

Satisfaction with Food Policies for Consumer: A Case Study of South Korea

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Introduction

South Korea has undergone rapid economic growth and social changes, resulting in substantial changes in its consumption of food. South Korean consumers have increasingly emphasized quality instead of quantity of food consumption, including the attributes of food sanitation, food safety, and taste as well as the attributes of health- and convenience-orientation (Lee et al., 2007). Given this fundamental change in food consumption, there has been an increasing demand for improving food policies for consumers (FPC) to fully meet various consumer needs related to food consumption. South Korea has recently enacted a large body of laws and policies aimed at protecting consumers' rights in the domain of food consumption.

However, it is not clear if the recent institutional changes and efforts and the resulting diverse and dispersed administration of food policy is effectively serving consumers. Because FPC's objective is to enhance consumer well-being, a key policy issue is how well do consumers feel the policies are serving them.

As part of the assessment of this question above, a Consumption Behavior Survey of Food (CBSF) has been conducted by the Korea Rural Economic Institute (KREI¹) for approximately 3,000 households (6,000 adults) in a sample that was representative of the population of South Korea every year since 2013. CBSF included questions about overall food consumption behavior as well as the rating of satisfaction of consumers with FPC. The average response to the question, "to what level are you satisfied with FPC that are currently implemented by the government? (out of 100 points)", was 62.8, 63.4, and 63.9 in 2013, 2014,

¹ Korea Rural Economic Institute is a national research institute in charge of agricultural, food, and rural policies of South Korea.

and 2015, respectively. Despite of the recent concentrated efforts by the government to improve FPC in favor of its policy demanders, these average ratings did not significantly differ. One option for informing policymakers about ways to improve FPC (as well as the consumer satisfaction with FPC) is to investigate the characteristics of this consumer satisfaction with FPC.

This study empirically investigates the factors associated with consumer satisfaction with FPC among the South Korean population. South Korea is an appropriate country to conduct such a research as it is in transition to a more developed country with a recent large body of laws and policies aimed at the protection of consumers' rights, and thus this investigation on FPC is expected to have implications to countries in a similar cultural, sociodemographic, and economic status.

South Korea's Matrix of Food Policies for Consumers

Currently in South Korea as shown in Figure 1, FPC encompass a wide spectrum of policies that include include nutrition, dietary life, food safety, food transactions, food labeling, food related education and public relations, and food related damage relief (Lee et al., 2012). Specifically, FPC are composed of support policy, regulatory policy, and the creation of policy base. Support policies encompass the provision of information to consumers, education, consulting and damage relief, and the enhancement of dietary life environment. Regulatory policy involves the regulation of unfair business practices especially in terms of food safety. The creation of the policy base domain includes the areas of legislation, statistics, and government organizations (Lee et al., 2014).

Figure 2 depicts principal administrating agents of FPC in South Korea. The Ministry of Agriculture, Food and Rural Affairs and the Ministry of Food and Drug Safety are in charge of

FPC in South Korea. The Ministry of Agriculture, Food and Rural Affairs was reorganized and expanded in 2008 from the previous the Ministry of Agriculture during a comprehensive reorganization of the South Korean central government. Reflecting changes in consumption behavior, the Ministry's responsibilities were expanded to include consumer-centered policies. It continues to have responsibility for policy concerning supply and distribution of raw food. The status of the Ministry of Food and Drug Safety was enhanced when it was created in 2013 from the existing 'Korea Food and Drug Administration.' It handles the safety of food products at the point of consumer sales, except for food sold directly to consumers by farmers, and meals provided at schools, which are administered by the Ministry of Education. The Korea Consumer Agency and Fair Trade Commission are in charge of damage relief issues while the Ministry of Health and Welfare oversees dietary and nutrition issues.

