Food Safety and Demand: Consumer Preferences for Imported Pork in Urban China

David L. Ortega, H. Holly Wang, and Laping Wu

China's transition into a developed economy is driving changes in consumer preferences and demand for foods. The objective of this study is to assess and measure consumers' preferences for and attitudes toward imported pork in urban China. Estimated logit models based on a consumer survey conducted in 2008 reveal that individuals' age, shopping location, and food safety concerns significantly influence their willingness to pay for U.S. pork. Factors affecting purchasing behavior of Wwestern-style pork cuts versus traditional Chinese cuts are also evaluated. Consumers' food safety concerns were linked to a previous lean-meat additive scare and a lack of confidence in the Chinese food inspection system.

As China makes its transition from a developing economy to a developed one, the world will notice that 20 percent of its population is becoming wealthier, demanding more goods, and eating more high-quality food. Pork, being the primary meat in Chinese diets, will face a demand surge that will need to be met by increasing supply and an efficient supply chain. This creates opportunities for Chinese pork producers as well as for pork-exporting countries from around the world.

Pork has historically been the primary animal-protein source in Chinese diets, and its consumption level has tripled between 1980 and 2003. Chinese consumers are earning higher incomes and shifting consumption away from grains and legumes toward meats and animal proteins; this is a variation of Bennett's Law, which states that as incomes increase, the source of calories shifts from carbohydrates to animal proteins. This is a phenomenon observed in many developing countries. In 2003 the average Chinese citizen consumed approximately 35.3 kilograms of pork, compared to 12.0 kilograms in 1980 (FAO 2009). Today, per capita pork consumption is estimated to be much higher as pork continues to be the primary meat consumed in China.

In the recent past, China prohibited the importation of pork from the United States due to the use of ractopamine (RAC), a water-soluble feed additive that promotes lean meat production. However, rising costs of animal feed, land resources, veterinary supplies, and fuel, as well as food inflation, are putting increasing pressure on China to negotiate trade deals with the United States and other countries. Recent trade data show a drastic increase in U.S. pork exports to China after specially certified U.S. producers agreed to supply RAC-free pork (Figure 1). Imported pork in Chinese markets has a rather short history and Chinese consumers are often provided with misleading information. For example, in 2006 over 330 Chinese individuals were reported to have been poisoned by eating pork contaminated with clenbuterol.[1] This incident exposed many loopholes in China's food safety inspection system and made consumers more skeptical about all lean-meat additives, including RAC. Although a potential market for pork-exporting countries exists in China, little is known about Chinese consumer preferences and attitudes.

This study assesses and measures consumers' preferences for and attitudes toward imported pork in urban China using U.S. pork as an example. Specific objectives are to evaluate whether selected so-

Ortega and Wang are Graduate Research Assistant and Associate Professor, respectively, Department of Agricultural Economics, Purdue University, West Lafayette, IN. Wu is Professor, Department of International Trade, China Agricultural University, Beijing.

