



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Analysis on the Comparison of Vegetable Price

Na LI*, Jianmin SHI

School of Economy and Management, Shandong Agricultural University, Tai'an 271018, China

Abstract In 2010, the garlic, bean and ginger became more expensive than ever, which made some people's life harder. In response to such phenomena, the retail price and wholesale price at the producers' end, the retail price and wholesale price at distributors' end, and consumption related data (disposable income, consumption expenditure, fresh vegetables amount from 2004 to 2011 were compared and analyzed in this paper. Results showed that the average price (selling price, wholesale price and retail price) of five kinds of vegetables generally rose. There was certain differences in the price change range. Since 2004, especially in 2009 the vegetable prices had been so high that it had influenced the life of low income families in China.

Key words Vegetable, Selling price, Wholesale price, Retail price, Disposable income

In 2010, the garlic, bean and ginger became more expensive than ever, which made some people's life harder. In terms of the retail price of vegetable, the average retail price of five kinds of vegetables since August 2009 has been around 3.00 yuang and the price during February in 2010 to February in 2011 even was up to 6.00 yuan. Rising unreasonable vegetable price influenced Chinese life, especially for family from lower-incomes. Through comparing the retail price and wholesale price at the producers' end, the retail price and wholesale price at distributors' end, and consumption related data (disposable income, consumption expenditure,

fresh vegetables amount from 2004 to 2011, the trend of the volatility of vegetable price and the influence on its residents consumption were compiled.

1 Changes of vegetable price during 2004 and 2011

1.1 Changes in retail price

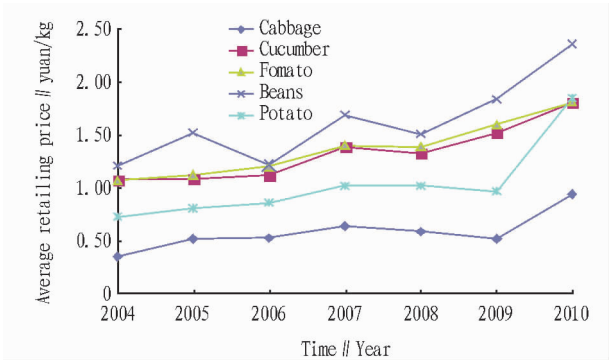
Since 2004, the average price of five kinds of vegetables has been around 1.18 yuan per kilogram and has kept increasing by 12.8% each year. The average retail price of five kinds of vegetables increased by 36% than that in 2009. (Table 1).

Table 1 Changes of average wholesale price and retail price during 2004 and 2011 %

	2005	2006	2007	2008	2009	2010
Average wholesale price	8	10	8.5	10.3	8.9	17
Average retail price	13	0	25.5	-5	10.3	36
Ratio of average wholesale price in average retail price	5.54	-11.84	15.74	-13.76	1.25	15.86

Note: The data came from *Agricultural Product Cost and Benefit in China* and *Business Report*.

Given the increasing average retail price of five kinds of vegetables during 2004 and 2010, the retail price increased at different speeds. Generally speaking, the price of vegetable (22.1%) > potato(20.3%) > bean curd(14%) > cucumber(9.5%) > tomato(9.3%). The price changes of tomato and cucumber were similar and the prices changed little every year. However, the retail price of vegetable and potato each year differed greatly. The rising price of vegetable in 2010 was higher than the average increase span (22.1%). The price change span in 2006, 2007, 2008 and 2009 was 2%, 20.8%, -8% and -12%, respectively, which was lower than the increase span of 12.2%. The tomato price in 2010 (91%) was higher than the average increase span (20.3%), while lower than average level. Comparing with other four kinds of vegetables, the price of beans volatile steadily (Table 1).



Note: The data came from the *Agricultural Product Cost and Benefit in China*.

