



## Analysis of Consumers' Preferences and Price Sensitivity to Native Chickens

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### Abstract

This study analyzed consumers' preferences and price sensitivity to native chickens. A survey was conducted from Jan 6 to 17, 2014, and data were collected from consumers (n=500) living in Korea. Statistical analyses evaluated the consumption patterns of native chickens, preference marketing for native chicken breeds which will be newly developed, and price sensitivity measurement (PSM). Of the subjects who preferred broilers, 24.3% do not purchase native chickens because of the dryness and tough texture, while those who preferred native chickens liked their chewy texture (38.2%). Of the total subjects, 38.2% preferred fried native chickens (38.2%) for processed food, 38.4% preferred direct sales for native chicken distribution, 51.0% preferred native chickens to be slaughtered in specialty stores, and 32.4% wanted easy access to native chickens. Additionally, the price stress range (PSR) was 50 won and the point of marginal cheapness (PMC) and point of marginal expensiveness (PME) were 6,980 won and 12,300 won, respectively. Evaluation of the segmentation market revealed that consumers who prefer broiler to native chicken breeds were more sensitive to the chicken price. To accelerate the consumption of newly developed native chicken meat, it is necessary to develop a texture that each consumer needs, to increase the accessibility of native chickens, and to have diverse menus and recipes as well as reasonable pricing for native chickens.

**Keywords** Korean native chickens, consumers' preference, chicken breed, price sensitivity

### Introduction

Due to its relatively low fat and cholesterol content, chicken meat is well-recognized as a healthy animal food when compared to other meats (Liu *et al.*, 2012); thus, chicken consumption is increasing among people who take into account nutrition and a healthy lifestyle (Kim and Park, 2001). Chicken consumption in Korea has increased annually showing a high rate of increase of 4.5 from 1980-2010 periods, while beef and pork increased by only a little over 3 times during the same timeframe (Park, 2012). Mass production of chickens due to increased consumption has caused the need for imported chicken. A study conducted by Park (2002) showed that although 79.0% respondents had a negative opinion on imported chickens, they considered imported chickens to be reasonably priced.

Despite native chickens having good flavor and unique meat properties, many

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consumers still have not started buying native chickens (Cha *et al.*, 2014). However, an increasing preference for quality livestock products and reforming of national sentiment have led to slowly increasing interest in native chickens (Han *et al.*, 1996); accordingly, it is necessary to develop native chicken breeds that consumers want. New product development including new animal breeds is a necessity when customer needs and wants change, and investigating consumer acceptance should be the first important step in screening new product ideas (Grunert *et al.*, 2011). Consumers' demands have forced the need for high quality foods with better sensory characteristics and nutritional values (Rocha *et al.*, 2013). Therefore, through analysis of their preference for chicken breeds, this was conducted to evaluate consumers' demands for native chicken breeds which will be newly developed.

Looking at previous studies on the price of the native chicken, a study conducted by Han (1998) showed that the reason for preference for native chickens was due to its tastiness (52.0%) and because its chewiness differentiated it from broilers (63.6%), but 71.2% responded that the current price of native chickens was too expensive. Another study conducted by Han *et al.* (1996) also showed that 54.3% respondents thought the price of native chicken was too expensive. Therefore, it is necessary to measure the consumers' perception of reasonable price and price sensitivity to newly developed native chicken breeds. Therefore, this study utilized the price-sensitivity measurement (PSM) approach to consumers' perception of price. PSM is a powerful technique that reveals how the relationship between price and quality affect consumers' perceptions of value (Lewis and Shoemaker, 1997) that can be used to investigate how consumer perception of value is affected by the interaction of price and quality (Raab *et al.*, 2009).

The majority of previous studies on native chickens were related to housewives' awareness and uses of native chickens (Han *et al.*, 1996; Kim *et al.*, 2015), the consumption patterns of native chickens products (Han, 1998), increased chicken consumption in Korea (Park, 2012), and comparison of meat quality and sensory characteristics of native chickens (Cha *et al.*, 2014). Moreover, the previous studies on chickens were related to the perception and consumption patterns associated with broilers (Kim and Park, 2001) and the patterns of chicken meat consumption in the market (Park, 2002). However, few studies analyzing consumers' preference for native chicken breeds and price sensitivity have been performed. Therefore, this study was conducted to provide basic information for

development of new native chicken breeds by analyzing consumers' preferences for native chicken breeds and measuring price sensitivity.

