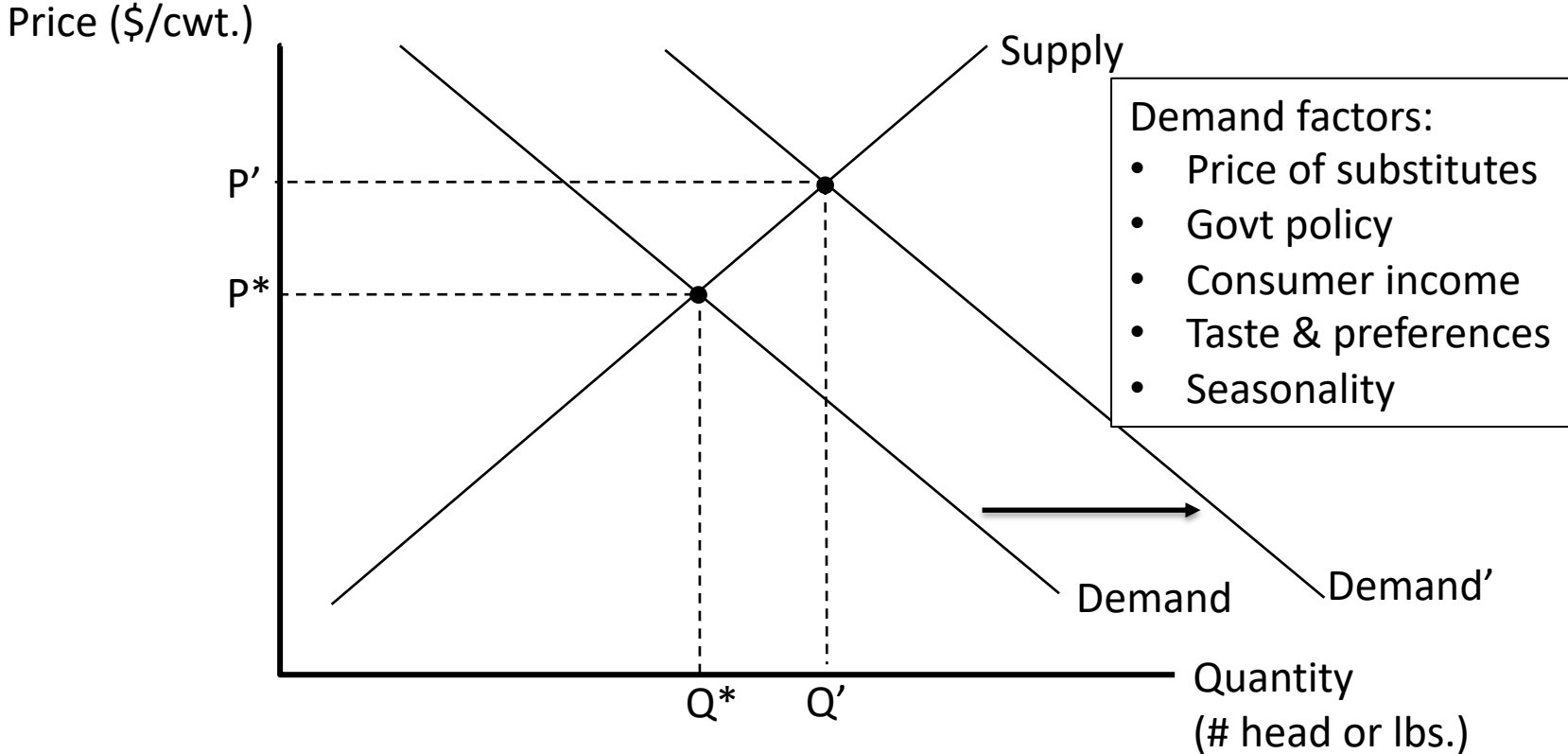
Price Level



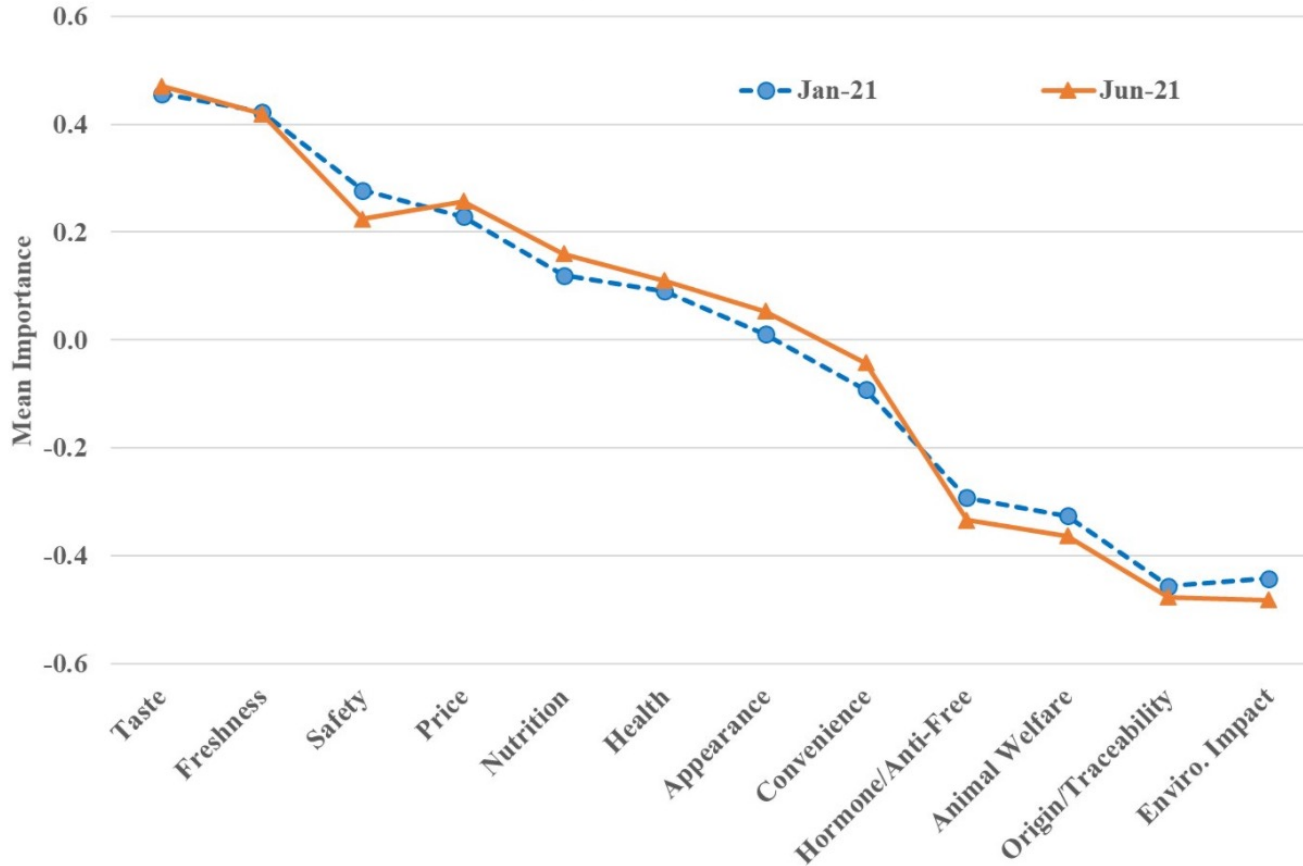
What Impacts the Price Level: Supply



What Impacts the Price Level: Demand



Protein Values



Top 4 Protein Values:

- Taste
- Freshness
- Safety
- Price

How are feeder cattle prices determined?

- Feeder Cattle Supply (Cow-Calf):
 - Feed cost (grass, hay, suppl.)
 - Other costs
 - Herd replacement cost (heifer, bull)
 - Technology (lbs. of weaned calf)
 - Seasonality (fall vs spring weaned)
 - Biological constraints (gestation)
- Feeder Cattle Demand (Feedlot):
 - Feed cost (grain)
 - Other costs
 - Fed cattle price
 - Technology (growth promotants)
 - Seasonality (fall vs spring placed)
 - Biological constraint (days on feed)

How are fed cattle prices determined?