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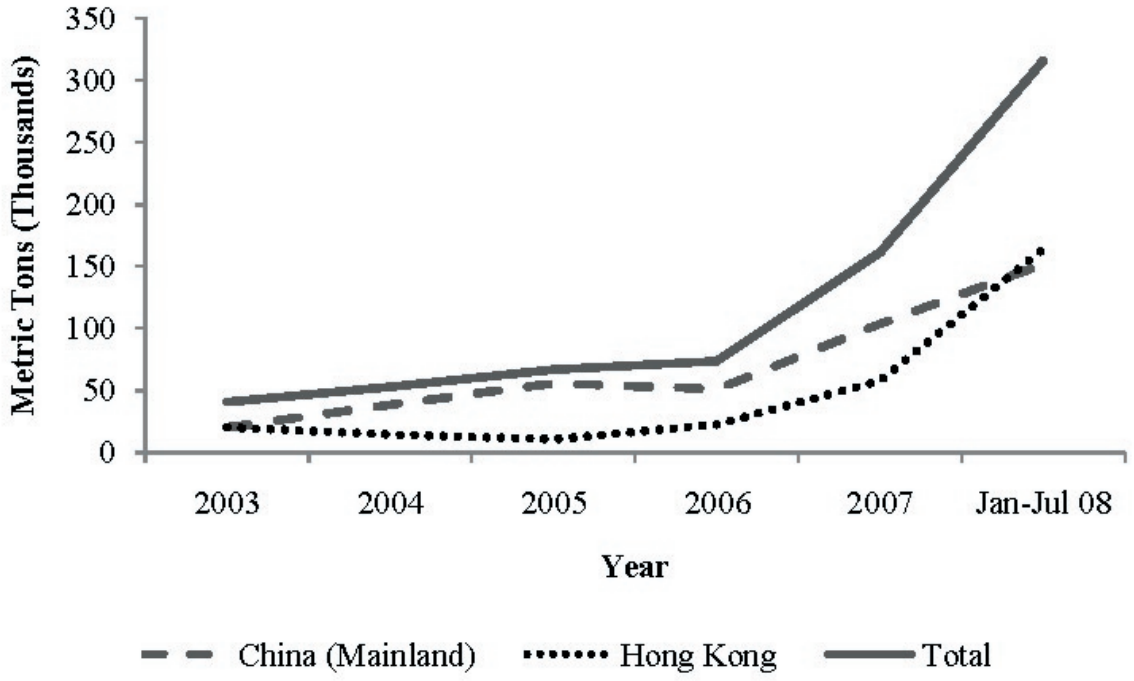
[1] Both clenbuterol and ractopamine are beta-agonists and enhance protein accretion in animals by diverting energy to the production of muscle tissue rather than fat. The important difference is that clenbuterol is fat-soluble and thus is deposited in fat tissues of the animal and remains there for long periods, while ractopamine is water-soluble and disappears from the animal within 24 hours of withdrawal, thus nearly eliminating the risk of human exposure from pork consumption.



Data Source: USDA-ERS 2008.

Figure 1. U.S. Pork Exports to China.

cio-economic, demographic, and geographical factors influence consumers' willingness to purchase imported and domestically produced pork in urban China; to investigate the extent to which willingness to consume pork meat containing lean-meat additives is affected by socio-demographic factors and food safety concerns; and examine whether socio-demographic factors and food safety issues influence consumers' willingness to buy Western-style pork cuts versus traditional Chinese cuts. Because most of the increase in pork consumption is expected around large cities, this study focuses on urban consumers.

Chinese Pork Demand and Previous Studies

There are several differences in the type of pork demanded by consumers in China, the United States, and Europe. Chinese consumers place higher value on pork cuts considered less desirable by Western standards. For example, internal organs (offal) sell at a premium compared to lean muscle meat in the same market. A second difference deals with the amount of external fat present in the meat. Chinese consumers prefer pork with a certain fat content, as opposed to Western consumers, who are drawn to leaner cuts (Wang et al. 1998). Studies have also found that pork in China is considered a necessity (Ortega, Wang, and Eales 2009; Zhuang and Abbott 2007).

The relationship between food safety, quality, consumers' preferences, and demand is currently at the center of the public debate and of food policy (Grunert 2005). Various demand studies have been conducted which pay particular attention to food safety issues, consumer preferences, and international trade (Piggott and Marsh 2004; Ubilava and Foster 2009; Unnevehr 2008). Previous demand research specific to China has looked at consumer preferences for Western-style convenience foods and consumer attitudes toward genetically modi-

fied foods in China (Curtis, McCluskey, and Wahl 2007; Li et al. 2002). Existing research has also modeled rural Chinese household demand and discussed significant trade implications (Fan, Wailes, and Cramer 1995).

Although work on Chinese urban demand for pork has been published (Gao, Wailes, and Cramer 1996; Ortega, Wang, and Eales 2009; Wang et al. 1998; Wu, Li, and Samuel 1995; Yen, Feng, and Su 2004), there are obvious omissions in this literature, especially with regards to imported pork. Specifically, no quantitative study was found that investigates Chinese consumers' food safety concerns with regards to pork and their acceptance of the hog-feed additive ractopamine. In addition, there is a lack of information on factors that determine consumers' willingness to pay for U.S. pork in China.