Literature Review

Evaluation of the administration of government policy can be conducted in a variety of ways. In accordance with the Magenta Book (HM Treasury, 2011), Great Britain evaluates policy by conducting a survey of satisfaction, awareness, knowledge, and opinion of specific government policy. In the U.S., surveys of users of a specific policy are conducted, including the opinions of farmers and others stakeholders concerning policy instruments and goals of the farm safety net. These studies include Orazem, Otto, and Edelman (1989), Barkley and Flinchbaugh (1990), Coble et al. (2002), and Rejesus et al. (2009), and the various studies cited in these articles. In addition, Kastens and Goodwin (1994) analyzed farmers' attitude toward agricultural trade policy.

Food safety policy has been examined for meal planners in the U.S. by Lin (1995), and for U.S. consumers by Nayga (1996), Dosman, Adamowicz, and Hrudehy (2001), and Baker (2003).

On the other hand, people's satisfaction level on policy gives us a merit from the aspect that consumers evaluate the pertinent policy using more direct method, and therefore many scholars and policy makers have been paying attention to it (DeHoog, Lowery, and Lyons, 1990; Brundey and England, 1983; Roch and Poister, 2006; Van Ryzin, 2006; Van Ryzin, Immerwahr, and Altman, 2008).

Survey based assessment of food related policies in South Korea includes Jin et al. (2014) and Yoo et al. (2015) (satisfaction with food safety policies); Lee and Lee (2014) (consumers' confidence in food safety policy); and Hong (2015) (public relation policy of the Ministry of Agriculture, Food and Rural Affairs). In addition, Kim and Moon (2013) analyzed the determinants for domestic farmers' satisfaction level on agriculture/farming village policies. Regarding the evaluation of other policy areas, Hwang and Seo (2013) investigated general satisfaction level on the policies for working low-income households, Lim (2010) identified issues that should be considered when assessing the performance of the central government utilizing national-level satisfaction survey, and Hwang and Seo (2012) scrutinized satisfaction level and influencing factors on the policies for aged society. Lee and Song (2012) analyzed the satisfaction level on the expanded policy on infants care cost support, Mok et al. (2013) surveyed the level of satisfaction with child care policy, and Shin (2009) evaluated satisfaction with the medical insurance system. All these studies commonly used survey to assess government policies by gauging satisfaction level of the policy beneficiaries. Hence, we decided to follow this survey-based assessment of FPC in South Korea.

Data and Methods

This study utilizes the 2015 CBSF data to assess FPC in South Korea. Specifically, the level of satisfaction with FPC rated by South Koreans is investigated. The Korea Rural Economic Institute (KREI) annually conducted CBSFs of Korean consumers since 2013. These surveys respectively involved approximately 6,000 adults in a sample that was representative of the population of South Korea (Lee et al., 2015). Survey of consumer satisfaction is a commonly-used approach in this type of policy evaluation (Hendriks, 2012), and such surveys generally provide reliable, evidence-based metrics that are methodologically rigorous (Howard, 2010).

The survey samples were extracted based on stratification extraction method using as the sample extraction frames the 2010 Enumeration District and the list of households of Statistics Korea.

Respondents of the survey are asked about their demographic characteristics, weekly dietary behavior, type, origin and amount of foods they consume, preferred food, eating-out pattern, willingness to pay for imported food, willingness to pay for safe food, opinion on effects of food on health, level of satisfaction with dietary life, evaluation of food safety in South Korea, utilization practices of and knowledges on food labeling policies, life styles, level of satisfaction with FPC, and perceptions on major policy issues. The survey uses three separate questionnaires: one for main meal planners, another for adults, and the other for youth layer. In the case of youth layer, a separate questionnaire which is different from that for adults was prepared by reflecting their food consumption experience is quite limited. This study utilizes the survey results for only adults because questions relevant to this study were not asked for youth.

Table 1 represents the distribution of sample of the 2015 CBSF by residential area, gender, age, education level, and monthly household income. Total number of adults who participated in the survey was 5,830 in 2015. After applying a sampling weight, it is reported that 83.8% of the sample resided in urban areas, and 50.6% were male. The respondents aged 19 to 29 comprise approximately 20% of the total, those 30 to 39 years 20%, those 40 to 49 years 22%, those 50 to 59 years 21%, and 60 and over group 17.2%. Middle and high school was the highest education for approximately 17% and 44% of total, respectively. The ratios of survey respondents whose monthly household income was below \$2,500, in ranges of \$2,500-\$3,333, \$3,333-\$4,167, \$4,167-\$5,000, and over \$5,000 were 36.3%, 19.0%, 15.5%, 12.2%, and 16.9%, respectively.