- Fed Cattle Supply (Feedlot):
 - Feed cost (grain)
 - Other costs
 - Feeder cattle price
 - Technology (lbs. per head)
 - Seasonality (feedlot performance)
 - Biological constraints (days on feed)
- Fed Cattle Demand (Packer):
 - Processing costs (labor, capital)
 - Other costs (regulatory)
 - Beef price
 - Technology
 - Seasonality (grilling season)
 - Capacity

How are cattle and beef markets related?

Supply:

- Feeder cattle (primary)
- Fed cattle (derived)
- Packer beef (derived)
- Retail beef (derived)



Demand:

- Feeder cattle (derived)
- Fed cattle (derived)
- Wholesale beef (derived)
- Consumer beef (primary)



Supply/Demand Shock: Plant Closure

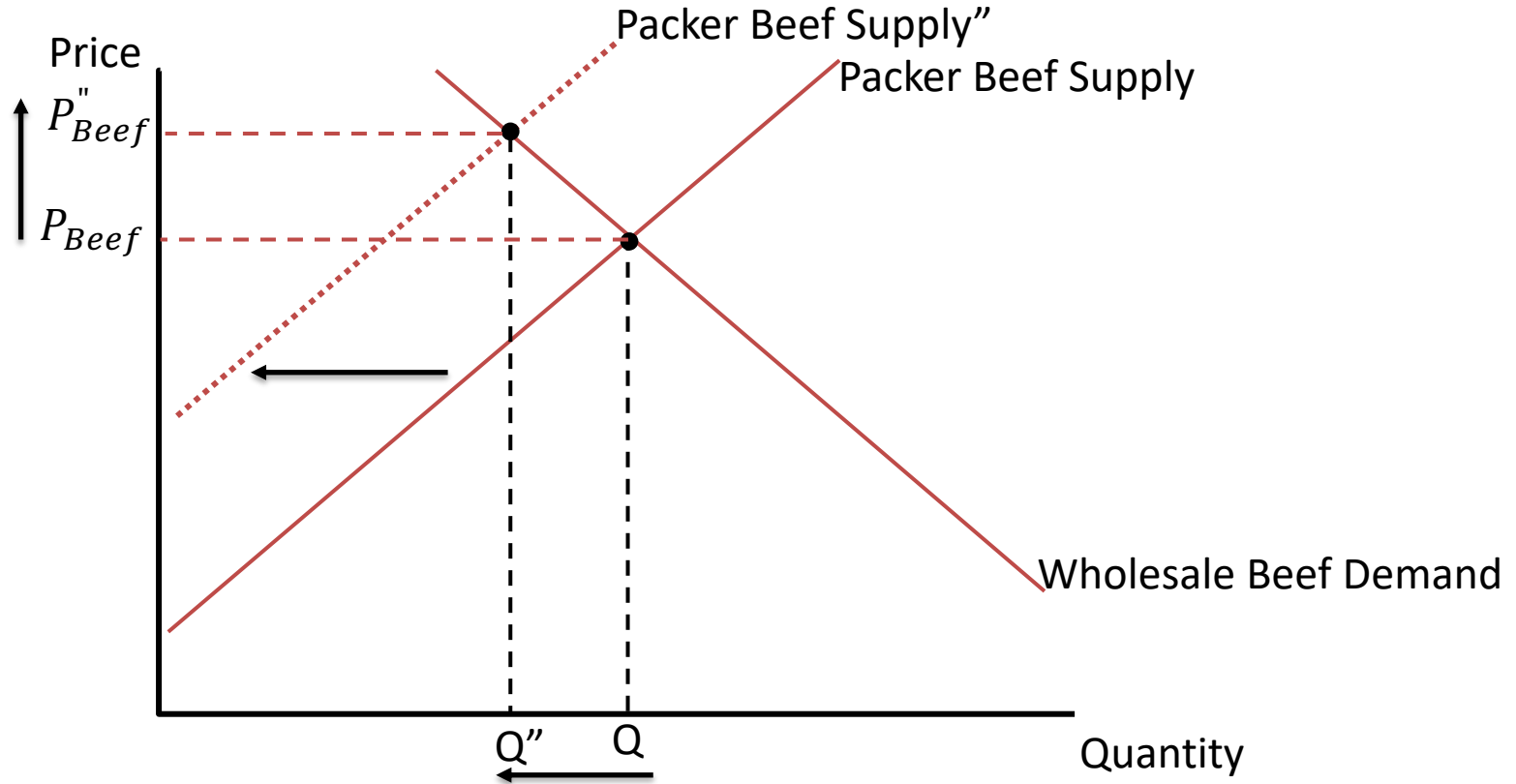
1. Plants supply beef

- Can't produce beef if plant is closed
- This translates to a reduction in beef supply