Methods and Procedures

Data

This research uses primary data collected from face-to-face interviews in Beijing and Shanghai in May 2008. A pilot survey was pretested on Chinese graduate students in the United States. The survey was conducted in eight separate locations including supermarkets, local stores, and open markets within Beijing and Shanghai to appropriately represent the views of Chinese urban shoppers. The survey was administered primarily by graduate students from China Agricultural University and Shanghai Jiao Tong University.

In accordance with previous studies that elicit consumers' willingness to pay for various products, the data were collected at the place where actual purchasing decisions are made (Curtis, McCluskey, and Wahl 2007). The survey locations, which were selected randomly, vary from wet markets and local butcher shops to domestic and international supermarkets. To better represent the views of the Chinese urban population, the survey was administered on various days of the week and at various times throughout the day. Survey participants were selected randomly and compensation was offered as an incentive for completing the survey. A valid sample of 165 observations was obtained.

The survey used in this study follows the format of previous questionnaires used to elicit consumer preferences and perceptions of various products (Li et al. 2002). Survey participants were asked questions regarding their demographic characteristics such as gender, age, household income, education level, and number of children living in the household. Careful attention was used when arranging the order of the questions to ensure that the answer of one question did not influence the response of a following question. With this in mind, participants were asked about their shopping habits and past purchasing behavior of imported products, meat products, pork products, and specifically U.S. pork products.

In an effort to measure the effect of the use of RAC on consumers' pork purchasing behavior, participants were asked whether they would purchase RAC-fed pork. In addition, respondents were asked to rate several different types of pork cuts according to their preference and were asked to report the amount of each cut that they purchased per week.

The respondents were first asked if they were willing to buy U.S. pork at the domestic pork price level. If they answered is "yes," they were then asked whether they would buy U.S. pork at a slightly higher price than domestic pork. If they answered "no" to the original question, a price below that of domestic pork was offered for U.S. pork.

Models

Three separate types of models were developed to explain consumer preferences for and attitudes toward U.S. pork. First, a willingness-to-pay (WTP) model was used to determine the factors that influence urban Chinese consumers' WTP for U.S. pork. The model was estimated using both pooled and city-specific data to examine the regional effects from the cities of Beijing and Shanghai. Second, a binary model was created to determine the factors that affect consumers' acceptance of RAC-fed pork. Last, a proportionate linear model was created to identify factors that affect consumer purchasing behavior of Western-style pork cuts versus traditional Chinese cuts.

The contingent valuation method is the standard approach used to elicit consumers' WTP for a particular product or a particular product attribute, when such a product is not widely available in the market (Antle 1999).

To elicit and measure a consumer's WTP for U.S. pork, the dichotomous, double-bounded question

asked in the survey was formulated as follows. The initial bid (B_0) represents the domestic pork price level. The second bid is a discount bid (B_D),[2] lower than the initial bid; the third bid is a premium bid (B_P), higher than the original bid. Based on the answers to the dichotomous questionnaire the following WTP levels were constructed:

Level 1: $WTP < B_D$,
Level 2: $B_D \leq WTP < B_0$,
Level 3: $B_0 \leq WTP < B_P$,
Level 4: $B_P \leq WTP$.

Given the discrete and ordered nature of the dependent variable in the survey, an individual's WTP for U.S. pork can be modeled using an ordered logit model. An individual's WTP can be modeled as a linear function of the observable explanatory variables, x, including a constant, and the unobservable variables, ε (Greene 2003).

$$(1)\quad WTP = x\beta + \varepsilon.$$

Although unobserved, an individual's WTP can be grouped into four categories based on his/her answers to the dichotomous questions in the survey. We observe that

$$\begin{array}{lll} y = 1 \text{ when } WTP < 0.95\,B_0 & & WTP^* < 0, \\ y = 2 \text{ when } 0.95B_0 \leq WTP < B_0 & \text{OR} & 0 \leq \text{WTP}^* < \alpha_1, \\ y = 3 \text{ when } B_0 \leq WTP < 1.05B_0 & & \alpha_1 \leq \text{WTP}^* < \alpha_2, \\ y = 4 \text{ when } 1.05\,B_0 \leq WTP & & \alpha_2 \leq WTP^*, \end{array}$$

where $WTP^* = WTP - 0.95B_0$.

