

Analysis on Current Situation and Influencing Factors of Vegetable Consumption in Beijing City

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Abstract—Beijing is the main vegetable market area. Vegetable consumption changes will have an impact on vegetable production. By tracking the vegetable consumption of 200 households in Beijing for 14 consecutive years, based on the investigation data, this paper describes the present situation of vegetable consumption in Beijing and analyzes its influencing factors.

Keywords—Beijing; vegetable; consumption; influencing factors

I. INTRODUCTION

Vegetables are an important part of consumer goods. With the development of the economy and the improvement of people's living standards, the consumption situation of Chinese residents has undergone profound changes. In recent years, the supply of vegetables has been stable, which is basically effective in ensuring the needs of consumers. However, with the changes in consumer lifestyles, consumption habits, and frequent food hazards, the quality and safety of vegetables has increasingly attracted widespread attention from the political, industry, and academic communities.

Beijing is the main selling area for vegetables; vegetable consumption changes will have an impact on vegetable production. "The upgrading of vegetable consumption first requires the improvement of the internal quality of vegetables, and the pollution-free production of vegetables will become a universal requirement" (Liang Mindu, Xiao Ni: 2007). Through research, we can find the development trend of the quantity and quality of vegetable consumption in Beijing residents, and find the structural characteristics of current vegetable consumption.

Tang Wei (2009) Market segmentation of fresh agricultural products, including vegetables, from the perspective of customer psychology and personality. Through quantitative analysis, consumers' characteristics are determined from four aspects: lifestyle, living habits, attitudes and planning. The fresh agricultural products consumers are divided into three categories: active life, stable and conservative, and enjoy life.

A survey of vegetable consumption in Beijing residents can provide basic data for analyzing regional differences in vegetable consumption. There are different consumption customs in different parts of the country. Therefore, the requirements for listed vegetable varieties vary greatly. Only by understanding the hobbies and preferences of consumers can we produce marketable vegetable products. In the study of Tie Min (2008), the changes in vegetable consumption are mainly concentrated in five aspects, including the steady increase in the proportion of vegetable consumption in households and the increase in the proportion of vegetables consumed outside the household; Supermarkets and vegetable franchise stores have become the main places for residents to buy vegetables; the characteristics of vegetables purchased and used in a fresh state are more prominent, and new special vegetables are easy to enter the family; the cost of grocery shopping is increased after "no plastic bags". Lu Jianzhen analyzed the current situation of farmers' vegetable consumption in the Central Jiangsu region, including the research on the purchase expenditure of farmers' vegetable consumption, the research on the purchase of varieties, the frequency of purchase and the way of purchasing. Analysis of factors that may have an impact, found that family structure, gender, household income and other factors have an important impact on farmers' vegetable consumption (Lu Jianzhen, Li Shuming, 2009).

II. BASIC INFORMATION ON RESEARCH

The survey involved 201 families in Beijing, distributed in Xicheng, Haidian, Chaoyang, Changping, Daxing, Mentougou and other areas, eliminating an invalid questionnaire and 400 valid questionnaires. Although the data of some survey data is incomplete, considering that other data still has certain analytical value, we retain the vast majority of sample data. For the lack of individual data, it is not clearly indicated in the statistical table.

The average age of the respondents in this survey was 46.4 years old, 54 males and 146 females. The average population of the surveyed households was 3.14. The specific age distribution is shown in "Table I". The educational level of the respondents and their families is shown in "Table II"; the occupational categories of the investigators are divided into six categories: corporate

employees, government and institutional employees, self-employed or freelancers, retirement, students, and others.

The specific survey is shown in “Table III”.