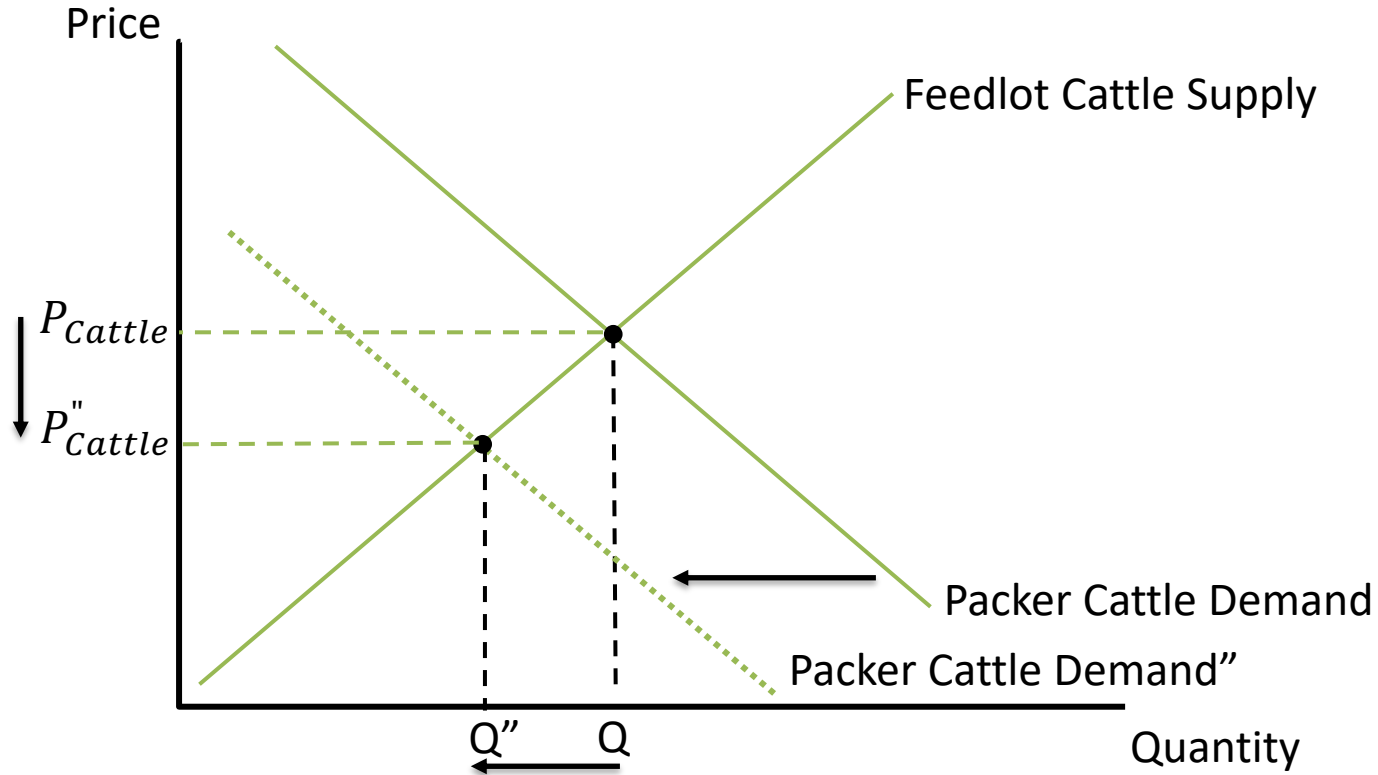
2. Plants demand fed cattle as a beef input

- Can't slaughter cattle if plant is closed
- This translates to a reduction in cattle demand