The unknown parameters, α's, are estimated jointly with the utility parameters in the vector β. We assume that ε is logistically distributed across observations and the α's are restricted so that $\alpha_1 < \alpha_2$. The log-likelihood function can be obtained, and the four probabilities are

$$(2)\quad \begin{array}{l} Prob(y = 1 \mid x) = F(-x\beta), \\ Prob(y = 2 \mid x) = F(\alpha_1 - x\beta) - F(-x\beta), \\ Prob(y = 3 \mid x) = F(\alpha_2 - x\beta) - F(\alpha_1 - x\beta), \\ Prob(y = 4 \mid x) = 1 - F(\alpha_2 - x\beta), \end{array}$$

where $F(.)$ is the standard logistic distribution with mean zero and standard deviation $\pi/\sqrt{3}$. For the pooled Beijing and Shanghai data estimation, Equation 1 can be expressed specifically as

$$(3)\quad WTP = \beta_0 + \sum_{i=1}^{n} (\beta_i x_i) + \varepsilon,$$

where β_i represents the combined Beijing and Shanghai effect of the explanatory variables on WTP. A dummy variable for Shanghai, S, is added to the equation to capture the differences between Beijing and Shanghai consumers:

$$(4)\quad WTP = \beta_0 + S\beta_0' + \sum_{i=1}^{n} (\beta_i x_i + \beta_i' S x_i) + \varepsilon,$$

where β_i is the coefficient that captures the Beijing effect of the explanatory variables on WTP and β'_i captures the additional effect from the city of Shanghai for the corresponding explanatory variables.

To further examine the factors that affect Chinese consumers' preferences for U.S. pork, a binary choice logit model was used to determine whether consumers are willing to purchase RAC-fed pork. For this model, the survey participants reported that they would purchase (Y = 1) or they would not purchase (Y = 0), so that

$$(5)\quad \begin{array}{l} Prob(Y = 1) = F(x, \beta), \\ Prob(Y = 0) = 1 - F(x, \beta), \end{array}$$

The set of parameters β reflects the impact of changes in x on the probability of purchasing RAC-fed pork.

A linear regression model is used to look at the factors that explain the purchasing behavior for Western-style cuts. In this model the dependent variable, y, represents the percentage of Western-style cuts purchased:

$$(6)\quad \text{y} = \frac{\text{Quantity of Western Cuts}}{\text{Quantity of Western Cuts} + \text{Quantity of Chinese Cuts}}$$

Both a pooled and a city-specific version of the model were estimated.

[2] When asking these double-bounded questions, a five-percent discount or premium was used to distinguish in an ordinal way between willingness-to-pay levels. The use of a large percentage discount or premium would have distorted or highly influenced the respondent's answers to the follow up questions.

Empirical Results

Descriptive Statistics

The majority of survey respondents were the primary food buyers of their households (92 percent) and female (73 percent). The mean age of the respondents was 48.16 years and their average education level was equivalent to a high school degree. Their average annual household income fell in the range of 50,000 to 70,000 RMB (equivalent to US$6,795–US$9,513.) The mean number of people living in the respondent's household was 3.48 and 53 percent of individuals had seen their household income increase over the past two years. A concise description and breakdown of basic demographic characteristics can be found in Table 1.

The average consumer shopped for groceries two to five times per week. The majority of respondents (51 percent) indicated that they purchase most of their meat at domestic supermarkets,[3] 25 percent at international supermarkets, 18 percent at wet/farmer's markets, and six percent at local meat stores. Close to one-fifth of consumers reported that they had purchased imported meat products in the past and four percent indicated that they had

[3] A Chinese domestic supermarket is similar to a grocery store in the U.S. or Europe.

Table 1. Demographic Statistics (n = 165).