Fig. 1 The trends of average retail prices of five kinds of vegetables during 2004 and 2010

1.2 The trend of wholesale price changes

The average wholesale price of five kinds of vegetables tended to go up from 2004 to 2011. The average price of five kinds of vegetables from 2008 to 2011 was higher than the average price by 2.11 yuan per kilogram. The average wholesale price of five kinds of vegetables

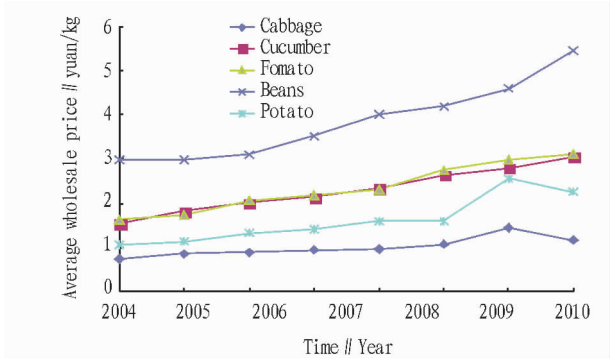
Received: February 20, 2012 Accepted: December 17, 2012
Supported by Modern Agricultural Industrial Technological System in Shandong Province [Shandong Agriculture Science and Technology No. (2010) 33].
* Corresponding author. E-mail: manifest5566@163.com

in 2008, 2009 and 2010 was 2.25 yuan/kg, 2.45 yuan/kg, 2.87 yuan/kg and 3.01 yuan/kg (Table 1). The average increase span was 9.6%. Besides, the price in 2010 rose by 17% than that in 2009, and the price in 2011 enhanced by 30% in 2010.

Besides, there were certain differences among the changes of wholesale prices of vegetables during 2004 and 2011. The changes of wholesale price of tomato and cucumber were quite similar as both increased by 10% from 2004 to 2011, but the wholesale price of cabbage and tomato differed greatly. The price of cabbage in 2010 increased by 33.33% than that in 2009 while the price in 2006, 2007 and 2008 only rose by 4.65%, 5.6% and 2.11% respectively. The price of tomato in 2010 increased by 59.38% than that in 2009, which was above the average increase span of 17.01%, while the price in other years was lower than the average level. Comparing with other four kinds of vegetables, the wholesale price of bean was relatively stable (Fig. 2).

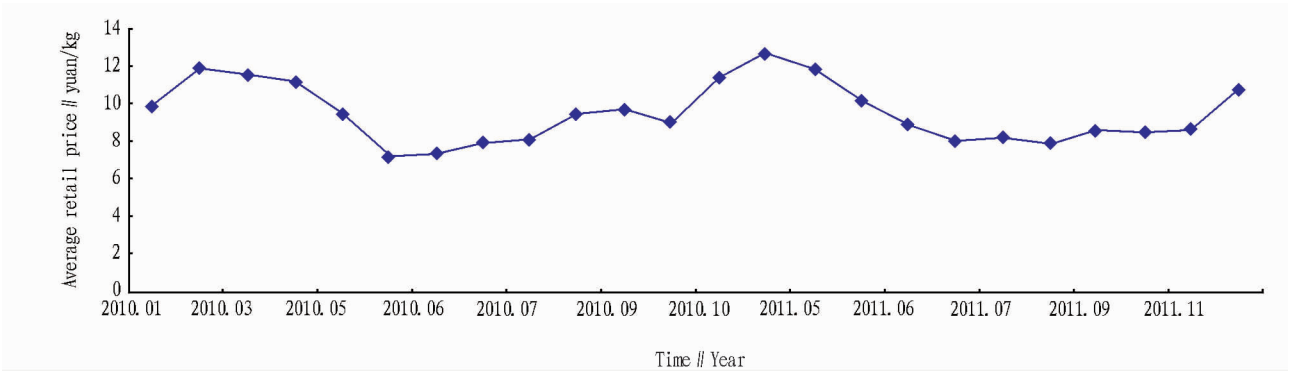
1.3 The trend of changes in the retail price The average retail price of five kinds of vegetables during 2010 and 2011 was changed in different seasons. The average retail price of five kinds of vegetables in each month in 2011 was higher than that in the same period in 2010. The highest average retail price in 2010 was in February while the lowest one was in June. The average retail price in January of 2011 increased by 27.23% than that in February of 2010. The retail price from February to November in 2011

changed in a similar way to that in 2010. The only difference was that the price in December in 2011 increased by 25.17% than that in November, which was differed from that in 2010 (Fig. 3). Such changes in average retail price of five kinds of vegetables were related to the biological property of vegetables. The high price was because that the greenhouse vegetable led to higher production cost while the low price is because that the open air vegetable costs less. The high price in December in 2011 was due to the spring festival. Therefore, besides seasonal factor, the rising consumption of vegetable during holidays is another important reason of rising retail price.