Beef Market: Plant Closure Supply Shock

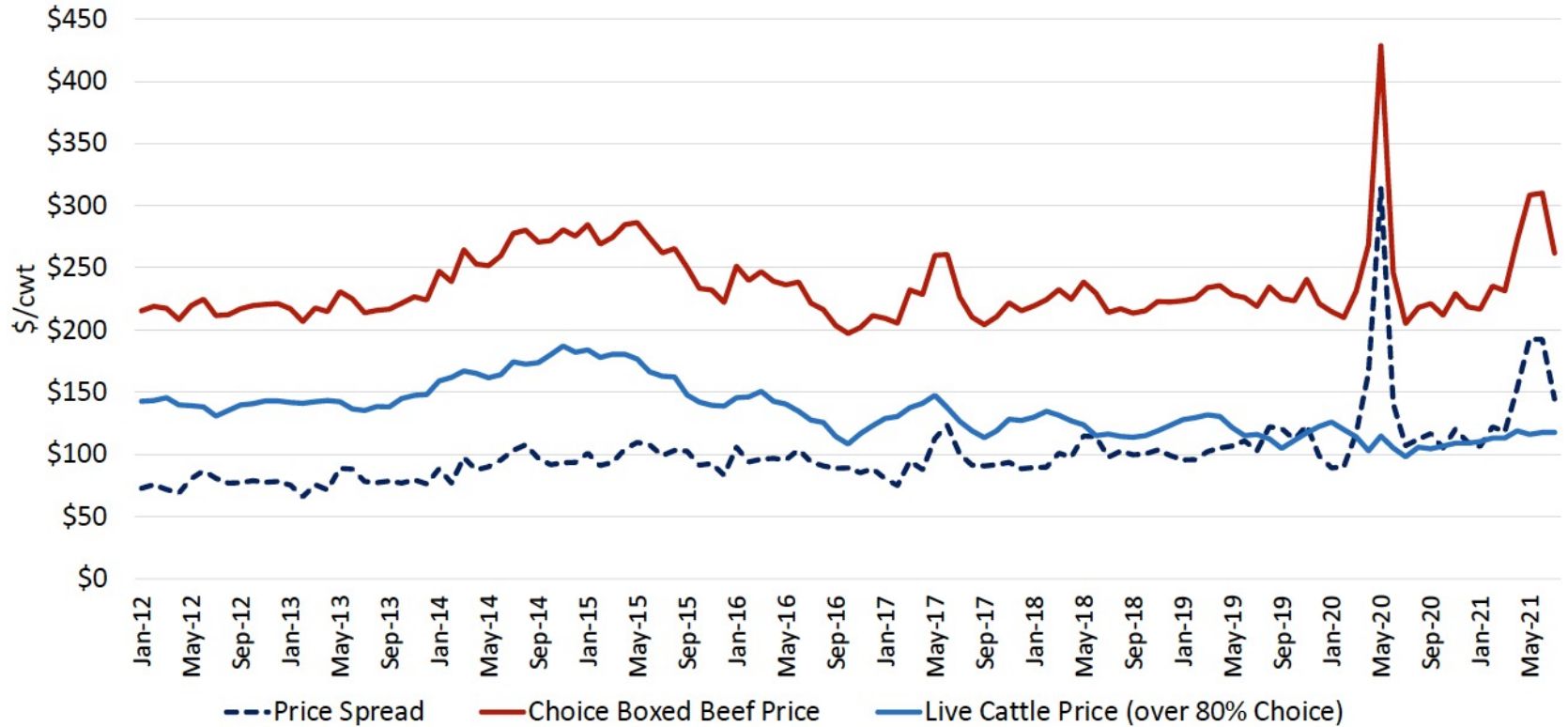


Fed Cattle Market: Plant Closure Demand Shock



Boxed Beef Value, Live Cattle Price, and Price Spread, Jan 2012-Jul 2021, Inflation Adjusted