## Materials and Methods

### Subjects

This study conducted a questionnaire survey of participants of various ages in Korea from Jan 6 to 17, 2014. A total of 500 copies were returned and analyzed. Quota sampling was used to extract respondents' characteristics, with 250 samples for males and 250 samples for females as well 100 samples per age group.

### Questionnaire

The questionnaire consisted of 4 sections: 1) demographic profile of respondents, 2) consumption patterns and perception of chickens, 3) preference marketing for new native chicken breeds, and 4) price sensitivity measurement. Respondents' answered questions, excluding those related to price sensitivity measurement, by choosing one (or more) among possible examples. Price sensitivity measurement was accomplished with following four questions (Harmon *et al.*, 2007), and respondents wrote down the price for each question. The standard chicken size at 1.3 kg was used as it is the most widely purchased chicken size in markets.

1. At what price do you consider to be expensive for native chicken (1.3 kg)?
2. At what price do you consider native chicken (1.3 kg) to be too expensive to buy?
3. At what price do you consider native chicken (1.3 kg) to be cheap?
4. At what price do you consider native chicken (1.3 kg) so cheap that you would question its quality and performance?

### Statistical analysis

The collected data were analyzed using SPSS 21.0 for Windows. Frequency analysis was used to investigate the demographic profiles of the respondents and the consumption patterns and awareness of consumers by breed preference. Chi-squared analysis was used to investigate the preference for new native chicken breeds. Price sensitivity was measured as follows. First, the indifference price (IDP), which is the pricing point at which an equal amount of customers feel that the price is as cheap as it is expensive, was determined based on the interaction of two

graphs of the cumulative distribution of responses for “cheap” and “expensive”. An IDP percentage, which is the subsequent cumulative distribution percentage at the IDP, was then established. The optimal pricing point (OPP), which is the point at which purchase resistance is lowest, was plotted by combining the cumulative distributions of “too cheap” and “too expensive” responses from guests. To measure the PME and PMC, the distribution of “cheap” and “expensive” were reversed so they were first portrayed as “not expensive” and “not cheap”. The point of marginal expensiveness (PME) is the interaction of the two graphs between the cumulative distribution of “too expensive” and “not expensive” and the point of marginal cheapness (PMC) is the interaction of the two graphs between the cumulative distribution of “not cheap” and “too cheap” (Raab *et al.*, 2009). The range of acceptable prices (RAP)

is the distance between the point of marginal cheapness (PMC) and marginal expensiveness (PME). The smaller this range, the greater the sensitivity (Lewis and Shoemaker, 1997).

## Results and Discussion

### General characteristics of subjects

The demographic profile of the respondents is presented in Table 1. There were 250 males and females (50%) each and the number of all ages for each group was 100 (20%) each. The number of respondents who had a monthly income of 3,000,000 won to 3,990,000 won, over 5,000,000 won, and 2,000,000 won to 2,990,000 won was 125 (25.0%), 102 (20.4%), and 94 (18.8%), respectively. Additionally, 167 (33.4%), 148 (29.6%), and 38 (7.6%)

**Table 1. General characteristics of the subjects (N=500)**

Item	Frequency	Percentage (%)
Gender	Male	250
	Female	250
Age	19 & under	100
	20-29	100
	30-39	100
	40-49	100
	≥ 50	100
Preference of chicken breeds	Broiler	233
	Native chickens	117
	No preference	150
Monthly consumption of chickens	Not at all	2
	<1	42
	1-2	193
	3-4	181
	5-6	50
	≥ 7	32

**Table 2. Consumption patterns of consumers who prefer broilers (N=383)**

Item	Frequency	Percentage (%)
Frequency of broiler consumption	Almost everyday	5
	1 to 2 per wk	80
	1 to 2 per mon	235
	1 to 2 per 3 mon	47
	1 to 2 per 6 mon	10
	1 to 2 per year	2
	rarely	4
Reason they don't purchase native chickens	Unsanitary production	4
	Dry and tough texture	93
	High cost	90
	Decreasing reliability	87
	Large size	23
	Relatively small amount of meat	8
	Inaccessibility	78

were white color workers, students, and blue color workers, respectively. Respondents who preferred broilers accounted for the largest portion (233 individuals (46.6%), while 150 (30.0%) and 117 (23.4%) individuals did not care about breeds and preferred Korean native chickens, respectively. The frequency of chicken consumption was 1 to 2 times per month for the majority of subjects (193, 38.6%), while 181 respondents (36.2%) consumed chicken 3 to 4 times per month.