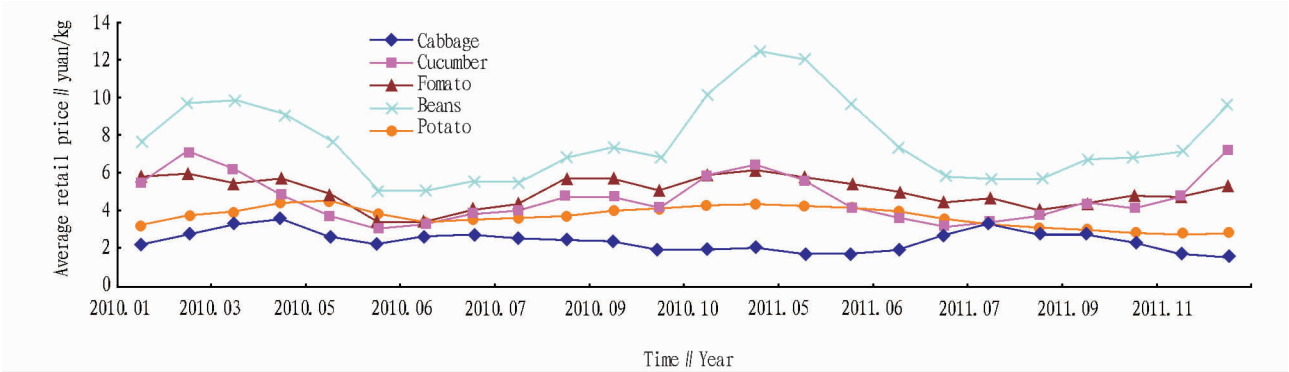
Note: The data came from the *Business Report*.

Fig. 2 Changes in wholesale price



Note: The data came from the *Changes of Average Price of Main Food in 50 Cities*.

Fig. 3 Monthly average retail price of five kinds of vegetables, from 2010 to 2011



Note: The data came from the *Average Price Change of Main Food in 50 Cities* from the State Statistics Bureau.

Fig. 4 Changes of monthly retail price of five kinds of vegetables during 2010 and 2011

Besides, the trend of retail price change differed from various vegetable species. During 2010 and 2011, the average retail price of cucumber (5.53%) > beans (5.23%) > tomato (3.93%) > cabbage(-3.33%) > potato(-3.87%) (Fig. 4). The change of cabbage and tomato was because of plantation area expansion and reduction of import cabbage from Korea led to reduction of cabbage and tomato prices.

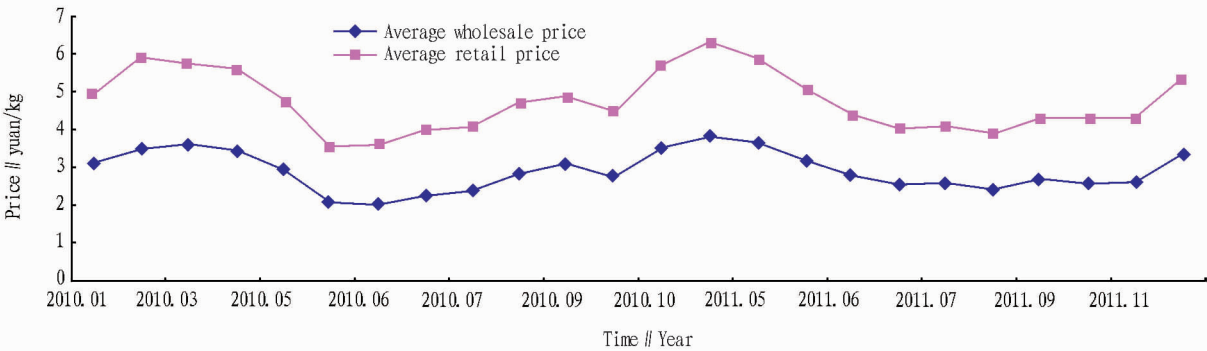
2 Comparative analysis of average price of five kinds of vegetables