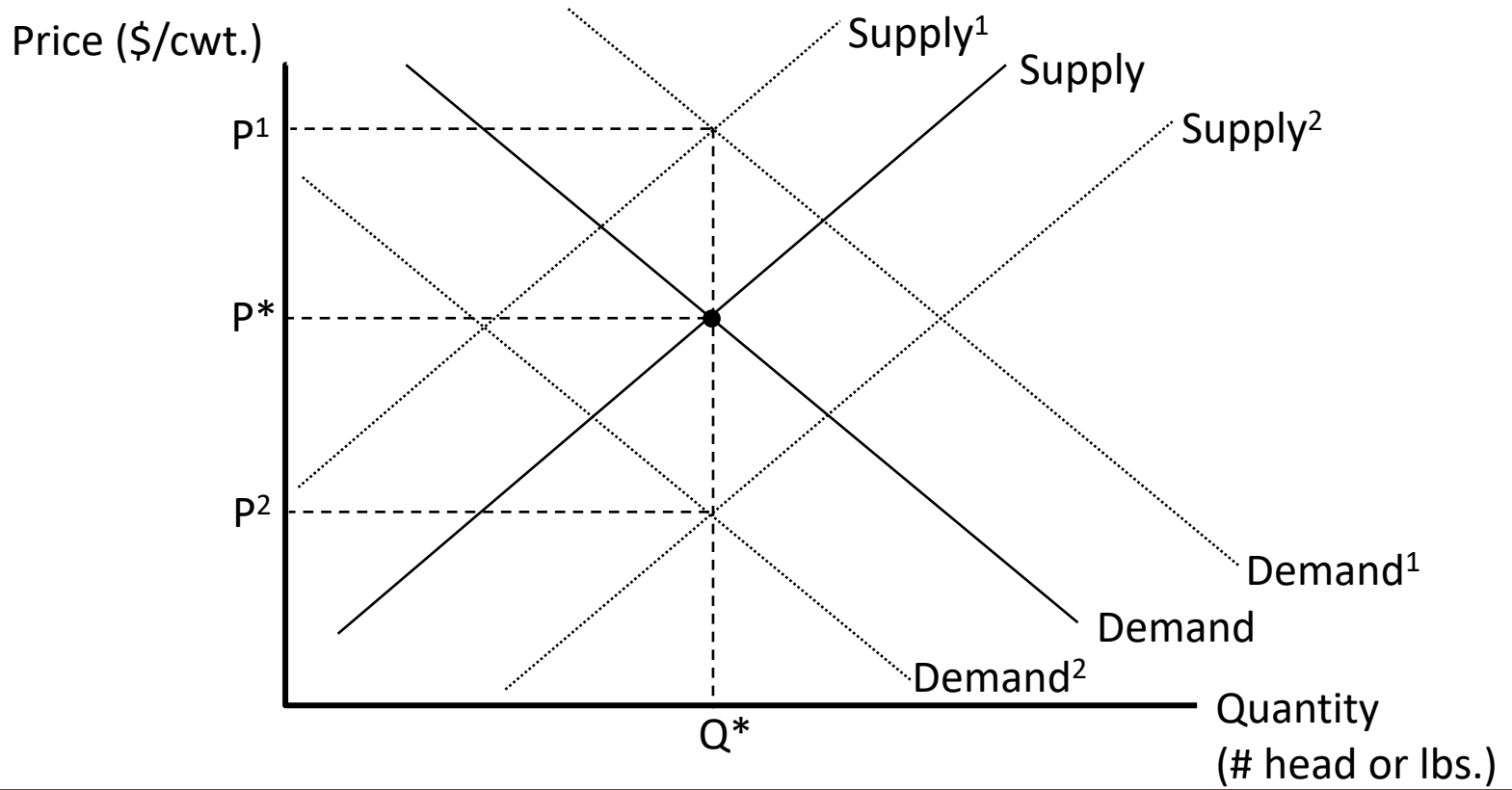
Source: LMIC, James Mitchell



Price Discovery

- **Price Discovery:** The process of buyers and sellers arriving at a specific transaction price
- Concerned with transaction prices and how they are established
- Micro-perspective on variability of prices around an equilibrium price

Price Discovery



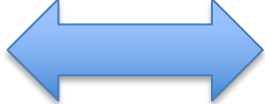
What impacts price discovery?