Variable	Description	Distribution (%)	Model Code
Age	Age as of May 2008	Mean = 48.16	AGE
		S.d. = 14.04	
Gender	Male = 1, Female = 0	27	GEN*
Primary shopper	Yes = 1, No = 0	92	N/A**
Education	Primary school	3	EDU
	Junior middle school	12	
	Senior high school	42	
	4-year college or university	30	
	Adv. or professional degree	13	
Household income	< 10K RMB	3	INC
	10K–30K RMB	15	
	30K–50K RMB	22	
	50K–70K RMB	18	
	70K–100K RMB	18	
	> 100K RMB	26	
Income change (past 2 years)	Increased 53 percent	N/A**	
	Decreased	5	
	Stayed about the same	42	
Children	1 if children in household	34	CHI*
	0 if otherwise	66	
Household size	People living in household	Mean = 3.49	HHS
		S.d. = 1.26	

* Denotes dummy variables. ** Denotes the variable is not used in the model.

either purchased or eaten U.S. pork (a figure that is indicative of very little U.S. pork being imported into China). In addition, 48 percent of consumers stated that they had purchased frozen pork. With regards to food safety, 70 percent of participants viewed low food safety risk as more important than lower food costs. Table 2 shows a complete list of shopping behavior and preference statistics.

The amount of pork purchased by each individual was divided into either a Western-style cut or a traditional Chinese cut (Figure 2).[4] The most-purchased pork cut was rib meat (0.25 kg per week), followed by belly (0.20 kg per week) and loin (0.19 kg per week). From the point of view of international hog producers, overall Chinese pork demand is complementary to that of Western

[4] Western-style cuts in China are not necessarily perceived to be "Western."

Table 2. Shopping Behavior and Preference Statistics (n = 165).

Variable	Description	Distribution (%)	Model Code
Shopping frequency	Daily	35	SHF
	2–5 times per week	36	
	Once per week	22	
	Once every two weeks or less	7	
Purchase location	Intl. chain supermarket	25	MKTI*
	Domestic chain supermarket	51	MKTD*
	Local meat store	6	Default
	Wet/farmers market	18	
Food safety risks vs. food cost	Low food safety risks all important	41	FSP
	Food safety > food cost	29	
	Food safety = food cost	27	
	Food cost > food safety	2	
	Low food cost all important	1	
Imported meat	Have bought	19	N/A
	Have not bought	71	
	Don't know	10	
Most important pork attribute	Fat Content	38	ATTF*
	Color	56	ATTC*
	Other	6	Default
U.S. pork	Have purchased or eaten	4	N/A
	Have not purchased or eaten	83	
	Don't know	13	
Frozen pork	Have purchased	48	FRZ*
	Have not purchased	52	Default
RAC pork	Would purchase RAC pork	22	RAC
	Would not purchase RAC pork	78	

* Denotes dummy variables. ** Denotes the variable is not used in the model.