The average wholesale price of five kinds of vegetables and the average retail price were increasing during 2004 and 2011. However, the ratio of average retail price of five kinds of vegetables in average wholesale price first increased and then decreased, increased by 16%, 1.3%, 15.7% and 6% in 2010, 2009, 2007 and 2005 than that in the last year respectively and the price de-

creased by 10% and 14% than that in 2006 and 2008. (Table 1)

Monthly average retail price of five kinds of vegetables changed in the same way as the monthly average wholesale price in 2010 and 2011 and showed seasonal characteristics. The rising price in January and February rose to the highest point and then decreased to the lowest point in June and July, followed by slow increase until November, which was caused by the consumption in off-season and the busy season. The difference is that the price in December in 2010 was decreasing while the price in December in 2011 was increasing (Fig. 5).

The ratio of average wholesale price of five kinds of vegetables in the average retail price was 61.83% and such ratio increased by 1.19% from 2010 to 2011. Except in January, February and November in 2011, the ratio in other months in 2011 all enhanced by 4.45% than that in 2010.



Note: The data came from the Average Price Change of Main Food in 50 Cities from the State Statistics Bureau and Business Report.

Fig.5 The monthly average wholesale price and the retail price of five kinds of vegetables from 2010 to 2011

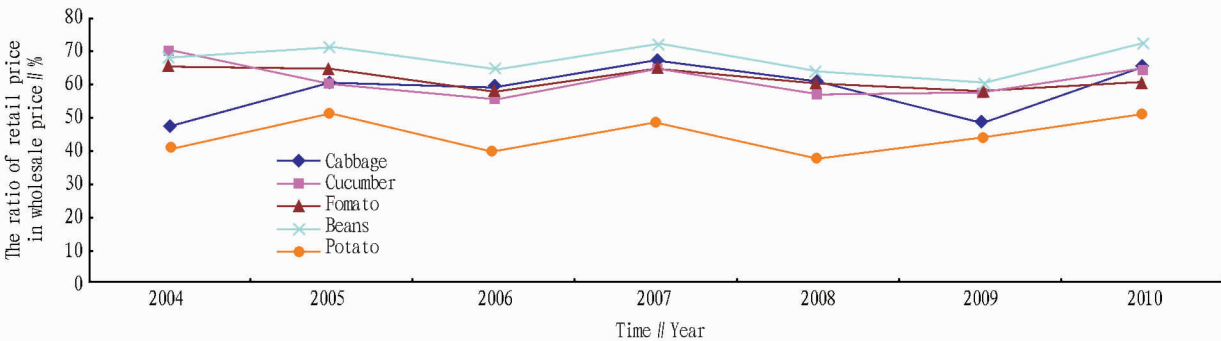
Table 2 Ratio of wholesale price in retail price in each month during 2010 to 2011%

Year	Jan.	Feb.	March	Apr.	May	June	July	August	Sept.	Oct.	Nov.	Dec.
2010	64.17	59.80	63.32	62.14	62.00	58.06	56.32	58.14	59.07	60.89	63.39	61.83
2011	63.09	60.60	62.09	63.33	62.74	63.13	63.41	61.88	62.40	61.50	61.91	62.57

Note: The data came from Changes of Average Food Price in 50 Cities and Business Report.

The average retail price of five kinds of vegetable accounted for high percentage of wholesale price from 2004 to 2010, potato (67.6%) > tomato(61.67%) > cucumber(61.43%) > cabbage (58.32%) > bean (44.59%), among which the difference be-

tween tomato and cucumber was little and the trend of bean and tomato was similar to that in 2008. However, the ratio of potato decreased while the ratio of beanS turned the other way in 2009. Luckily, both increased in the same way in 2010 (Fig. 6).