TABLE I. AGE DISTRIBUTION OF RESPONDENTS AND THEIR FAMILIES

	Under 18 years old	18--30 years old	30--55 years old	Over 55 years old	No clear information
Respondent	0	20	127	52	1
Respondent's family	70	79	165	105	3

TABLE II. EDUCATION LEVEL OF RESPONDENTS AND THEIR FAMILIES

	Elementary school and below	Junior high school	Technical secondary school and high school	College	University and above	No clear information
Respondent	11	30	62	45	52	0
Respondent family member	67	58	96	73	114	14

TABLE III. OCCUPATIONAL SITUATION OF RESPONDENTS AND THEIR FAMILIES

	Corporate employee	Employees of government institutions	Self-employed freelance	Retire	Student	other
Respondent	31	59	10	57	5	38
Respondent family member	98	73	19	89	78	65

III. THE STATUS QUO OF VEGETABLE CONSUMPTION IN BEIJING CITY

The average household consumption of all kinds of vegetables during the survey period (14 days) was as shown in “Table IV”, and the daily per capita consumption was 0.6893 kg. If 78.2% of the vegetables were eaten at home, the average daily consumption of vegetables in Beijing is about 0.88146 kg and monthly consumption is about 26.44 kg.

Among all the vegetables, the consumption of cabbage was significantly higher at 1321.40 kg, followed by tomato and cucumber, which were 827.46 kg and 764.47 kg

respectively. The consumption of potatoes and spinach was also higher, and the consumption of amaranth was the lowest at 14.76 kg, followed by loofah, coriander and bitter gourd.

The households surveyed belong to six different districts and counties in Beijing. The areas where the surveyed households are located are divided into two categories. Xicheng District, Haidian District and Chaoyang District belong to the urban area, and Changping District, Daxing District and Mentougou District belong to the suburbs. The urban area contains 249 families, a total of 772 people, and the suburbs contain 151 families, a total of 483 people, as shown in “Table IV” below.

TABLE IV. FAMILY AND HOUSEHOLD POPULATION INCLUDED IN DIFFERENT SURVEY AREAS

Area	Xicheng District	Haidian District	Chaoyang District	Total urban area	Changping District	Daxing District	Mentougou District	Suburban total
Number of households	60	129	60	249	48	23	80	151
Population	179	401	192	772	159	70	254	483

The per capita consumption of various vegetables in urban and suburban areas is shown in “Table V”. The consumption of vegetables with higher consumption is basically the same as that of the suburbs, while the consumption of vegetable and suburbs with lower per capita consumption is quite different.

TABLE V. MONTHLY PER CAPITA CONSUMPTION OF VARIOUS VEGETABLES IN URBAN AND SUBURBAN AREAS (UNIT: GRAM)

Vegetable	spinacia oleracea	Chinese cabbage	romaine lettuce	fragrant-flowered garlic	celery	garlic bolt	cabbage	rape
Whole	1059.62	2256.23	303.92	663.10	935.13	414.16	706.27	703.47
Urban area	1110.44	2402.52	266.69	698.25	967.27	405.12	791.05	800.93
Suburb	978.39	2022.40	363.42	606.92	883.76	428.62	570.76	547.69
Vegetable	asparagus lettuce	edible amaranth	artemisia artemisia rod	cucumber	tomato	eggplant	big capsicum	Prickly pepper
whole	302.59	25.20	222.65	1305.30	1412.84	539.01	380.71	272.90
Urban area	362.00	36.39	238.99	1291.17	1493.49	529.08	359.36	289.17
Suburb	207.63	7.32	196.54	1327.88	1283.94	554.88	414.82	246.89
Vegetable	Prickly pepper	sweet broad pea	benincasa hispida	pumpkin	balsam pear	towel gourd	bean sprout	cucurbita pepo
Whole	571.94	202.44	315.96	177.32	123.15	55.75	574.63	367.24
Urban area	511.47	218.21	370.42	188.33	154.95	71.20	539.16	383.55
Suburb	668.59	177.24	228.93	159.72	72.32	31.06	631.32	341.17
Vegetable	potato	sweet potato	lotus root	onion	Chinese yam	turnip radish	Daucus carota	broccoli
Whole	1147.38	848.52	354.25	415.42	337.93	860.53	565.31	409.58
Urban area	1113.86	916.96	441.83	434.12	411.13	769.38	581.68	392.42
Suburb	1200.98	739.13	214.29	385.54	220.94	1006.21	539.15	437.00
Vegetable	onion	ginger	garlic	coriander	other			
Whole	811.88	335.01	338.07	66.54	221.82			
Urban area	736.16	344.90	323.71	66.62	258.88			
Suburb	932.90	319.21	361.02	66.42	162.60			

Divide all vegetables into four broad categories of green leafy vegetables, fruit vegetables, root vegetables and seasoned vegetables (except cauliflower). The per capita consumption of vegetables in the urban areas of green leafy vegetables, fruits and vegetables, and root vegetables was higher than that of suburban vegetables, especially in green leafy vegetables. The consumption per capita of vegetables in urban areas was significantly lower than that of suburban vegetables. In general, the per capita consumption of urban vegetables is higher than that of the suburbs. This is not only the higher total, but also the high per capita consumption of urban areas in the categories of green leafy vegetables, fruits and vegetables, and root vegetables.

