

# Willingness to Pay for Improved Milk Sensory Characteristics in Northern Kenya Using Experimental Auctions

By

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# Milk Marketing Problem Faced by Pastoralists in Southern Ethiopia and Northern Kenya

- Milk is a primary source of protein
- Fresh milk is typically consumed by pastoralist families who own the cows, but excess is shipped unrefrigerated by bus to local markets for sale
- Quality (defined as sensory characteristics) declines rapidly between milking and sale
- Milk is also often adulterated at the market

# Potential Importance of Milk as a Means of Income Diversification to Reduce Risk

- The Horn of Africa is prone to severe and frequent droughts
- During these periods livestock productivity and prices decline dramatically while grain prices rise placing pastoralists in a precarious situation
- Milk sales during non-drought periods could be an important income diversification strategy
- Milk market development efforts might lead to better incomes and mitigate a portion of the risk pastoralists face

# Willingness to Pay (WTP) for Improved Sensory Characteristics for Milk

- Pastoralists could potentially increase income by improving the sensory characteristics of milk and assuring non-adulteration
- To do so would require incurring additional costs, so WTP for better quality is important
- WTP for improved quality measured by experimental auctions
  - Stratified random sample of consumers in Moyale, Kenya based on income was combined with business owners. Both groups participated in auction experiments in Moyale during August 2007 (based on Shogren et al. (1994) and Dickinson and Bailey (2002 and 2005))
  - Responses used in regression analysis to determine effects of demographics on WTP

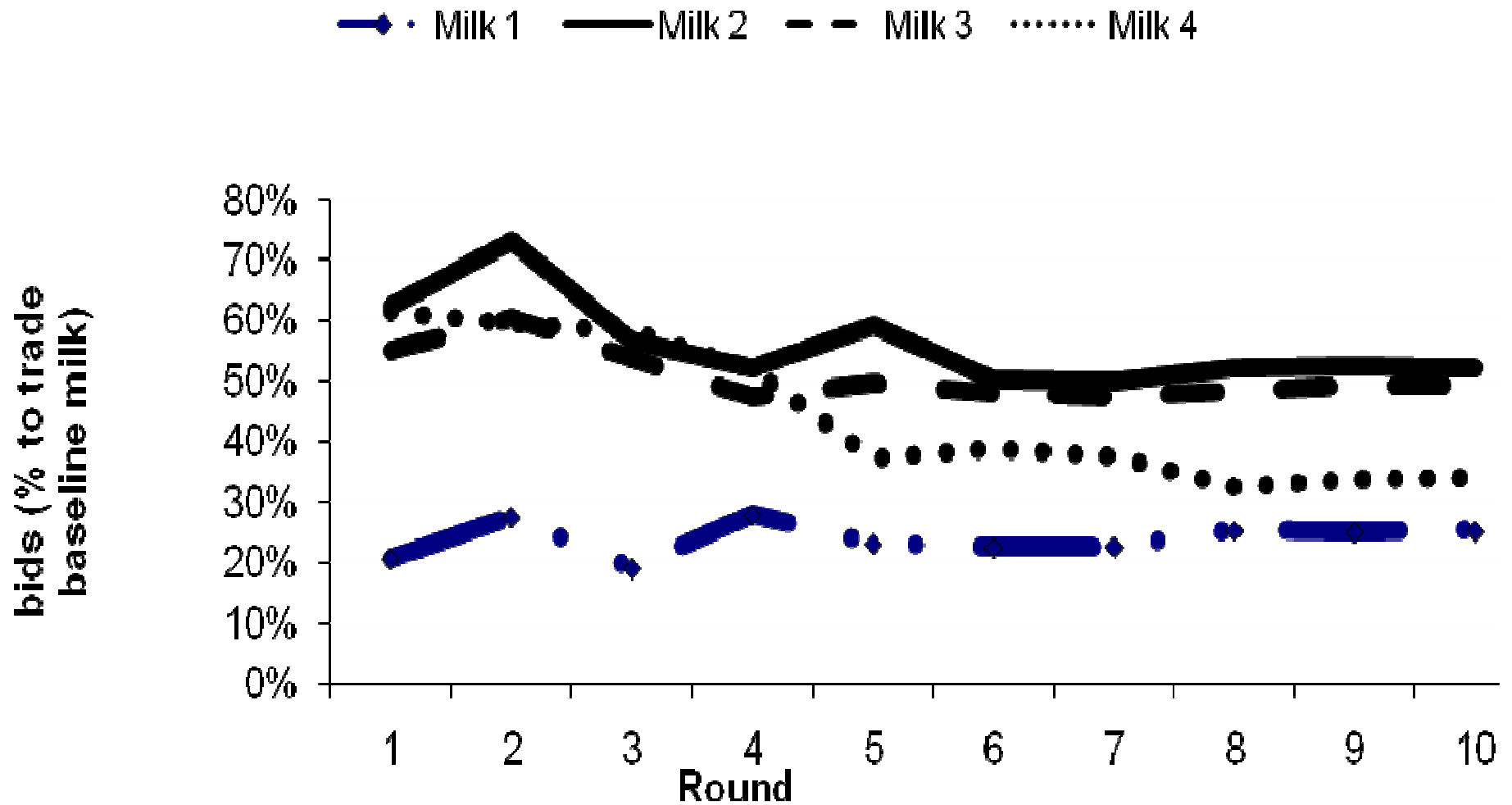
# Characteristics of Participants

- 31 participants
- 54.8% female
- Average age 36.87 years
- 77.4% had a primary school or less education
- 67% had monthly incomes of less than 5000 Ksh. (\$71 USD)
- 54.8% have little or no confidence in government food inspections
- Large majority want to know more about origin and processes used to produce milk

# Auctioned Milk

- Necessity to ensure safety of milk used in experiment required at least a degree of processing but different color and taste
- Baseline Milk: Fumigated, pasteurized fresh milk (processed at a local milk cooperative, i.e. Pastoralist Resource Marketing Cooperative – PARMCO), adulterated by adding water (milk: water = 75:25)
- Milk 1: Factory processed UHT, purchased from shops in Moyale
- Milk 2: Cultured fermented milk, with no sugar (processed at PARMCO)
- Milk 3: Non-fumigated pasteurized fresh milk (obtained from a nearby village in Moyale Kenya and processed at PARMCO)
- Milk 4: Fumigated pasteurized fresh milk (processed at PARMCO)
- Auction was a sealed-bid, 2<sup>nd</sup>-price Vickery auction to replace baseline milk with each of the four alternative milks. Ten rounds for each alternative milk were held with “winning” bid announced at the end of each round.
  - Binding milk and round selected at random
  - Winners required to pay the 2<sup>nd</sup>-highest bid

# Average Percentage Bids to Replace Baseline Milk with Four Alternative Milks, Moyale, Kenya



# Direction of Influence on WTP of Different Demographic Characteristics

- Age +
- Male -
- Number of recently read news articles +
- Purchase milk primarily in open markets +
- Indicated that additional assurances wanted +
- No other demographic characteristics (education, income, etc.) found to have a statistically significant impact on WTP



# Conclusions

- This study was undertaken in difficult conditions (illiteracy, poverty, remoteness, etc.), but experimental auctions carried out successfully
- Results suggest that incentives exist to improve milk sensory characteristics (WTP)
- Consumers in this market anxious to receive more information and assurances about the milk they purchase (market failure)
- Further research needed to determine how to cost-effectively deliver and sell milk with better sensory characteristics in this and other markets in Africa