Assessing Economic Value of Poultry Health Service and Genetic Resources in Rural Ethiopia

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Abstract

- This study employed stated preference-based valuation methods to evaluate Ethiopian smallholder farmers’ willingness to pay for poultry vaccine services and to identify and value preferred traits of poultry for reproduction purpose.
- We found that farmers recognize the benefits of vaccination programmes and are largely willing to pay for it.
- Analysis of farmers’ preference for traits of poultry revealed that mothering ability, disease resistance and traits of cultural significance are important to farmers. It was also found that farmers prefer and value a vaccination programme that is good at reducing disease severity and that could be administered by veterinary technicians.

Methods

- This study employed stated preference approaches, which are commonly employed to value non-market goods in Environmental Economics and to assess demand for potentially marketable products and services in marketing literature.
- Both Contingent Valuation Method (CVM) and Choice Experiment (CE) were used.
- Hypothetical vaccine programmes were designed to elicit farmers’ willingness to pay.
- A statistical software programme was used to combine traits of chickens to obtain chicken profiles for the CE survey.
- Primary data were collected through household surveys.
- Robust econometric methods were used to analyse the stated preference data collected through the CE and CVM survey.
- The study was conducted in 2 areas of rural Ethiopia: Horro and Jarso (Figure 1).

Research Objectives

- Evaluate farmers’ willingness to pay for poultry health vaccines
- Identify features of vaccine services that farmers would prefer, and to value these features
- Identify preferred traits of hens and estimate economic value for these traits

Results

Vaccination

- Analysis of CVM data for the two hypothetical vaccination programmes indicated that farmers recognize the benefits of the vaccine programmes and are largely willing to pay for it.
- The result from exponential probit reveals that farmers’ willingness to pay for village poultry vaccine service is influenced by whether farmers believe the vaccine programme is effective or not.
- Farmers’ willingness to pay varied between regions.
- Farmers who had some form of education were generally more willing to pay while older farmers were found to be more reluctant.
- Farmers’ willingness to pay for vaccine services were further explored using choice experiment for detail analysis.
- Result from the choice experiment data indicates that farmers highly prefer vaccine programmes that are:
  - good in terms of reduction of disease severity for individual birds;
  - efficacious for a reasonable proportion of the flock, and;
  - administered by veterinary technicians (rather than by the farmers themselves).

Preferred traits

- A discrete choice experiment was used to elicit preferred traits of chicken in rural Ethiopia in order to inform design of effective breeding programmes and conservation of genetic resources.
- A random parameter logit model was used to analyse data collected through a choice experiment survey.
- Findings of the study indicated that adaptive and productive traits and traits of cultural importance are preferred by farmers.
- Important traits of chicken to farmers, according to their value to farmers are:
  - Mothering ability – good mothering ability, the ability to hatch optimum proportion of eggs set for hatching and raise chicks are the most important trait in chicken profile choice among rural farmers, while eggs per clutch was the least.
  - Plumage colour – this is a trait of socio-cultural importance. Farmers highly preferred and valued white plumage colour, but black plumage colour created distrust to them.
  - Disease resistance – this is an adaptive trait of chicken largely preferred and valued by smallholder farmers.
  - Meat and eggs taste – farmers prefer chicken that has good meat and egg taste and this is among important traits of chickens

Conclusions

- Farmers are largely willing to pay for a poultry vaccine service, though there was variation between regions.
- A vaccine programme that is good in reduction of disease severity and that could be administered by veterinary technicians is preferred.
- Mothering ability (ability to hatch and raise a larger proportion of chicks), disease resistance and traits of cultural significance are important to farmers. This may question the relevance of efforts focusing exclusively on improved productivity in village poultry by targeting specialized egg layers.