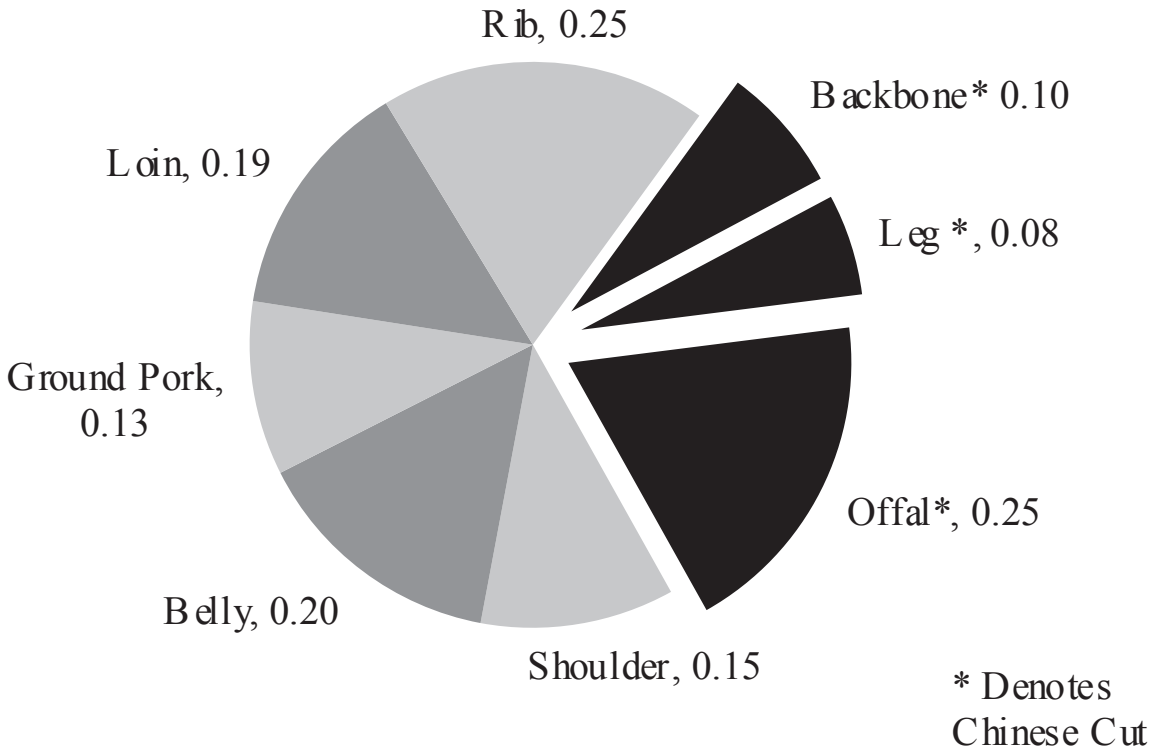


Figure 2. Average per Capita Weekly Purchase of Pork. kg.

consumer demand. Western consumers prefer lean muscle meat, while Chinese consumers welcome fatty meat cuts, backbones, feet, tail, and offal.

Estimation results for the WTP model are presented in Table 3. The aggregate model reveals that age has a negative effect on WTP for U.S. pork relative to domestic or Chinese pork. It is plausible that older Chinese citizens are more reluctant to purchase foreign-produced goods either because they are less understanding of imported food products or due to nationalistic and patriotic reasons. Younger Chinese individuals are considered more progressive and have favorable views toward American products. In addition, having previously purchased frozen pork has a significant positive effect on WTP for U.S. pork. Although recent shipments of U.S. pork to China have been chilled instead of frozen, Chinese consumers perceive that pork imported from the U.S. must be frozen. In general, Chinese consumers prefer meat, poultry, and fish as fresh as possible, which is evidenced by the fact that many of these commodities are on display live at wet markets and restaurants. However, with busier urban life, people tend to shop less frequently and make more use of their freezers at home, which has resulted in higher acceptance of frozen meat. Almost half of the survey respondents had purchased frozen meat and were more willing to pay for imported meat.

The aggregate model also indicates that individuals who shop at international supermarkets have a higher WTP for U.S. pork. This can be attributed to the fact that individuals who shop at international chain stores place higher trust in international sources of foods than do those who shop mostly at domestic stores or local markets.

The food safety variable is insignificant in the WTP model, indicating that consumers have not established a clear link between U.S. pork and food safety issues. Although we will show that this variable does significantly influence aggregated consumers' acceptance of RAC and that they perceive it as unsafe, there must exist other food safety

Table 3. Parameter Estimates for the U.S. Pork WTP Model.

	Aggregate Model		City–Specific Model	
Variable	Coefficient	S.E.	Coefficient	S.E.
CONS	1.77*	1.07	1.44	1.31
GEN	N/A	N/A	N/A	N/A
AGE	–0.03***	0.01	–0.01	0.01
INC	0.07	0.12	0.14	0.16
EDU	–0.05	0.19	–0.05	0.24
HHS	–0.13	0.16	–0.45**	0.21
CHI	0.07	0.42	0.63	0.51
FRZ	0.68**	0.32	0.88**	0.39
FSP	0.08	0.18	0.03	0.22
ATTF	–0.25	0.63	–0.42	0.75
ATTC	–0.88	0.61	–1.00	0.75
MKTI	0.80.	0.50	0.97*	0.58
MKTD	0.49	0.42	0.38	0.52
S			2.86	2.65
SGEN			N/A	N/A
SAGE			–0.07**	0.03
SINC			–0.28	0.26
SEDU			–0.20	0.51
SHHS			0.47	0.41
SCHI			–0.90	1.25
SFRZ			–0.68	0.88
SFSP			0.83*	0.51
SATTF			1.00	1.44
SATTC			0.08	1.45
SMKTI			–1.25	1.81
SMKTD			0.44	0.98
Log Likelihood	–186.50		–177.05	
α_1	0.77***	0.14	0.85***	0.15
α_2	2.21***	0.25	2.43***	0.27