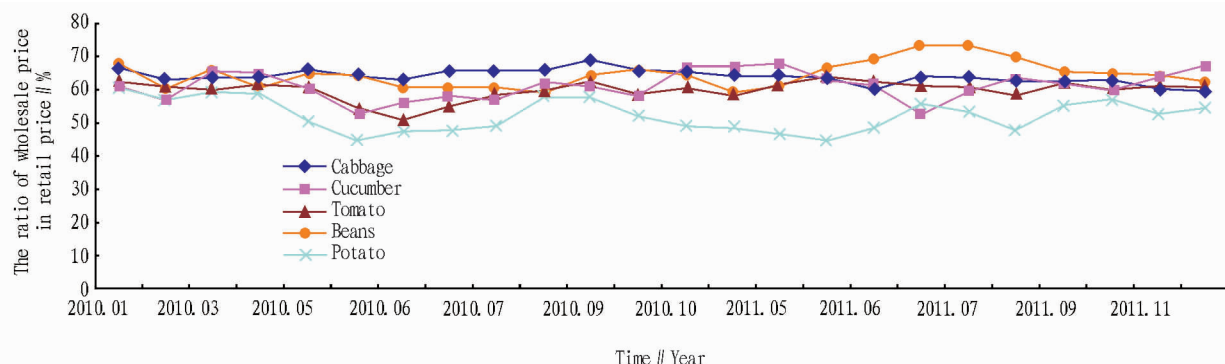


Note: The data came from the Agricultural Product Cost and Benefit in China and Business Report.

Fig.6 The ratio of retail price of five kinds of vegetables in wholesale price during 2004 and 2010

There were differences between the ratio of the wholesale price of five kinds of vegetables and retail price from 2004 and 2010, which was because of import reduction and expansion of the arable area. The prices of cucumber, tomato and bean increased

in most months, especially in June and July, which might be related to the total vegetable amount and busy season or off-season (Fig. 7).



Note: The data came from *Average Price Changes of Main Food in 50 Cities and Business Report*.

Fig. 7 Ratio of the wholesale price in retail price of five kinds of vegetables in each month from 2010 to 2011

3 Comparison of vegetable price changes and urban residents' consumption

In recent years, the vegetable price enhanced dramatically now and then. For instance, the year from 2010 to 2011 witnessed the increase of vegetable price. When the vegetable price was unreasonable, consumers especially the people with lower income suffered a lot.

The price of wholesale market is the barometer of price in the retail market. Wholesale market is in the leading place of the retail market. The average price is an important indicator to describe the vegetable price, which on the one hand reflects the general consumption of various vegetables under balanced condition and on the other hand indicated the cost and profit^[2].

3.1 Comparison of average wholesale price and dispensable income changes

Since 2004, the average dispensable income per capita in urban families in China has been increasing and the average disposable income is around 13 932.11 Yuan. The increase span (17.23% and 14.47%) in 2007 and 2008 was higher than that in other years and the average level was at 12.54%. Disposable income in lower income family was lower than the average disposable income in urban area. Except from the rising disposable income in 2001, the average disposable income in the lower income family was lower than the total average level. The average increase span in 2009 and 2010 was close to the total increase span of 8.83% and 11.26%, respectively (Table 3).

Table 3 Comparison of average dispensable income per capita in urban low-income family

	Dispensable income per capita in urban family	Dispensable income of people from low income family			Dispensable income of people from low income family
		Lowest income family(10%)	Family with difficulty(5%)	Low income family(10%)	
2001	9.23	5.65	6.01	6.14	4.96
2002	12.29	-14.07	-20.58	-5.38	-8.06
2003	9.99	7.54	7.23	8.79	6.52
2004	11.21	10.51	10.18	11.56	8.86
2005	11.37	9.52	7.92	10.30	7.83
2006	12.07	13.84	13.75	13.42	10.71
2007	17.24	17.97	18.28	17.40	14.29
2008	14.47	12.91	11.21	13.20	10.37
2009	8.83	10.51	12.40	10.85	8.81
2010	11.27	13.23	12.90	13.76	10.57

Note: The data came from State Statistics Bureau.

