CONSUMER WILLINGNESS-TO-PAY FOR DOMESTICALLY PRODUCED WHEAT PRODUCTS IN SOUTH KOREA

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contingent valuation method, domestic wheat products, willingness to pay, truncated regression model

Abstract
This study analyzes whether or not income affects consumers' willingness to pay (WTP) derived through the contingent valuation method (CVM) that was employed to derive South Korean consumers' WTP for domestic wheat products. The hypothesis being tested here is that consumers may not seriously consider their income barrier when they are asked questions regarding WTP so that income will not be an important factor affecting the stated WTP. Approximately 400 consumers from the Seoul metropolitan area were surveyed, and their responses were analyzed using a two-limit truncated regression model. The empirical results show that WTP is affected by the consumers' valuation of the wheat products they currently consume and the frequency of their exposures to information regarding the connection between a healthy diet and the consumption of domestic wheat, and that it is not affected by the income barrier. Income of the consumers was not significant for any of the wheat products studied. This may imply a limitation of the stated preference method to detect a consumer WTP that is close to the actual purchasing behavior.

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1. Introduction

Willingness to pay (WTP) indicates how much consumers are willing to pay for a product or an improved situation. Various techniques have been developed to estimate WTP (Just, Hueth, and Schmitz, 2005). Among them, the contingent valuation method (CVM) is the most popular. CVM is a technique that uses surveys to measure respondents' WTP or willingness to accept (WTA). This methodology has been extensively utilized for measuring both non-market values and non-use values (Diamond and Hausman, 1994).

The CVM has the advantage of broad applicability in a variety of fields. However, such surveys potentially suffer from a number of shortcomings such as strategic respondent behaviors, protest answers, and/or ignoring income constraints. Above all else, if respondents ignore income constraints, then they may answer their willingness which is different from their actual behavior (typically over-shooting), resulting in a difference between their stated WTP and the actual behavior. Siskos *et al*. (2001) suggested that there are some barriers such as income, time, and/or accessibility to products that cause consumer attitude to not fully dominate purchasing behavior. That is, although a consumer is concerned about and/or interested in the attributes of a product, it cannot be automatically assumed that their behavior will change accordingly. Therefore, if consumers ignore income constraints, then the research design to predict consumers' purchasing behaviors by measuring attitude toward a product will not be successful. This potential bias suggests that one needs to separately consider the consumer's stated WTP and the actual behavior.

This study addresses this issue and therefore analyzes whether or not income affects the WTP derived through the CVM. Specifically, we use South Korean consumers' opinions of the additional cost they are willing to pay for domestically produced wheat products. Previous references for consumer preference or consumer behavior toward domestically produced wheat products are limited. Only a few studies, such as Park (2007), Jin *et al*. (2009), Han and Jeong (2010), and Kwon *et al*. (2011), have been completed. The studies suggest that 'price' is an important factor for the consumption of domestic wheat products, meaning that income constraint will be one of significant variables affecting the demand for the premium food. The hypothesis that we want to test here is that consumers may not seriously consider their income barrier when

they are asked questions regarding WTP so that income will not be an important factor affecting the stated WTP. This might result in a quite different interpretation regarding consumers' real purchasing behavior.

Domestic wheat production in South Korea is so limited that more than 99% of domestically consumed wheat is imported. Domestic wheat is considered by South Korean consumers to be better than imported wheat in terms of food safety (Han and Jeong, 2010). This is because imported wheat is treated with chemicals in order to protect against decay and insect damage due to the long-term storage and offshore shipping it has to endure, while domestic wheat is not exposed to such chemical treatments. Therefore, foods made from domestic wheat are considered to be premium by S. Korean consumers (Rural Development Administration, 2006). The demand for domestic wheat products is expected to increase in the coming years. Previous studies, including those by KAFTC (Korea Agro-Fisheries Trade Corporation) (2002) and Kim and Park (2005), have suggested that this trend in Korean consumer preference will persist in the future.

Following theoretical and methodological considerations, the survey results are presented and then analyzed. The summary and implications of our findings conclude the paper.