IV. ANALYSIS OF FACTORS AFFECTING VEGETABLE CONSUMPTION IN BEIJING CITY

Overall, the income level does not determine the overall structure of vegetable consumption. Whether it is a high-income family or a low-income family, cabbage, tomatoes, cucumbers, and potatoes are still the most important vegetable categories. However, different income levels also affect the structure of vegetable consumption, and the consumption of lettuce and onions in high-income families. The amount of vegetables is relatively high, and the consumption of various vegetables in the lowest income is not high. The “XiCai” such as garlic and peas have a tendency to increase per household consumption as income increases, while vegetables such as bean sprouts and carrots have income levels. Increase and decrease consumption. We group families with seniors over 60 years old (including 60 years old), 88 families belonging to the reorganization, accounting for 21.9% of the families surveyed; families with children under 14 (excluding 14 years old) In another group,

there were 72 households belonging to the group, accounting for 17.9% of the households surveyed; considering the factors such as mutual influence, families with 60-year-olds and children under 14 years of age were not included.

There are children or old people in the family that do not affect the overall structure of vegetable consumption. Cabbage, tomatoes, cucumbers, and potatoes are still the main varieties of household vegetables. However, for cabbage, tomatoes, green onions, etc., the household consumption of the elderly is significantly higher than that of families with children, while the families with children such as spinach, leeks and garlic are significantly higher than those with the elderly; interestingly, the pepper Consumption, the number of families with children is nearly twice that of the elderly, and the reasons for this need to be further explored.

Among the families with different family structure and different income levels, the consumption of green leafy vegetables is the highest, followed by fruit vegetables, and then the root vegetables, and the seasoning vegetables are at the end. However, no matter whether it is analyzed from absolute indicators or relative indicators, it has not been found that the difference in family structure and the difference in income levels have a significant impact on the large categories of vegetable consumption.

V. CONCLUSION

The consumption of main vegetable varieties such as cabbage, tomato, cucumber and potato is less affected by price factors. On the one hand, the significant upward fluctuations in prices will have a large impact on the consumption expenditure of urban residents; on the other

hand, the downward fluctuation of its prices cannot (or less) affect its consumption. Therefore, relevant government departments need to strengthen the management of key vegetables from both price and quantity. On the one hand, the supply of key vegetables is guaranteed to stabilize the market; on the other hand, the price of key vegetables is stabilized to ensure that the interests of both urban residents and farmers are not impaired. Therefore, it is particularly important to strengthen the price of vegetables, especially the monitoring of key vegetable prices.

The effect of price on vegetable consumption is reflected in two aspects: first, the price fluctuation of a certain vegetable due to various factors, if it is not a key vegetable, its impact on the life of the residents is relatively small. It can be completely through market regulation to solve the problem, if the key vegetables should be enough attention. Secondly, the total price level of vegetables (possibly the relative price) has an impact on the consumption of vegetables, which often affects the total consumption of vegetables, but generally does not have too much effect on their category structure. When vegetable prices rise, there are fewer (or more expensive) alternatives to vegetables, so the average resident tends to ensure adequate nutrition by increasing the amount of vegetable consumption; When vegetable prices fall, nutrient intake can be adjusted by increasing vegetable consumption to replace other foods. Therefore, the bidirectional effect of vegetable price fluctuation over certain critical value is not equal, the vegetable consumption increases when the price drops, and the vegetable consumption expenditure rises when the price rises. Looking for this critical value may also be one of the research directions in the future.

The impact of family structure and income level of individual households on their vegetable consumption and consumption structure is not significant, but may affect their consumption. The comprehensive promotion of food quality and safety work such as vegetable certification and traceability is beneficial to all residents.

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