The 2015 CBSF questionnaire included the following question regarding the level of satisfaction with FPC: “to what level are you satisfied with FPC that are currently implemented by government?” This question represents the satisfaction level on FPC which is measured using full scale of 100 points. Even though this question has a limitation that it represents subjective measuring of respondents’ satisfaction level on FPC, numerous studies have commonly used this subjective evaluation method because objective policy evaluation is not practically feasible in general. As even the 2015 CBSF does not include objective policy evaluation question, this study utilized the subjective satisfaction level for FPC. As the reliability for the evaluated satisfaction level may be limited in case where general public do not have good understanding or knowledge on a specific policy, we decided to use the question which surveyed the rated level of satisfaction with “general FPC”, not a specific food policy for consumers.

Table 2 shows the level of satisfaction with FPC by residential area, gender, age, education level, and monthly household income. Rural area residents’ satisfaction level on FPC

was higher by approximately 3.5 points, and female respondents' satisfaction level was higher by 0.8 points. The older and the less educated the respondents are, the higher is the satisfaction level on FPC in general. Respondents with relatively low monthly household income are more satisfied with FPC.

Using the raw data provided by the 2015 CBSF, a multivariate linear regression model is estimated to identify the factors associated with consumer satisfaction with FPC in South Korea. Independent variables are divided² into four categories: 1) individual demographic factors, 2) individual dietary life factors, 3) individual perception on food safety factors, and 4) individual utilization of food labeling factors. The estimated model is as follows:

$$y_i = \alpha + \mathbf{X}'_i\boldsymbol{\beta} + \mathbf{Z}'_i\boldsymbol{\gamma}_1 + \mathbf{W}'_i\boldsymbol{\gamma}_2 + \mathbf{V}'_i\boldsymbol{\gamma}_3 + \varepsilon_i$$

where y_i = consumer satisfaction with FPC = points out of 100, \mathbf{X}_i = sociodemographic factors (gender, age, income, whether or not single household, residential area, size of household, whether or not main meal planner), \mathbf{Z}_i = a matrix of individual dietary life (frequency of dining-out, whether or not regularly eat meals, satisfaction with diet, whether or not interested in domestic food, local food, environment protection, and losing weight, whether or not have experience of losing weight, and whether or not exercise regularly), \mathbf{W}_i = a matrix of

² DeHoog, Lowery, and Lyons (1990) classified independent variables in three kinds. The first set of independent variables was a set of individual level variables which include gender, race, income, age, owning home or not, political efficacy and level of community attachment. The second set of independent variables was a set of jurisdictional-level variables which include dominant racial composition, average income level, socioeconomic matrix of a jurisdiction, actual level of service provision in the jurisdiction, whether the jurisdiction operates under a consolidated urban-county government or a fragmented system, and actual quality of service. Last set of independent variables was a set of city-specific determinants of satisfaction with policy which is composed of dummy variables specifying regions.

individual perception on food safety (rating on food safety, most important food policy area, whose role is important in food safety, government, producer, or consumer?, willingness to pay for safe food, and whether or not have experience of harmed by food), $V_i =$ a matrix of individual utilization of and knowledge on food labeling (whether or not check, satisfy with, and trust food labeling, whether or not think food labeling policy is important), $(\alpha, \beta, \gamma) =$ parameters to estimate, and $\varepsilon_i =$ idiosyncratic disturbances.