2. Theoretical Consideration

2.1. The Indirect Utility Function

In order to estimate the values of domestic wheat products by individual consumers, the indirect utility function (Hanemman, 1984) is employed.

$$(1)\ u(j,m;\ x) = v(j,m;\ x) + \varepsilon_j, \qquad j = 0,1$$

It is assumed that each respondent knows his/her utility function, and that the non-observable parts are treated as an error term. Here, j denotes each consumer's willingness to purchase domestic wheat products for a given level of additional payment, where j = 1 (alternatively, j = 0) refers to the 'decision to purchase' (alternatively, 'decision not to purchase') for a given level of additional

payment. The case of $j = 0$ means that the consumer does not purchase domestic wheat products for a given level of additional payment and would rather consume generic wheat products without paying the premium. The variable m represents the consumer's income, and x represents the variables regarding the consumers' behavior in terms of safety judgment, socio-economic status and the frequency at which they are exposed to information regarding domestic wheat products. The error terms, ε_0 and ε_1, are independently and identically distributed random variables and are assumed to follow a normal distribution with an expectation of zero.

When setting the 'purchase of generic wheat products' as the base scenario and additional payment for domestic wheat products as Y won, the consumer's utility for purchasing domestic wheat products is calculated as $v(1, m-Y; x)+\varepsilon_1$, otherwise the equation is $v(0, m; x)+\varepsilon_0$. If a consumer chooses generic wheat products,[1] then their income would be m. The additional payment, Y, can be considered as the Hicksian compensating variation, since the utility level in the case of 'purchase of domestic wheat products' with a payment of Y will be the same as the utility level in the base scenario.

Therefore, the difference between the utility level of 'purchase domestic wheat products' and that of 'not purchases' is defined as follows.

$$(2)\ \Delta v = v(1, m - Y;\ x) - v(0, m;\ x) + (\varepsilon_1 - \varepsilon_0).$$

The difference (Δv) is greater than or equal to zero because choosing domestic wheat products rather than generic products means that the utility level of voting 'yes' is at least as good as that of voting 'no.'

The CVMs can be classified as either open-ended (OE) or closed-ended (CE) techniques according to the format of the question. The OE is performed by allowing respondents to state their WTP. The payment card method is assigned to this category. In the CE techniques, respondents are asked to select various specifications or situations. The bidding game and the dichotomous choice model are mainly used.

This study derives the additional payment Y using the open-ended di-

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[1] In this study, *generic products* refer to foods that are made from imported wheat. Since more than 99.5% of the wheat used in Korea is imported, referring to imported wheat products as generic products does not sound odd in South Korea.

rect question method and assumes that Y varies for each individual and that it can be affected by some explanatory factors as follows.

$$(3)\ Y_i = \alpha + \beta_1 X_{1_i} + \beta_2 X_{2_i} + \cdots + \beta_P X_{P_i} + \varepsilon_i,$$

where i denotes each respondent, p denotes the number of independent variables, a denotes the intercept, and ε denotes the individual differences that are not explained by the independent variables. It is assumed that the expected value of ε is zero, and that it follows a normal distribution.

2.2. Truncated Regression Model

No negative values of Y are observed in Equation (3) since the price of domestic wheat products is higher than that of imported wheat products, and respondents are asked if they are willing to pay a specific amount as a premium for domestic wheat products. That is, any observations that are less than zero are excluded; therefore, the data of additional WTP is considered to be truncated. We thus specified the general two-limit truncated regression model as follows:

$$(4)\ Y_i^* = X_i'\beta + \sigma\varepsilon_i,$$

where σ is a scale parameter, and Y_t=Y_t^* is only observed if $\underline{C_t} < Y_t^* < \overline{C_t}$. If there is no lower truncation, then we can set $\underline{C_t} = -\infty$, and when there is no upper truncation, $\overline{C_t} = \infty$. In this study, there is no upper truncation, but lower truncation does exist. That is, the additional payment cannot be less than zero. The model can be estimated using the maximum likelihood estimation method, and the associated log likelihood function is given by:

$$(5) l(\beta,\sigma) = \sum_{i=1}^{n} \log f((Y_i - X_i'\beta)/\sigma) \times 1(\underline{C_i} < Y_i^* < \overline{C_i}) - \log(F((\overline{C_i} - X_i'\beta)/\sigma) - F((\underline{C_i} - X_i'\beta)/\sigma))$$

The likelihood function is maximized with respect to β and σ using standard iterative methods.

