



Exploring Urban Markets for U.S. Pork in China



David L. Ortega¹, H. Holly Wang², and Laping Wu³

Introduction

Pork is the primary source of animal protein in Chinese diets and its consumption level has tripled since 1980.

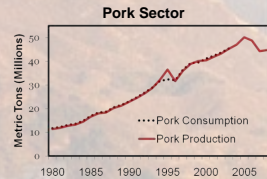
Chinese pork demand is complementary to U.S./Western demand.

Fattier pork cuts and internal organs (offal) sell at a premium compared to lean muscle meat in the same market.

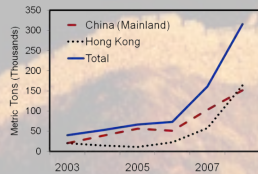
80% of pork raised in China comes from local backyard production.

To keep up with surging demand, China has recently implemented the Western model of consolidating and industrializing livestock production.

Confinement of hogs combined with low sanitation standards has provided suitable breeding grounds for disease, most notably porcine reproductive and respiratory syndrome virus (PRRS).



U.S. Pork Exports



In the recent past, China has successfully prevented the importation of U.S. pork claiming the use of ractopamine (RAC), a lean-meat additive, as the reason.

RAC has been proven safe for human consumption in over 30 countries, and research has indicated that it has no significant effect on pork quality.

Rising costs of animal feed, veterinary supplies, fuel and food inflation are putting increasing pressure on the Chinese government to negotiate trade deals with the U.S. and other countries.

Objective

The objective of this study is to assess the market potential for U.S. pork in Urban China by measuring Chinese consumers' preferences and willingness-to-pay (WTP).

Data

A consumer survey was conducted in Beijing and Shanghai in May 2008.

WTP was measured via a double bounded dichotomous questionnaire.

165 total observations were obtained.



Methodology

Three models were developed to measure consumer preferences and WTP for U.S. pork.

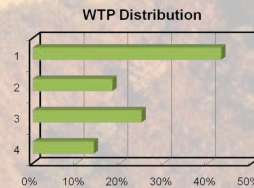
WTP Model

Given the discrete and ordered nature of the survey data, an individual's willingness-to-pay, WTP, for U.S. pork was modeled using an ordered logit model

$$WTP = \beta_0 + \sum_{i=1}^n (\beta_i x_i) + \varepsilon$$

where β_i represents the parameters associated with the explanatory variable i and WTP takes the following values given a respondents answer to the questionnaire

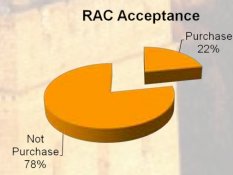
- 1 if $WTP < 0.95^* P_D$
- 2 if $0.95^* P_D \leq WTP < P_D$
- 3 if $P_D \leq WTP < 1.05^* P_D$
- 4 if $1.05^* P_D \leq WTP$



Where P_D is the price of Chinese Pork.

RAC Model

A binary choice, logit model was used to determine whether consumers are willing to purchase RAC-fed pork. For this model, consumers reported that they would purchase (Y=1) or they would not purchase (Y=0) RAC-fed pork so that



$$Prob(Y = 0) = 1 - F(x, \beta)$$

$$Prob(Y = 1) = F(x, \beta)$$

where the set of parameters β reflects the impact of changes in the explanatory variable, x , on the probability of purchasing RAC-fed pork.

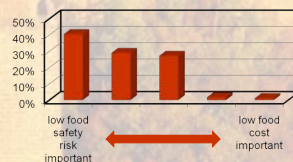
Pork Cuts Model

A linear regression model was created to identify factors that explain the purchasing behavior of Western-style pork cuts. In this model, the dependent variable, y , represents the percent of Western-style cuts purchased.

Average Type of Cuts Purchased



Food Safety



To gauge consumers' food safety concerns, Chinese consumers were asked to state the importance of low food safety risks vs. low cost food.

Results

Variable	WTP Model	RAC Model	Cuts Model
Constant	++	-	72.23***
Gender	N/A	-	N/A
Age	-***	-	0.35***
Income	+	+	-2.82***
Education	-	-	3.76***
Household Size	-	+	-1.13
Children	-	-	N/A
Food Safety	+	***	-4.99***
Purchase Frozen Meat	+***	N/A	N/A
Fat Attribute Most Imp.	-	N/A	-6.77
Color Attribute Most Imp.	-	N/A	-7.90
Shop at Intl. Market	+	N/A	5.94
Shop at Dom. Market	+	N/A	4.72
Shopping Frequency	N/A	N/A	-2.18

Note: Single, double and triple asterisks (*) denotes significance at the .15, .10 and .05 levels respectively

WTP

Age has a negative effect on WTP for U.S. pork. Younger Chinese individuals are more progressive and have favorable views of American products. Older citizens prefer domestic products because of patriotic reasons.

Chinese that shop at international supermarkets have a higher WTP for U.S. pork. These individuals place higher trust in international sources of foods than those who shop mostly at domestic stores or local markets.

RAC

The only significant factor affecting consumer acceptance of RAC is food safety. The more (less) consumers care about food safety the less (more) likely they are to accept or purchase RAC-fed pork. Previous tainted meat scares have exposed many loopholes in China's food safety inspection system and has made citizens more skeptical about lean meat additives and more concerned about meat safety issues.

Pork Cuts

Older and more educated consumers purchase a higher percentage of Western-style pork. Older individuals are more health conscious and consume leaner meats while educated individuals tend to make healthier food purchase decisions.

Income has a significant negative impact on the percentage of Western-style pork cuts purchased. Chinese households place higher value on domestic cuts of pork and discount traditional Western cuts.

Conclusions

Given that younger individuals reported a higher WTP, the outlook for U.S. pork in China remains optimistic. This study revealed that Chinese consumers are reluctant to accept pork that contains lean-meat additives; an issue tied directly to a lack of consumer confidence on the Chinese food inspection system. Factors influencing the purchasing decision of Western-style cuts were investigated and the results were congruent with existing literature on Chinese pork demand.

Author Information

- 1 PhD Student, Department of Agricultural Economics, Purdue University, USA. Contact via email at: dortega@purdue.edu
- 2 Associate Professor, Department of Agricultural Economics, Purdue University, USA.
- 3 Professor, Department of International Trade, China Agricultural University, China.