Table 3 summarizes the variables that are used in the Ordinary Least Squares estimations. Fourteen percent of total was single household, and average size of household was 3.0 with standard deviation of 1.3. Average frequency of weekly dine-out of the respondents was 4.4, and only 24% of the respondents regularly eat meals. Satisfaction level with diet was on average 3.63/5.00, and level of interest in domestic food, local food, environment, and losing weight was on average 3.53/5.00, 3.21/5.00, 3.05/5.00, and 3.44/5.00, respectively. Only 30% of respondents exercise regularly, and the average rating on food safety was 68.2 out of 100 with standard deviation of 14.98. The extent to which the respondents think the role of government, producer, and consumer is important in food safety policy area was 4.31/5.00, 4.37/5.00, and 4.23/5.00, respectively. Willingness to pay for safe food was on average 3.26/5.00 with standard deviation of 0.75. Only 6% of respondents had experience of food harm. The ratio of respondents who consider food safety and damage relief policy is important was 60% and 8%, respectively. The extent to which respondents check, satisfy with, and trust food labeling was 2.98/5.00, 3.28/5.00, and 3.25/5.00, respectively. Average level of respondents' knowledge on food labeling was 2.10/3.00, and the ratio of respondents who think labeling policy is important was 4%. Finally, the level of respondents' satisfaction with FPC was on average 66 points out of 100 ranging from zero to 100 with standard deviation of 14.6 in 2015.

Findings and Future Research

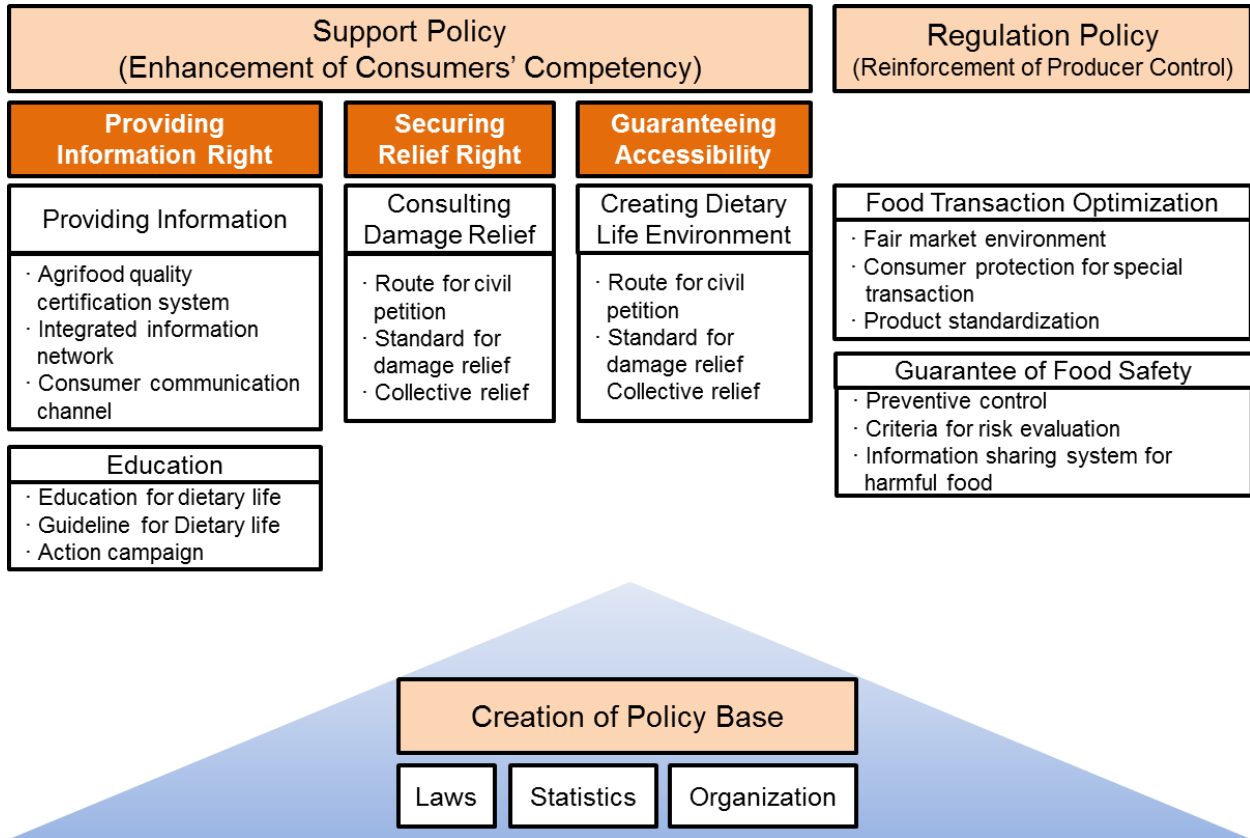
Table 4 presents the results of Ordinary Least Squares (OLS) estimation using the 2015 CBSF data. Those who are female, older, has less income, reside in rural area, and have more household member exhibited significantly higher satisfaction level with FPC. In addition, those who dine-out less frequently, less interested in domestic food, and more interested in local food and environment expressed significantly higher satisfaction level with FPC at least at 10 percent significance level. It is obvious that consumers' evaluation on food safety has a significant strong association with the level of satisfaction with FPC. The estimated coefficient was 0.56 and statistically significant at one percent level, which implies that one point increase in the evaluation of food safety will increase 0.56 points in the level of satisfaction with FPC. Those who are less willing to pay for safe food, have experience of food harm, and think that food safety policy is important expressed significantly higher satisfaction level with FPC. Consumers' willingness to trust food labeling have a statistically significant (at the 5% level) positive impact on the satisfaction with FPC, while frequency of checking food labeling and valuation on labeling policy have a statistically significant negative impact on the level of satisfaction with FPC.