3. Survey Procedure and Results

3.1. Survey Procedure and Demographic Statistics

A survey was performed herein to collect consumer opinions. A pilot survey was first completed with 40 respondents, and corrections to the problems revealed in the pilot were incorporated into the survey questionnaire. The main survey was conducted at two different time points, with the first occurring between May 5, 2009 and May 15, 2009, and the second occurring between December 1, 2010 and December 16, 2010. This was done in an attempt to avoid any bias due to seasonality and to not focus on a specific period of time.

In this study, we used the OE direct question method since there are four commodities. If we use another method, then the number of questions will be vast. A single use of the question formats of CVM, such as payment card (PC), OE, and dichotomous choice (DC), may yield misleading results since any method suffers from some elicitation biases, such as the starting-point bias, voting-range bias, distribution assumption bias, and/or *etc*. DuBourg *et al*. (1994) reported that the WTP responses to the PC and OE tend to be located at the lower part of an individual's value distribution since the format asks respondents to answer with fairly certainty about their WTP statements. Also, the respondents may have a burden when they are asked through the OE format since there is usually no guideline or threshold. However, this study tries to reduce respondents' load by providing prices of generic foods and at the same time to let them feel free to show their opinion regarding WTP, which may reduce a bias from adopting the CE format. Previous literatures, *e.g*., Holms and Kramer (1995) and Kanninen (1995), assert that when asked by the CE format, since they need to make a direct choice, respondents tend to express in the affirmative and therefore are inclined to overstate. The average prices of domestic wheat products were informed to those respondents who yet had a difficulty to express WTP due to lack of exact guideline for prices of the products.

The respondents in the first survey were randomly selected females between the ages of 20 and 70 years who were recruited from public places such as subway stations, discount stores, conventional markets, *etc*. The respondents in the second survey were similarly selected, with the exception that some male respondents were included. The spatial range was limited to the national capital region in South Korea, which includes Seoul and Gyeonggi province. The for-

mats of the survey were face-to-face and via e-mail. A total of 400 respondents participated, a total of 380 of which were used in the analysis after some questionnaires were removed due to a lack of credibility. The demographic statistics of the survey respondents are presented in Table 1.

TABLE 1. Demographic Statistics of the Survey Respondents

Variable	Classification	Frequency	%	Variable	Classification	Frequency	%
Gender	Male	44	11.6	Job	Homemaker	93	24.5
	Female	336	88.4		Business Owner	17	4.5
Education	Elementary School Graduate	4	1.1		Specialized Job	31	8.2
	Junior High School Graduate	12	3.2		Office Worker	123	32.4
	Senior High School Graduate	113	29.7		Public Officer	22	5.8
	College Student or Graduate	192	50.5		Educator	2	0.5
	Graduate School Student or Graduate	59	15.5		Soldier	19	5.0
Age	20～29	120	31.6		Student	51	13.4
	30～39	90	23.7		Other	22	5.8
	40～49	94	24.7	Region	Seoul	238	62.6
	50～59	51	13.4		Other Metropolitan Area	22	5.8
	Over 60	25	6.6		Gyeonggi Province	111	29.2
Monthly household income (million won)	Less than 1	31	8.2		Other Small City	3	0.8
	1～2	77	20.3		Rural Area	4	1.1
	2～3	93	24.5		Other	2	0.6
	3～4	75	19.7	Marital Status	Unmarried	153	40.3
	4～5	54	14.2		Married	227	59.7
	Over 5	46	12.1	Total		380	100

Note: Four out of the 380 respondents did not provide an income level. However, we included them in the analysis since they had responded to all of the other questions in the survey.

