Credible Duck Food Safety Certification: Results of a Field Experiment

Jennifer Ifft, David Roland-Holst & David Zilberman

Department of Agricultural and Resource Economics, University of California, Berkeley

Contact: jifft@berkeley.edu

Poster prepared for presentation at the Agricultural & Applied Economics Association's 2011 AAEA & NAREA Joint Annual Meeting, Pittsburgh, Pennsylvania, July 24-26, 2011

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Introduction

This study develops a unique experimental approach to valuing safety attributes, and also involves development and assessment of a new product--safety certified free range duck. This study also has important implications for control of zoonotic disease, including highly pathogenic avian influenza (HPAI) in Viet Nam, a serious global public health externality. It develops a non-hypothetical methodology to evaluate which types of certification are most valued by consumers, which is useful to both the private sector and policymakers. Consumer acceptance and payment for labeling schemes that decrease the risk from poultry production can promote long-term, sustainable solutions to HPAI control in Viet Nam. In Viet Nam, consumers exhibit increasing awareness of food safety issues in their poultry sector, as HPAI has been reported on by a wide range of media for several years. Poultry that is infected with HPAI is safe to eat if well-cooked and this is generally understood, but consumers still report that HPAI is their largest food safety concern. Consumer awareness of basic food handling and HPAI risks is generally high, so the reason why consumers are willing to pay for safety labeling is unclear. In this situation, a poorly designed certification scheme might not meet consumer preferences if it focuses on safety attributes that are less valued.

The novelty of a new brand or product could increase willingness to pay estimates, but this is addressed in this field experiment, which is a choice experiment. All choices were for the same brand or type of duck (which was new), with variation only in the perceived level of safety attributes. The three types of attributes that are tested are as follows: (1) laboratory testing for avian influenza, (2) a traceability system and (3) production standards (Viet-GAP, which is based on international standards for "good agricultural practices"). These attributes relate to three safety-related concerns of consumers: actual risk from HPAI, ability to trace where food is from, and safety of production practices.

Testing for Avian Influenza: Ducks from the FAO Pilot Project being tested for HPAI

Methods

The basic structure of the experiment was to randomly sample households near markets where certified duck from an FAO project was being sold, and then have them undertake a survey and economic experiment. The sampling frame was households that lived in a location that would make them likely to shop in the markets where duck from the project was sold. Wards in districts near these markets were randomly selected to participate in the study, and from each ward blocks were randomly selected. Households were randomly selected using systematic sampling and the person in charge of food purchasing decisions in the selected households was approached by enumerators to undertake the experiment.

A total of 700 households were selected for the survey, and about 600 actually completed the survey due to refusal or non-availability. The survey covered several areas that are relevant towards attitudes and habits related to poultry consumption. After taking the survey the participant was introduced to an actual pilot duck supply chain project, and was told that it was testing several different methods to improve the safety of free range duck. As a gift for taking the survey, they were offered a choice between: (1) duck with 2-3 random safety attributes, (2) duck with 1 random safety attribute and a random amount of cash, and (3) a random amount of cash well below the market value of the duck. The purpose of the third choice was to identify households that would prefer not to eat duck. Each household was given this choice 3 times with different random parameters, after which the enumerator randomly selected which choice was binding. The household was given a certificate for either the cash and/or duck which could be redeemed at a nearby poultry shop. Willingness to pay was calculated using a mixed logit that was based on a random utility model, allowing for correlation between random coefficients.

Experiment Design

	Alt 1	Alt 2	Alt 3
Viet-GAP (Production Standards)	Yes	No	-
Traceability	Yes	Yes	-
Testing for Avian Influenza	No	No	-
Cash Gift	0	$0.40	$1.50

Results

We find marginal willingness to pay to be about $0.21 for laboratory testing, $0.27 for traceability, and $0.31 for production standards, and all measures are statistically significant at the 1% level. We also find that valuation of the different safety attributes is correlated and identify the distribution of preferences of safety attributes. We find that consumers have statistically different valuation of laboratory testing for HPAI and production standards, but valuation of both of these safety attributes statistically cannot be distinguished from valuation of traceability.

Viet-GAP (Production Standards): Ducks from the FAO Project were produced according to Viet-GAP Production Standards, which were applied to free grazing duck production by an experienced veterinarian. These standards included keeping the duck in a fenced area and restricting access to other livestock.

WTP Estimates

	WTP	Standard Error
Lab Testing	$0.27 (8.1%)	0.05
Traceability	$0.21 (6.3%)	0.06
Viet-GAP	$0.31 (9.3%)	0.05

Number of choice observations is 915 . Choice observations where the cash gift is selected are excluded from analysis. Standard errors are robust to correlation at the block level and are calculated using a cluster bootstrap. The willingness to pay as a percentage of price is reported in parenthesis.

Conclusions

Generally, the results indicate that consumers are relatively less concerned with decreasing the risk of HPAI infected poultry, which is consistent with knowledge of safety poultry handling. However, all types of safety attributes had positive and statistically significant valuation, indicating that improved safety is very important to consumers. Given that production standards have the highest valuation, consumer preferences for different safety attributes suggest a promising avenue for decreasing farm-level disease risk while raising producer income. Laboratory testing is costly and may not have favorable incentive (reporting) characteristics, while improving production standards can have positive spillovers for farms.

Traceability: All ducks in the FAO Pilot Project had a tag with a unique identification code on it. In the markets where this duck was being sold, consumers were given a number to send the identification code to in an SMS. After they sent the SMS, they would receive an SMS in return with information about the origin of the duck and other relevant information.

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