- Anything that impacts buyer/seller behavior when making bids/offers
 - Market structure
 - Risk and incentives
 - Market information (quality and availability)
 - Quantity and quality of the commodity

Quality of Price Discovery

- Effective price discovery means that prices are efficient
- Efficient prices reflect all available information
- Basically, transaction prices accurately reflect the underlying value of the commodity

Why do we need price discovery?

- We need prices to reveal information about the value of the commodity
- Price information is used to:
 - Benchmark on-farm profitability
 - Make informed decisions
 - Risk management
- Price Discovery  Market Information

Daily Direct Steer and Heifer Slaughter Cattle Summary

LM CT100

5-AREA

LM CT109

Neg. Cash Volume: 2,770

Dressed Formula Vol: 48,561

Live Steer Avg: \$125.52

Steer/Heifer Avg: \$201.89

Live Heifer Avg: \$126.00

Dressed Neg. Grid Vol: 2,463

Dressed Steer Avg: \$203.00

Steer/Heifer Avg: \$205.45

Dressed Heifer Avg: N/A

TOTAL VOLUME: 53,794

LM CT106

TOTAL WK TO DATE VOLUME: 246,821

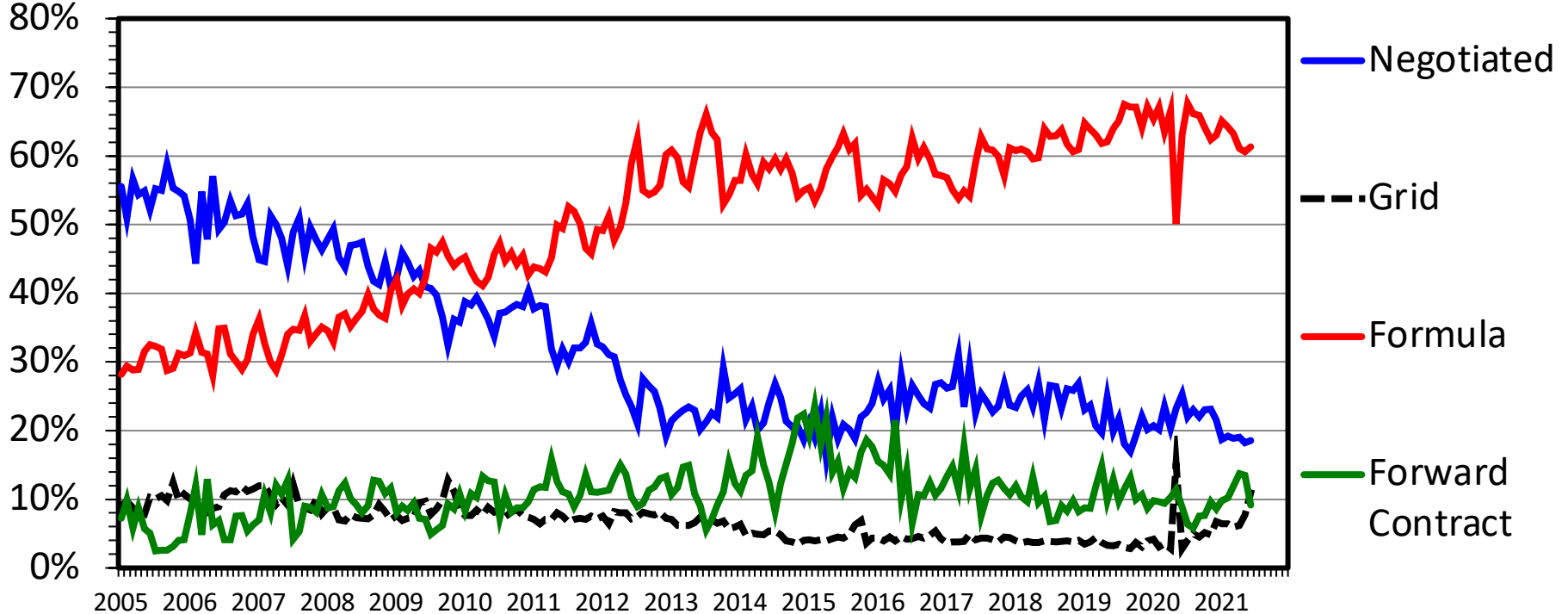
Problem

- Public Good: public benefit $>$ private incentive
- We all benefit from price discovery and the information that it provides
- Not everyone contributes to the provision price discovery
- This means that we may have less price discovery than what is optimal from a societal perspective