3.2. Survey Results

The main sources of wheat products are ‘discount stores’ (55%) and ‘local retail stores’ (33%), while ‘department stores,’ ‘convenience stores,’ ‘internet and

home-shopping,' and 'conventional markets' each account for less than 5%. Regarding the most frequently consumed product types, 'pan-fried foods' was first (37.1%), followed by 'noodles' (29.2%), 'confectionery' (16.6%) and 'bakery' (16.3%) items.

Respondents were asked what they thought of domestic wheat products, and the results are presented in Table 2. For the answers to the question about the attractiveness of domestic wheat products, 'safety' was the most frequent answer (65.3%), followed by 'good for the domestic agricultural sector' (15.3%) and 'nutritional superiority' (14.5%). In regard to the purchasing frequency of domestic wheat products, 'once a week' accounted for the highest proportion (32.4%), followed by 'twice a week' (19.7%).

TABLE 2. Respondent Opinions of Domestic Wheat Products

(unit: person, %)

Variable	Classification	Frequency	%	Variable	Classification	Frequency	%
Information channel for domestic wheat products	TV	79	20.8	Purchasing Frequency	Twice a week	75	19.7
	Newspaper	15	3.9		Once a week	123	32.4
	Regional product outlet	108	28.4		Once every two weeks	9	2.4
	Specialty store for wheat products	22	5.8		Once a month	38	10.0
	Neighbors	27	7.1		Once every three months	21	5.5
	Internet	23	6.1		Once every six months	18	4.7
	Other	26	7.0		Once a year	9	2.4
Reason for not purchasing domestic wheat products	High cost	22	5.8		No experience	12	3.2
	Low accessibility	26	6.8	Attractiveness of domestic wheat products	Food safety	248	65.3
	Habit	2	0.5		Nutritional superiority	55	14.5
	Low familiarity with the products	30	7.9		Good taste	13	3.4
	Relatively poor taste	1	0.3		Good for domestic agricultural sector	58	15.3
	Other	2	0.5		Other	4	1.1

The survey results revealed that the main reasons why respondents do not purchase domestic wheat products were because they had 'low familiarity with the products,' 'low accessibility' and due to the 'high price,' in that order. This indicates that, in addition to the extra payment, unfamiliarity with the products, possibly due to little information or lack of experience, and low ac-

cessibility are also important barriers. This finding contrasts with the results from existing studies that suggest that 'higher price' is the main reason why consumers do not choose higher quality foods such as eco-friendly foods.[2,3]

The question regarding the overall quality of domestic wheat products was asked to respondents who had previously consumed domestic wheat products. Using a five-point Likert scale, where one meant strongly dissatisfied and five meant strongly satisfied, the average response to this question was 3.49, which meant that consumers think that the quality of domestic wheat products is slightly better than average, although the experience did not result in a high level of satisfaction.

The average value for the question of importance of safety of wheat products was 3.69 on the same scale, indicating that most consumers consider food safety to be important. The next question regarded the perception of safety of the wheat products currently consumed, and the results are presented in Table 3. The average Likert score for 'imported wheat' was 2.65, whereas 'domestic wheat' scored 3.79. This means that Korean consumers currently consider domestic wheat to be better than imported wheat in terms of safety. This inference is in agreement with the result that 'safety' was the most common answer (65.3%) to the question about the attractiveness of domestic wheat products.

TABLE 3. Respondent Opinions of the Safety of Imported and Domestic Wheat Products

Classification	Imported Wheat		Domestic Wheat	
	Frequency	%	Frequency	%
Definitely Not Safe	32	8.4	1	0.3
Not Safe	105	27.6	8	2.1
Not Sure	**209**	55.0	101	26.6
Safe	32	8.4	**229**	60.3
Definitely Safe	2	0.5	39	10.3
Average of Likert Scale	**2.65**		**3.79**	

Note: The Likert scale ranged from one (definitely not safe) to five (definitely safe).

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[2] Ko (2008) has reported that the main reasons for 'not purchasing eco-friendly fruits' were 'high premium' (73.0%), 'low reliability of indication' (21.0%), and 'low accessibility of marketing channels' (6.0%).

[3] Kim and Park (2005) have shown that the reasons for 'not purchasing eco-friendly foods' were 'high premium' (58.0%), 'low reliability of indication' (38.3%), and 'low accessibility of marketing channels' (3.7%).