Policy implications include that consumer satisfaction with FPC can be improved by strengthening policies on food safety, food-related damage, and food labeling. In particular, consumers' evaluation on food safety is strongly associated with their satisfaction with FPC that are currently implemented by government. Therefore, guaranteeing the food safety might be a key to improving the satisfaction level of the policy demanders on FPC.

Future research will naturally extend this analysis toward aggregating the other two years of CBSF data that were collected in 2013 and 2014, and exploring causality relationships

among key variables by utilizing Instrumental Variable (IV) technique. It is also expected that future research can scrutinize consumers' ration on satisfaction with specific food policies as the 2016 CBSF questionnaire includes new items asking the ratings on satisfaction with specific food related policies.

Figure 1. Matrix of Food Policies for Consumers in South Korea



Note: Lee et al. (2014) pp. 31

Figure 2. Principal Administrating Agents of Food Policies for Consumers

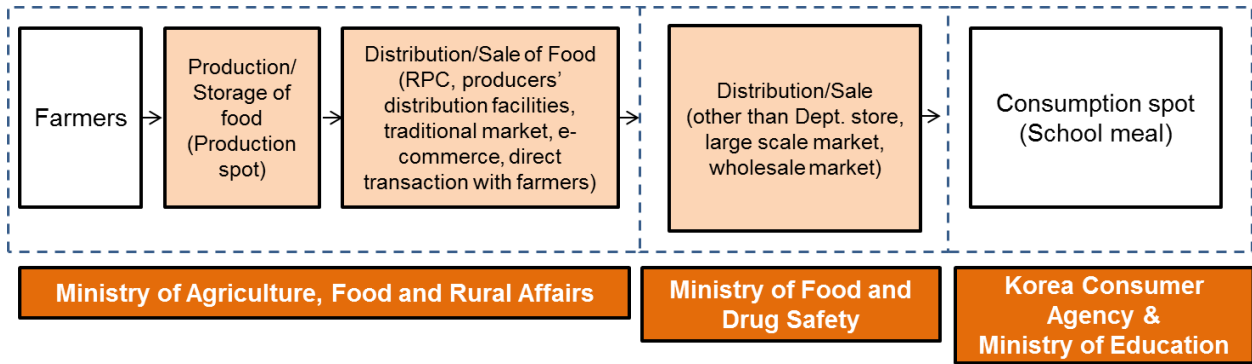


Table 1. Demographic Characteristics of Survey Respondents, Consumption Behavior Survey of Food, 2015, South Korea