### Consumption patterns of chicken

The chicken consumption patterns of respondents, except those who preferred native chickens, are presented in Table 2. Most individuals (235; 61.4%) consumed broilers 1 to 2 times a month, followed by 1 to 2 times per week (80; 20.9%) and then 1 time every 3 mon (47; 12.3%). The major reason why respondents did not purchase native chickens was they perceived the meat textures to be dry and tough (93, 24.3%), or because the price was high (90, 23.5%). These results are similar to those of a study con-

ducted by Han (1998), who reported that the tough texture of native chickens was the major reason (24.2%) respondents did not like native chickens.

The consumption patterns of respondents, who preferred native chickens, excluding consumers who preferred broilers, are presented in Table 3. A frequency of native chicken consumption of 1 to 2 times per year was most common (81 individuals; 30.3%), followed by 1 to 2 per 3 months (54; 20.2%) and 1 to 2 per month (52; 19.5%). When asked why they preferred native chickens, 102 individuals (38.2%) responded native chickens had chewy texture. These results were similar to those of a study conducted by Han (1998), who reported that the chewy texture of native chickens was the major reason (63.6%) for the differentiation between native chickens and broiler and that 74.5% of respondents stated that they consumed native chickens in summer. Additionally, 129 respondents (48.3%) responded that they ate rice or porridge with native chickens and 166 respondents (62.2%) responded that they preferred the leg parts.

**Table 3. Consumption patterns and perception of consumers who prefer native chickens (N=267)**

Item	Frequency	Percentage (%)	
Frequency of native chickens	Almost everyday	1	0.4
	1 to 2 per wk	6	2.2
	1 to 2 per mon	52	19.5
	1 to 2 per 3 mon	54	20.2
	1 to 2 per 6 mon	37	13.9
	1 to 2 per year	81	30.3
	Rarely	36	13.5
Reason they prefer native chickens	Eco food	40	15.0
	Low fat/high protein	23	8.6
	Chewy texture	102	38.2
	Good for health	36	13.5
	Traditional breeds	45	16.9
	High safety	20	7.5
Season to consume	Spring	4	1.5
	Summer	153	57.3
	Fall	3	1.1
	Winter	4	1.5
	No preference	103	38.6
Accompanied food	Rice or porridge	129	48.3
	Alcoholic drink	50	18.7
	Beverage	18	6.7
	Side dishes (kimchi, etc.)	53	19.9
	Vegetables	17	6.4
Preferred part	Legs	166	62.2
	Breast	53	19.9
	Wings	33	12.4
	Ribs	15	5.6