3.3. Results of Additional Willingness to Pay

Respondents were asked to state the extra amount of money that they are willing to pay over the price of generic products if the average prices of generic wheat products are 2,000 won for wheat flour, 800 won for noodles, 2,500 won for bakery goods and 1,000 won for confectionery items.[4] The participant responses are presented in Table 4. The average WTPs are 769.21 won for wheat flour, 380.89 won for noodles, 680.20 won for bakery goods and 504.61 won for confectionery items.

TABLE 4. Willingness to Pay for Domestic Wheat Products

(unit: won)

Classification	Standard price of the imported wheat product (A)	Average of WTP	Average of additional WTP (B)	(B)/(A)
Wheat Flour	2,000	2,769.21	769.21 (704.88, 833.54)	0.385
Noodles	800	1,180.89	380.89 (347.18, 414.60)	0.476
Baked Goods	2,500	3,180.20	680.20 (609.97, 750.43)	0.272
Confectionery	1,000	1,504.61	504.61 (467.96, 541.25)	0.505

Notes: 1. Respondents answered the WTP in 100 won units, respectively for the four commodities.
2. The numbers in the parentheses in the (B) column mean 95% confidence intervals of the average additional WTP.

[4] The average market price of wheat flour made with imported wheat in 2009 was 1,500-2,000 won for a 1*kg* bag. However, the price continuously increases so that the standard price was set as 2,000 won. The price of Nongshim Shin-ramen, the most favored ramen noodle in S. Korea, was 800 won in 2009. The average price of a standard sandwich loaf (average weight of 400 g) made of imported wheat was 2,500 won in 2009. The price of Jjang-gu (honey–flavored chips), which is one of the representative confectioneries and is made by Samyang Foods, was 1,000 won in 2009.

4. Empirical Results

4.1. Model Specification

Four groups of independent variables were used in the estimation of Equation (3): income, consumer judgment of food safety (importance of the safety of wheat products, appraisal of current safety of imported and domestic wheat), socio-economic variables (gender, age, marital status, children, and occupation), and variables related to the frequency of exposure to information regarding healthy diets and domestic wheat (citizen campaigns, knowledge of slow food, and purchasing frequency of eco-friendly foods). Additional information regarding the explanatory variables is provided in Table 5.

TABLE 5. Description of Independent Variables in the Truncated Regression

Group of Variables	Variable Name	Description
Income	Income	Monthly average income per household (less than 1, 1-2, 2-3, 3-4, 4-5 and more than 5) in million won
Consumer judgment in terms of food safety	Importance of the safety of wheat products	5-point Likert scale: 1 is 'Very Unimportant,' 2 is 'Not Important,' 3 is 'Not Sure,' 4 is 'Important' and 5 is 'Very Important.'
	Appraisal of safety of imported wheat	5-point Likert scale: 1 is 'Definitely Not Safe,' 2 is 'Not Safe,' 3 is 'Not Sure,' 4 is 'Safe' and 5 is 'Definitely Safe.'
	Appraisal of safety of domestic wheat	5-point Likert scale: 1 is 'Definitely Not Safe,' 2 is 'Not Safe,' 3 is 'Not Sure,' 4 is 'Safe' and 5 is 'Definitely Safe.'
Socio-economic variables	Gender	Male = 1, Female = 2
	Age	20-29, 30-39, 40-49, 50-59 and more than 60
	Marriage	Single = 1, Married = 2
	Number of children between the ages of 0 and 7 years	Number
	Number of children in elementary school	Number
	Occupation	Other = 0, Homemaker = 1

Group of Variables	Variable Name	Description
Variables related to frequency of exposure to information regarding healthy diet and domestic wheat	Family member in citizen campaign	Whether or not having a family member or relative participates in a citizen campaign for the environment and/or healthier foods (Yes = 0, No = 1)
	Knowledge of slow food	Whether or not they are familiar with slow food (Yes = 0, No = 1)
	Purchasing eco-friendly food or not	Whether they purchase eco-friendly food on a regular basis (Yes = 0, No = 1)

Note: The income is prior to tax and includes the income of everyone in the household regardless of the number of family members.