		Number of Respondents	Weight	Ratio (%)
Entire Sample		5,830	38,296,916	100.0
Residential Area	Urban Area	4478	32,076,891	83.8
	Rural Area	1352	6,220,025	16.2
Gender	Male	2,485	19,360,281	50.6
	Female	3,345	18,936,635	49.4
Age	19-29	639	7,481,401	19.5
	30-39	963	7,653,494	20.0
	40-49	1,348	8,465,778	22.1
	50-59	1,089	8,113,247	21.2
	over 60	1,791	6,582,996	17.2
Education	Middle school	1590	6,357,643	16.6
	High School	2313	16,667,866	43.5
	College	1927	15,271,407	39.9
Monthly Household Income	below US\$2,500	2,385	13,919,042	36.3
	\$2,500-\$3,333	1,049	7,269,090	19.0
	\$3,333-\$4,167	877	5,951,675	15.5
	\$4,167-\$5,000	644	4,681,966	12.2
	over \$5,000	875	6,475,143	16.9

Table 2. Consumer Satisfaction with Food Policies, Consumption Behavior Survey of Food, 2015, South Korea

		Mean	Number of Respondents
Entire Sample		63.91	(5,830)
Residential Area	Urban Area	63.35	(4,478)
	Rural Area	66.82	(1,352)
Gender	Male	63.51	(2,485)
	Female	64.33	(3,345)
Age	19-29	62.71	(639)
	30-39	60.76	(963)
	40-49	62.73	(1,348)
	50-59	65.87	(1,089)
	over 60	68.07	(1,791)
Education	Middle school	68.86	(1,590)
	High School	64.17	(2,313)
	College	61.57	(1,927)
Monthly Household Income	below US\$2,500	65.91	(2,385)
	\$2,500-\$3,333	63.55	(1,049)
	\$3,333-\$4,167	61.47	(877)
	\$4,167-\$5,000	63.55	(644)
	over \$5,000	62.55	(875)

Table 3. Summary Statistics, Consumption Behavior Survey of Food, 2015, South Korea

Variables	Description of Measurement	Mean	S.D.	Min.	Max.
Gender	= 1 if male, = 2 otherwise	1.57	0.49	1	2
Age	Age	49.48	15.03	19	74
Income	= 1 if lowest, = 12 if highest	5.63	3.92	1	12
Single_household	= 1 if single household	1.86	0.35	1	2
Rural	= 1 if urban resident	1.23	0.42	1	2
Household_member_number	number of household member	3.02	1.30	1	9
Main_meal_planner	= 1 if main meal planner	0.56	0.50	0	1
Dine-out	number of weekly dine-out	4.39	4.31	0	21
Regular_meal	= 1 if eat regularly	1.24	0.43	1	2
Diet_satisfy	5-point Likert scale with 5 if most satisfied with dietary life	3.63	0.63	1	5
Domestic_food_interest	5-point Likert scale with 5 if most interested with domestic food	3.53	0.76	1	5
Local_food_interest	5-point Likert scale with 5 if most interested with local food	3.21	0.79	1	5
Environment_interest	5-point Likert scale with 5 if most interested with environment	3.05	0.86	1	5
Weight_loss_interest	5-point Likert scale with 5 if most interested with losing weight	3.44	1.65	1	9
Weight_loss_experience	= 1 if have experience	1.66	0.47	1	2
Regular_exercise	= 1 if exercise regularly	1.70	0.46	1	2
Food_safety_evaluation	Points from 0 to 100	68.18	14.98	0	100
Food_safety_by_government	5-point Likert scale with 5 if most agree with importance of government in food safety	4.31	0.73	1	5
Food_safety_by_producer	5-point Likert scale with 5 if most agree with importance of producer in food safety	4.37	0.72	1	5
Food_safety_by_consumer	5-point Likert scale with 5 if most agree with importance of consumer in food safety	4.23	0.73	1	5
WTP_for_safe_food	5-point Likert scale with 5 if most willing to pay for safe food	3.26	0.75	1	5
Food_harm_experience	= 1 if have experience of food harm	1.94	0.24	1	2
Food_safety_policy_important	= 1 if think food safety policy is important among many food policies	0.60	0.49	0	1
Damage_relief_policy_important	= 1 if think food damage relief policy is important among many food policies	0.08	0.28	0	1
Check_label	5-point Likert scale with 5 if most check food labeling	2.98	1.30	1	5
Satisfy_label	5-point Likert scale with 5 if most satisfy with food labeling	3.28	0.58	1	5
Believe_label	5-point Likert scale with 5 if most trust food labeling	3.25	0.60	1	5
Knowledge_on_label	Knowledge level on 9 types of food labeling with 3 as maximum level	2.10	0.51	1	3
Labeling_policy_important	= 1 if think labeling policy is important among many food policies	0.04	0.20	0	1
Policy_satisfaction	Points from 0 to 100	66.02	14.57	0	100