Note: *, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. "S" in front of a variable denotes that variable has been multiplied by the Shanghai dummy.

advantages to U.S. pork that offset disadvantages such as the use of antibiotics, a common issue seen in Chinese domestic livestock production.

The city-specific model reveals that consumers in the two cities respond similarly to U.S. pork except with respect to two variables: age and food safety. The model explains that the aggregated age effect is primarily due to Shanghai consumers, while the effect is not significant among Beijing consumers. The raw survey data indicates that young Shanghai consumers have on average the highest WTP level for U.S. pork out of the entire survey sample. The city-specific model also reveals that food safety was a significant variable for Shanghai consumers; this was not the case for Beijing consumers. The more (less) individuals in Shanghai care about food safety, the lower (higher) their WTP for U.S. pork. Although the model indicates that Shanghai consumers have food safety concerns regarding U.S. pork, U.S. products in China enjoy a generally good reputation in terms of safety and quality relative to domestic products. These results clearly indicate that information is very important in influencing consumption and food purchasing decisions. The city-specific model also predicts that household size in Beijing has a negative effect on consumers' WTP for U.S. pork. Larger households tend to be more budget conscious and will typically purchase a cheaper domestic option.

The estimation results for the RAC acceptance model can be found in Table 4. The only significant variable affecting consumer acceptance of RAC in the aggregate model was food safety. Comparing this result with that of the city-specific RAC

Table 4. Parameter Estimates for the RAC Model.

	Aggregate Model		City-Specific Model	
Variable	Coefficient	S.E.	Coefficient	S.E.
CONS	–0.70	1.31	0.29	1.50
GEN	–0.45	0.52	–0.26	0.60
AGE	–0.02	0.02	–0.02	0.02
INC	0.00	0.15	0.33.	0.22
EDU	–0.34	0.24	–0.68**	0.34
HHS	0.26	0.20	0.02	0.27
CHI	–0.65	0.55	–0.94$^{\Delta}$	0.66
FSP	0.48**	0.21	0.18	0.28
S			–1.50	3.30
SGEN			–0.24	1.81
SAGE			0.00	0.04
SINC			–0.87**	0.39
SEDU			–0.27	0.76
SHHS			0.83	0.67
SCHI			0.14	1.71
SFSP			1.61**	0.75
Log Likelihood	–74.36		–66.44	

Note: $^{\Delta}$,*, **, and *** denote significance at the 0.15, 0.10, 0.05, and 0.01 levels, respectively. "S" in front of a variable denotes that variable has been multiplied by the Shanghai dummy.

model, we see that this effect is primarily attributed to Shanghai consumers. The more (less) Shanghai consumers care about food safety, the less (more) likely they are to accept or purchase RAC-fed pork. In addition, education was found to have a negative effect on RAC acceptance. Although a brief description of RAC was provided to the survey participants, explaining that it was considered safe for human consumption by the United States Department of Agriculture and other international organizations, Chinese consumers still think all lean-meat additives are harmful. The city-specific model also found that in Shanghai income has a negative effect on RAC acceptance.

The results of the pork cuts model are presented in Table 5. An ordinary least squares regression was used and the Breusch-Pagan and Cook-Weisberg tests revealed no heteroscedasticy problems. The aggregate model found that age, income, education, and food safety concerns are all factors that influ-

Table 5. Parameter Estimates for the Pork Cut Purchase Model.