The explanatory variables can be justified as follows. It is generally recognized that, despite the increased attention concerning food safety and/or the increased preference for domestic foods, there are still some barriers that exist in regard to the consumption of domestic wheat products. The main barrier is expected to be the extra cost of premium products. The purchase of domestic wheat products involves a decision making process that requires balance of the valuation of domestic wheat over the additional cost of imported wheat.

Asp (1999) has identified a number of factors and barriers that influence the food purchasing decisions of individual consumers. He suggests that these decisions are affected by cultural, psychological and lifestyle factors, food consumption trends and income. Grunert and Juhl (1995) have assessed the explanatory power of 'values that consumers evaluate for a food' for analyzing consumer attitudes and buying preferences. Values are thus considered criteria against which to select and justify purchasing behaviors. These two studies suggest that consumer attitude, including the valuation of a food, and barriers such as income are important factors that determine whether or not a consumer will purchase premium foods at a higher price.

Bellia (1987) and Carra (1999) have both insisted that the developments in the demand for food of a higher quality and better safety standards are related both to higher income and the increased awareness of the importance of a healthy diet. Feldman and Lynch (1988) have suggested that the frequency of exposure to product information is an important factor in the increased awareness and thus the appraisal of products. The increased awareness is expected to affect attitudes regarding the valuation of a food.

Therefore, with respect to domestic wheat, attitude and thus WTP will

be affected by consumer opinions about the importance of food safety, the appraisal of domestic wheat products and alternative generic products, and the frequency of exposure to information regarding healthy diet and the role of domestic wheat, as well as demographic variables such as income.[5]

4.2. Estimation Results

The estimation of the truncated regression was respectively repeated for the different commodities. The results of the estimation are displayed in Table 6. The variables that were significant at the 5% level for all four of the commodities were 'appraisal of safety of imported wheat' and 'purchasing eco-friendly food regularly or not.' The interpretation of these two variables is straightforward and implies that the WTP increases if the safety of imported wheat is negatively evaluated and if the consumer purchases eco-friendly food on a regular basis. Purchasing eco-friendly foods on a regular basis implies that the consumer is interested in a healthy diet and is therefore more likely to purchase domestic wheat products.

The variables that were significant for at least one of the four equations are 'opinion regarding importance of safety of wheat,' 'appraisal of safety of domestic wheat products,' 'age,' 'family member in citizen campaign for environment and/or healthier foods,' and 'knowledge of slow food.' The estimated signs of coefficients for these variables are as expected. The results can be interpreted as follows. Consumers who value the safety of wheat and who appraise the safety of domestic wheat products as higher than that of imported wheat are expected to be more willing to pay higher costs for domestic wheat products. The significance of 'age' means that WTP is more likely to increase for elderly people, suggesting that they are more interested in higher quality foods, probably because they are relatively more concerned about personal health. The significance of the variable 'family member in citizen campaign' suggests that frequency of exposure to product information will increase if at least one member of a family participates in a citizen campaign, and the increased awareness will affect one's attitude regarding the valuation of a food. The significance of the variable 'knowledge of slow food' indicates that those

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[5] Consumer reliance on the label of domestic wheat products is also an important factor. However, in this study, it is assumed that this factor is fixed at a fair status.

with more interest in an eco-friendly style are more likely to purchase domestic wheat products, which is consistent with conventional expectation. The result that knowledge of slow food increases the interest in domestic wheat products suggests that marketers of domestic wheat products need to highlight the benefits of healthy diets and focus on the health concerns of their consumers.