Table 4. OLS Estimation of Consumers' Satisfaction with Food Policies for Consumers, Consumption Behavior Survey of Food, 2015, South Korea

	(1)	(2)	(3)	(4)
	Policy Satisfaction	Policy Satisfaction	Policy Satisfaction	Policy Satisfaction
Gender	1.44*** (0.55)	1.34** (0.57)	1.16*** (0.43)	1.47*** (0.43)
Age	0.15*** (0.01)	0.10*** (0.02)	0.05*** (0.01)	0.04*** (0.01)
Income	-0.13** (0.05)	-0.15*** (0.05)	-0.11*** (0.04)	-0.10** (0.04)
Single_household	-1.34* (0.71)	-1.70** (0.71)	-1.01* (0.56)	-0.71 (0.56)
Rural	1.82*** (0.45)	1.13** (0.46)	1.02*** (0.36)	1.04*** (0.35)
Household_number	0.05 (0.22)	0.12 (0.21)	0.30* (0.16)	0.28* (0.16)
Main_meal_planner	-1.12* (0.60)	-1.09* (0.60)	-0.86* (0.45)	-0.53 (0.46)
Dine-out		-0.19*** (0.05)	-0.12*** (0.04)	-0.11** (0.04)
Regular_meal		-1.27** (0.50)	-0.51 (0.39)	-0.52 (0.39)
Diet_satisfy		0.88** (0.38)	0.40 (0.30)	0.26 (0.30)
Domestic_food_interest		-1.34*** (0.35)	-1.08*** (0.26)	-0.85*** (0.26)
Local_food_interest		0.61 (0.40)	0.61** (0.30)	0.66** (0.30)
Environment_interest		0.27 (0.30)	0.48** (0.23)	0.50** (0.23)
Weight_loss_interest		-0.09 (0.11)	-0.02 (0.08)	-0.03 (0.08)
Weight_loss_experience		1.25*** (0.45)	0.63* (0.35)	0.54 (0.35)
Regular_exercise		1.17*** (0.44)	0.54 (0.34)	0.41 (0.34)
Food_safety_evaluation			0.58*** (0.01)	0.56*** (0.01)
Food_safety_by_government			0.37 (0.27)	0.35 (0.27)
Food_safety_by_producer			-0.32 (0.30)	-0.28 (0.30)
Food_safety_by_consumer			0.32 (0.26)	0.24 (0.26)
WTP_for_safe_food			-0.84*** (0.21)	-0.75*** (0.21)
Food_harm_experience			3.59*** (0.79)	3.05*** (0.79)
Food_safety_policy_important			-1.80*** (0.32)	-2.03*** (0.33)
Damage_relief_policy_important			0.56 (0.53)	0.24 (0.54)
Check_label				-0.86*** (0.13)
Satisfy_label				0.61 (0.44)
Believe_label				1.05** (0.42)
Knowledge_on_label				0.17 (0.32)
Labeling_policy_important				-1.44* (0.78)
Intercept	58.03*** (1.47)	59.02*** (2.62)	16.47*** (3.05)	14.67*** (3.21)
N	5830	5830	5830	5830
R-sq	0.03	0.04	0.42	0.43

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