	Aggregate Model		City-Specific Model	
Variable	Coefficient	S.E.	Coefficient	S.E.
CONS	72.23***	10.49	73.75***	13.46
AGE	0.35***	0.11	0.29**	0.14
INC	–2.82***	1.11	0.29	1.55
EDU	3.76**	1.81	2.24	2.31
HHS	–1.13	1.32	–1.60	1.71
SHF	–2.18	1.82	–3.10	2.18
ATTF	–6.77	6.66	–8.84	8.41
ATTC	–7.90	6.42	–11.70	8.20
MKTI	5.94	4.99	5.72	5.75
MKTD	4.72	4.03	0.85	5.15
FSP	–4.99***	1.75	–4.41**	2.16
S			8.03	22.46
SAGE			–0.08	0.25
SINC			–5.76**	2.34
SEDU			2.20	4.21
SHHS			–0.48	2.78
SSHF			5.31	4.54
SATTF			10.26	13.79
SATTC			10.68	13.19
SMKTI			–5.48	13.87
SMKTD			4.66	8.53
SFSP			0.60	4.18
Adjusted R-Square	0.16		0.17	

Note: *, **, and *** denote significance at the 0.10, 0.05, and 0.01 levels, respectively. "S" in front of a variable denotes that variable has been multiplied by the Shanghai dummy.

ence the types of pork cuts individuals purchase. The older and more educated consumers are, the more Western-style pork cuts they purchase. Western-style pork cuts on average contain less fat and tend to be healthier. Older individuals are more health conscious and thus purchase leaner cuts of meats. In addition, this result reinforces other studies that show that more-educated individuals tend to make healthier food purchase decisions.

Household income had a significant negative effect on the percentage of Western-style pork cuts purchased. This can be explained by the fact that Chinese demand for pork is complementary to that of Western demand. That is, Chinese households tend to place higher value on the less-desirable Western cuts and discount the traditional U.S./European cuts. Traditional Chinese pork cuts are limited in supply relative to Western cuts and are considered a luxury in China. The city-specific model revealed that household income in Shanghai had a greater negative effect than in Beijing, the only difference in cut preference between the two cities.

Conclusion

This study examines Chinese urban consumer preferences for and attitudes toward imported pork. Age, household size, previous purchase of frozen pork and food safety concerns are all significant variables determining a consumer's WTP for U.S. pork. This study is one of the first to implement a consumer survey regarding preferences for and attitudes toward U.S. pork in China. Our study reveals that Chinese consumers are reluctant to accept pork that contains lean-meat additives. This is an issue tied specifically to a lack of consumer confidence in the Chinese food inspection system due to a previous lean-meat additive scare.

This study also finds that Chinese consumers have a positive perception of U.S. pork. The survey was conducted only a few months before the infamous melamine tainted infant formula scandal. Right after this scandal, imported baby formula, led by American top brands, quickly sold out in Chinese markets. This shows that food-safety-sensitive Chinese consumers place trust in U.S. products. Given that younger individuals have a higher WTP for U.S. pork, the outlook for imported pork in China remains optimistic.

Factors that influence the purchasing decision of different pork cuts were also investigated. It was found that older and more educated individuals purchased more Western-style pork cuts. Higher incomes were found to have a negative effect on Western-style pork consumption, reaffirming existing literature on Chinese pork demand. Results from our two-city analysis are generally consistent, although some differences exist between Beijing and Shanghai. Shanghai is the city with the most exposure to western culture in China; Beijing, being the national capital, is the most sensitive to domestic policies and national news. These inherent differences are believed to have caused consumers in the two cities to respond to imported pork in slightly different ways. In this sense, promotion of a U.S. product through commercial campaigns and public education will get a more favorable response in Shanghai.

This study suggests that although a rapid income increase in China will boost the demand for animal-based protein, this cannot be directly interpreted as an increase in demand for imported foods. Information dissemination and cultural barriers need to be carefully examined by producers and processors in the exporting country. Future research that links consumers' food safety awareness, supplier reputation, and information dissemination to consumers will greatly enhance the current literature addressing emerging markets for U.S. products in China. Additional research should also focus on using more subjective methods, such as experimental economics, to elicit consumers' willingness to pay for U.S. products abroad. Although Shanghai and Beijing are likely to be the first recipients of U.S. pork in China when this market emerges, future research should include additional cities to better understand the Chinese national market for American pork.

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