**Table 4. Preferred marketing methods for new native chicken breeds (N=500)**

	Item	Frequency (%)			$\chi^2$
		Consumers who prefer broilers	Consumers who prefer native chickens	Total	
Processed food	Chicken burger	25 (10.7)	13 (11.1)	52 (10.4)	7.963
	Side dishes	22 (9.4)	16 (13.7)	64 (12.8)	
	Chicken nuggets	35 (15.0)	21 (17.9)	73 (14.6)	
	Fried chicken	100 (42.9)	36 (30.8)	191 (38.2)	
	Canned chicken breast	29 (12.4)	14 (12.0)	61 (12.2)	
	Chicken skewers	22 (9.4)	16 (13.7)	54 (10.8)	
	Other	0 (0.0)	1 (0.9)	5 (1.0)	
Distribution channel	Direct sales	76 (32.6)	59 (50.4)	192 (38.4)	12.627*
	Retail	65 (27.9)	24 (20.5)	130 (26.0)	
	Wholesale	75 (32.2)	24 (20.5)	133 (26.6)	
	Food service industry	16 (6.9)	10 (8.5)	44 (8.8)	
	Other	1 (0.4)	0 (0.0)	1 (0.2)	
Cooking methods	Directly slaughtering in restaurant	81 (34.8)	52 (44.4)	185 (37.0)	8.932
	Sending to restaurants after slaughtering in specialty store	133 (57.1)	52 (44.4)	255 (51.0)	
	No preference	19 (8.2)	13 (11.1)	60 (12.0)	
Market revitalization	Developing varied menu	67 (28.8)	28 (23.9)	133 (26.6)	5.019
	Easy accessibility	77 (33.0)	28 (23.9)	162 (32.4)	
	Promotion of superiority of native chicken	66 (28.3)	46 (39.3)	155 (31.0)	
	Assist producers	9 (3.9)	8 (6.8)	24 (4.8)	
	Develop diverse breeds	11 (4.7)	7 (6.0)	22 (4.4)	
	Other	3 (1.3)	0 (0.0)	4 (0.8)	

\* $p < 0.05$ 

### Preference marketing for new native chicken breeds

Preference marketing methods for new native chicken breeds are presented in Table 4. For processed food, the subjects responded in the following order: fried (38.2%) > nuggets (14.6%) > side dishes (12.8%). For distribution channels, the subjects responded in the following order: direct sales (38.4%) > retail (26.6%) > wholesale (26.0%). There was a difference between broiler likers and native chicken likers ( $p < 0.05$ ). Specifically, consumers who preferred broilers responded in the following order: direct sales (32.6%) > retail (26.6%) > wholesale (26.0%), while those who preferred native chickens responded in the following order: direct sales (50.4%) > retail, wholesale (20.5%). Both groups preferred direct sales, although consumers who preferred native chickens favored direct sales more. When asked about cooking methods, the subjects responded in the following order: sending to restaurants after slaughtering in specialty stores (51.0%) > directly slaughtering in restaurant (37.0%) > no preference (12.0%). For market revitalization, the subjects responded in the following order: easy accessibility (32.4%) > promotion for superiority of native chickens (31.0%) > developing

varied menu (26.6%). These results were similar to those of a study conducted by Han (1998), who found that 48.3% subjects had difficulty easily purchasing native chickens as well as those of Han *et al.* (1996), who reported that development and diffusion of diverse menus were necessary.

### Price sensitivity measurement

The price sensitivity of native chickens measured by PSM is presented in Table 5. As an overall price sensitivity, the indifference price (IDP) of native chickens was 9,950 won, while the optimal pricing point (OPP) was 9,900 won, and the price stress range (PSR), which is the difference between the IDP and OPP, was 50 won (Fig. 1). The point of marginal cheapness (PMC) and the point of marginal expensiveness (PME) were 6,980 won and 12,300 won, respectively; thus, the range of acceptable price (RAP), which utilizes PME as the lower limit and upper limit, was 5,320 won (Fig. 2).