Table 6. Results of the Analysis of Factors on the Demand for Eco-friendly Agricultural Products

Variable	Flour		Noodles		Bakery		Confectionery	
	Coeff.	z-stat.	Coeff.	z-stat.	Coeff.	z-stat.	Coeff.	z-stat.
Constant	702.051	0.91	440.668	0.56	-2014.934	-0.60	1026.564	2.33**
Income	2.092	0.57	4.010	1.02	1.716	0.09	0.463	0.19
Importance of the safety of wheat products	179.725	2.94**	182.105	2.83**	163.062	0.66	41.467	1.22
Appraisal of safety of imported wheat	-213.504	-3.34**	-179.697	-2.74**	-684.649	-2.25**	-119.286	-3.33**
Appraisal of safety of domestic wheat	1.109	0.19	-5.324	-0.39	517.210	1.71*	-4.425	-0.60
Gender	231.269	1.30	236.397	1.21	467.259	0.63	94.793	0.96
Age	139.770	2.26**	95.491	1.76*	227.298	0.91	50.037	1.36
Marital status	-60.628	-0.36	-148.535	-0.83	59.006	0.08	-132.751	-1.32
Number of children between the ages of 0 and 7 years	168.007	1.09	63.617	0.40	104.052	0.17	53.502	0.59
Number of children in elementary school	101.464	0.86	100.559	0.84	56.125	0.12	43.213	0.64
Occupation	-112.075	-0.90	107.705	0.88	369.106	0.76	21.840	0.31
Education	-8.233	-0.12	-40.134	-0.57	373.290	1.25	-14.618	-0.35
Relative's civic activities	-190.619	-1.20	-335.064	-2.19**	-1405.042	-2.21**	-146.498	-1.64*
Knowledge of slow food	-93.397	-0.79	-12.587	-0.11	-786.835	-1.55	-143.546	-2.17**
Regular purchase of eco-friendly food	-430.573	-4.10**	-267.450	-2.48**	-1241.989	-2.35**	-221.258	-3.74**
Log Likelihood	-2655.15		-2461.57		-2593.31		-2467.05	
AIC	15.220		13.918		15.214		14.312	
SIC	15.396		14.093		15.394		14.489	

Notes: 1. AIC: Akaike Information Criterion and SIC: Schwarz Information Criterion
2. The superscript** denotes that the value is statistically significant at the 5% level and the superscript* denotes that the value is statistically significant at the 10% level.

4.3. Interpretation of the Results

The estimation results have the following distinct features. First, the variable of 'income' is not significant for any of the wheat products studied. This supports the hypothesis mentioned in the introduction, that consumers may not seriously consider income when answering survey questions, so that income will not appear to be an important factor that affects the stated WTP. This results in a difference between stated WTP and actual purchasing behavior. This implies weakness of the stated preference methods to accurately measure WTP that is closer to the real purchasing behavior.

Second, the variable of 'appraisal of the safety of imported wheat' is significant for all four types of wheat products. This implies that the appraisal of the wheat currently consumed in terms of food safety is an important factor affecting consumer attitudes toward wheat products and will therefore affect consumer WTP for domestic wheat products.

Third, the variable of 'purchasing eco-friendly foods regularly' is significant for all of the commodity cases, which suggests that it is likely that the consumers concerned with the variable are also interested in domestic wheat products. The result may be due to the fact that these consumers are comparatively more informed than other consumers in regard to the importance of a healthy diet and advantages of consuming domestic wheat products. This would then suggest that the frequency at which a consumer is exposed to the information on food safety issues and domestic wheat products are important factors that affect the attitudes of consumers and their WTPs.

5. Summary and Conclusions

An open-ended question among the various CVM methods available was used to derive the extra cost that S. Korean consumers are willing to pay for domestic wheat products. In order to analyze the factors that affect the WTP, the truncated regression model was estimated for four different domestic wheat products.

The empirical results of this study are summarized as follows. Income of the consumers was not significant for any of the wheat products studied. This suggests a limitation of the stated preference method to detect a consumer

WTP that is close to the actual purchasing behavior. The revealed preference approach may be a better alternative in this case. 'Appraisal of wheat currently consumed in terms of food safety' and 'purchasing eco-friendly foods on a regular basis' were found to be the two most important factors that affect consumer WTP for domestic wheat products.

Overall, demographic variables including income are found not to be important factors for WTP, while perception and valuation of the food are important. These results may provide an important implication for product marketing and advertising. Segmentation of the consumer group according to demographic factors such as income, age, vocation, and education may not be effective. Instead, persuading consumers by advocating the importance of healthy diet or detailing the advantages and superiority of domestic wheat products over those of imported wheat are more effective.

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