TOTAL CATTLE SOLD BY TRANSACTION

Monthly

Percent



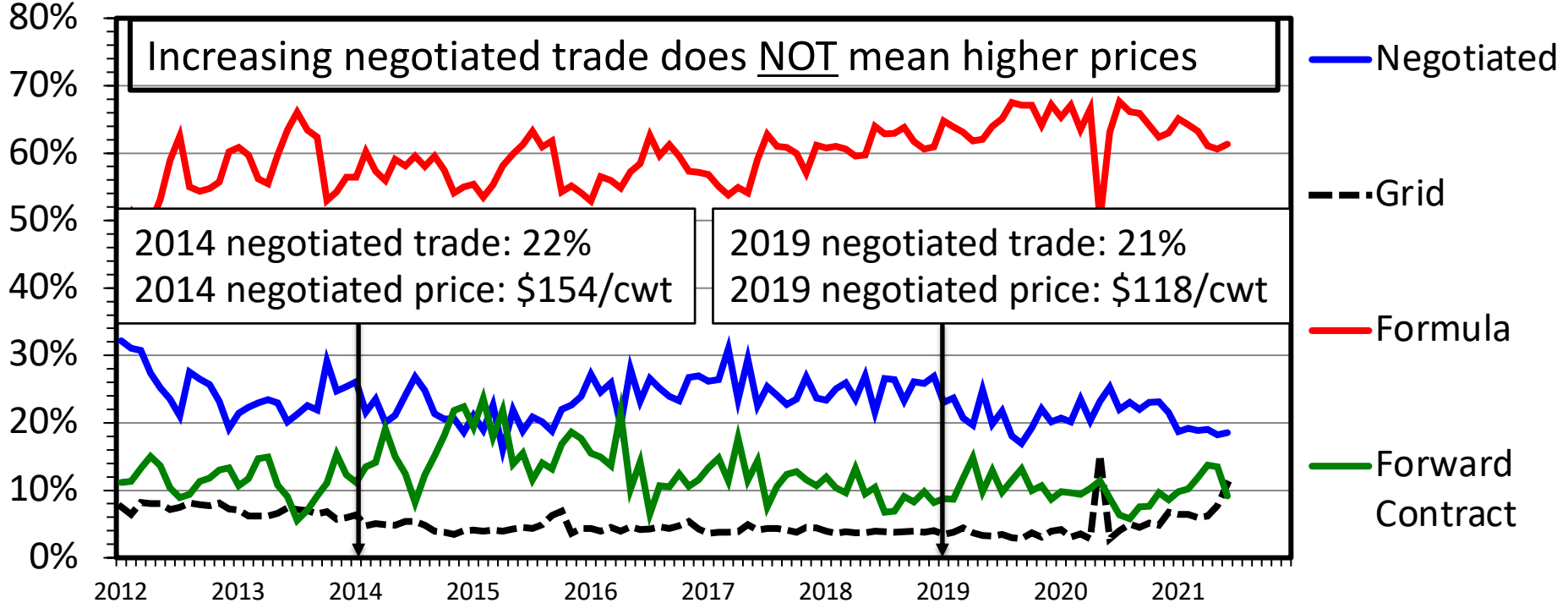
Thin Markets & Price Discovery

- How many cash trades do we need for price discovery to accurately value fed cattle?
- Thin Markets: negotiated transactions over a given period of time are not sufficient to support efficient price discovery is a thin market (Anderson et al., 2007)
- More negotiated trade means improved information accuracy of past prices

TOTAL CATTLE SOLD BY TRANSACTION

Monthly

Percent



Where do we go from here?

- There is merit to improving price discovery
 - But someone will have to pay for it
- Need a careful assessment of benefits and costs associated with price discovery policy
 - Economists like to think about unintended consequences
- The evolution of the beef industry has been driven by improvements in efficiency and quality
 - Both are key for the industry to remain competitive in domestic and foreign protein markets