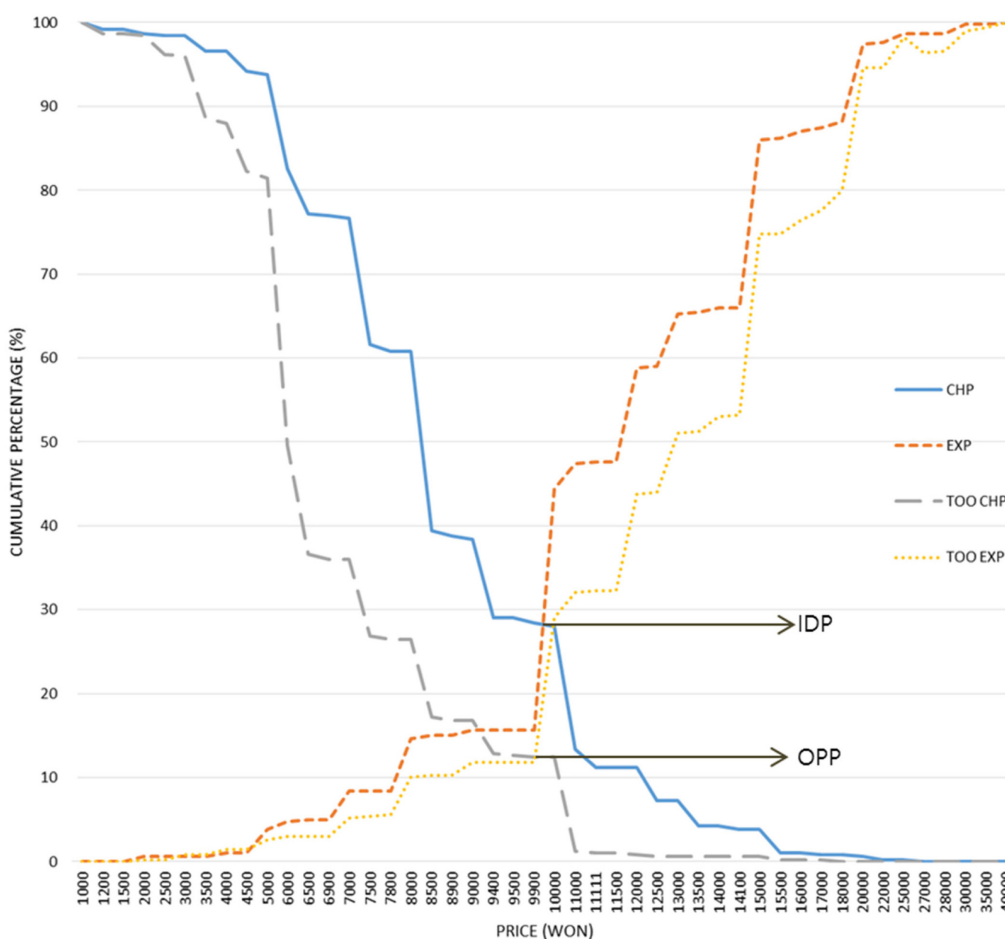
There were also differences between the price sensitivity of consumers who prefer broilers and native chickens. In general, it can be assumed that a lower IDP percentage, wider PSR and narrower RAP are associated with

**Table 5. Results of price sensitivity measurement**

Item	Consumers who prefer broilers	Consumers who prefer native chickens	Total
Indifference price (IDP, won)	9,933	9,666	9,950
Percentage of indifference price (IDP, %)	26.5	34.5	28.0
Optimal pricing point (OPP, won)	9,313	9,100	9,900
Price stress range (PSR <sup>1</sup> , won)	620	566	50
Point of marginal cheapness (PMC, won)	7,000	6,750	6,980
Point of marginal expensiveness (PME, won)	12,000	13,500	12,300
Range of acceptable price (RAP <sup>2</sup> , won)	5,000	6,750	5,320

<sup>1</sup>the distance between IDP and OPP

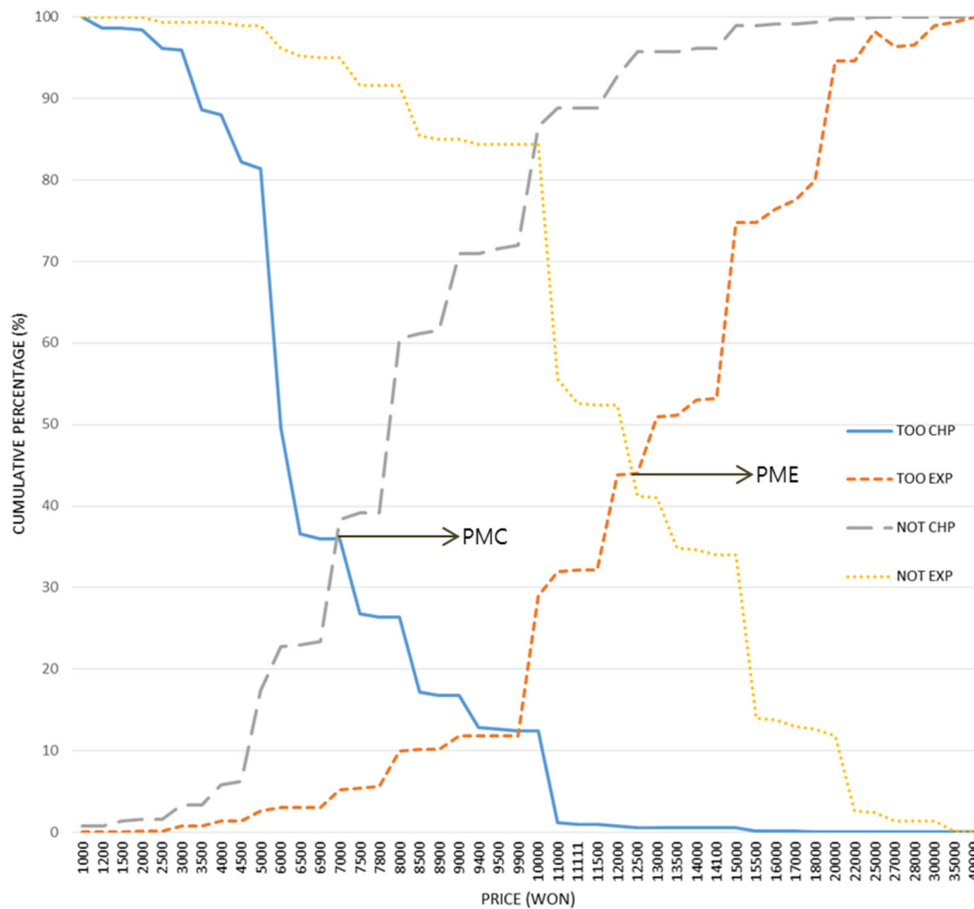
<sup>2</sup>the distance between PME and PMC.



**Fig. 1. Price stress analysis for native chickens.** CHP: the price considered to be cheap to buy, EXP: the price considered to be expensive to buy, TOO CHP: the price considered to be too cheap to buy, TOO EXP: the price considered to be too expensive to buy, PSR: the distance between IDP and OPP.

higher price sensitivity (Choi and Lee, 2006). The IDP percentage was lower for consumers who preferred broilers (26.5%) than for those who preferred native chickens (34.5%). Additionally, the PSR of consumers who preferred broilers (620 won) was wider than that of consumers who preferred native chickens (566 won), and the RAP

of consumers who preferred broilers (5,000 won) was narrower than that of consumers who preferred native chickens (6,750 won). These findings indicated that consumers who preferred broilers were more sensitive to the price of native chickens. Based on both these results and those of studies by Han *et al* (1996) and Han (1998), a reasonable



**Fig. 2. Range of acceptable prices of native chickens.** CHP: the price considered to be cheap to buy, EXP: the price considered to be expensive to buy, TOO CHP: the price considered to be too cheap to buy, TOO EXP: the price considered to be too expensive to buy, RAP: the distance between PMC and PME.

price is important factor for new native chickens to be successfully launched in market.

### Conclusion

The chicken consumption patterns of consumers indicate that is necessary to development breeds with a texture desired by consumers because the texture of native chickens is an important factor in consumer preference. Evaluation of the preference marketing methods for new native chicken breeds showed that consumers preferred processed food to be fried native chicken (38.2%), the distribution channel to be direct sales (38.4%), the cooking method to be slaughtered in specialty stores (51.0%), and that they desired the chicken to be easily accessible (32.4%). Only the preferred distribution differed between consumers who preferred broilers and native chickens ( $p < 0.05$ ); however, both of these groups preferred direct

sales most. It is necessary to enable consumers to purchase native chickens by increasing the accessibility of native chickens, as well as to develop diverse menus and recipes to promote native chicken consumption. Finally, price sensitivity measurement of the native chickens showed that consumers who preferred broilers were more sensitive to the price of native chickens because the IDP of consumers who preferred broilers (26.5%) was lower than that of consumers who preferred native chickens (34.5%), and the PSR of consumers who preferred broilers (620 won) was wider than that of consumers who preferred native chickens (566 won), and the RAP of consumers who preferred broilers (5,000 won) was narrower than that of consumers who preferred native chickens (6,750 won). Therefore, reasonable pricing of native chickens is necessary to increase the purchase of native chickens by consumers who prefer native chickens as well as by those who prefer broilers. The results of this study can

be used in the development of new native chicken breeds that consumers demand.

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