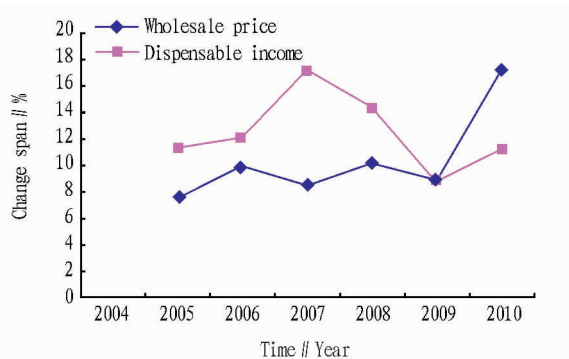
The average wholesale price of five kinds of vegetables during 2004 and 2011 increased by 10.39%, which was lower than the average increase span of dispensable income, and the increase of wholesale price before 2009 was lower than the increase of dispensable income (Fig. 8). The study indicated that the vegetable price in China rose quickly. Statistics suggested that the dispensable income increase per capita in low income family from 2004 to 2010 was lower than the average increase span of dispensable income in urban families in China. The rising vegetable price aggra-

vated the burden of low income families.

3.2 Comparison of average wholesale price and consumption expense changes

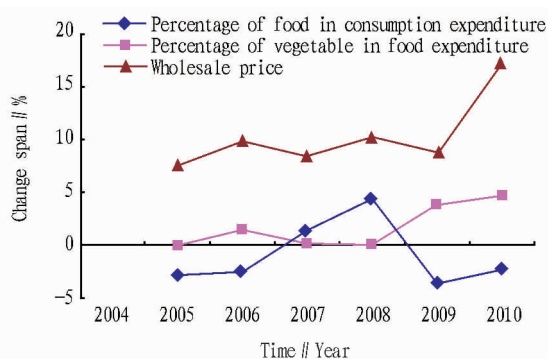
The yearly consumption expense per capita in urban family from 2004 to 2010 rose and the increase span each year enlarged each year. The yearly consumption per capita in urban family has increased by 11.07% since 2004 (Fig. 9). As shown in Fig. 9. Vegetable price in China has been very high since 2004, especially in 2009 and 2010. However, even though the average annual consumption of urban residents per capita dur-

ing 2004 and 2011 rose in a linear way and the increase span enlarged each year, the average consumption in lower income family per capita rose in a speed lower than the average annual consumption of urban family. The high vegetable price would influence the consumption of lower income families.



Note: The data came from the State Statistics Bureau in China and *Business Report*.

Fig. 8 Comparison of the average wholesale price and dispensable income of five kinds of vegetables from 2004 to 2010



Note: The data were from the State Statistics Bureau and *Business Report*.

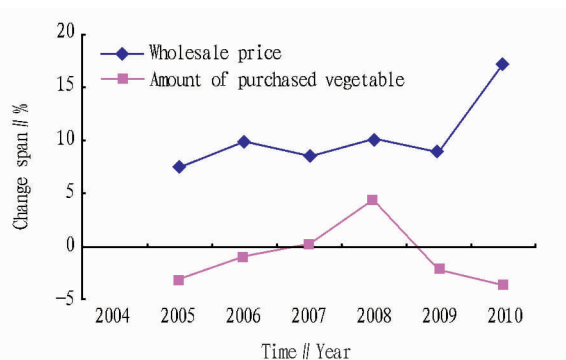
Fig. 9 Comparison of average wholesale price and consumption expense of five kinds of vegetables from 2004 to 2010

3.3 Comparison of average wholesale price and vegetable purchase amount changes The amount of fresh vegetable purchased by urban family changed slightly during 2004 and 2010 and was stabilized at 119.424 3 kg. However, the average wholesale price of five kinds of vegetables rose year by year, especially in 2009 and 2010 (Fig. 10).

4 Conclusions and suggestion

4.1 Conclusions Through comparing the producers selling price, wholesale price, retail price and wholesale price and consumption related data (disposable income, consumption expenditure, fresh vegetable purchase volume) from 2004 to 2011, following conclusions were made.

Firstly, the average wholesale price and the average retail price of five kinds of vegetable from 2004 to 2011 increased in general. According the data, the high price of vegetable in China is largely due to seasonal factor, holiday demand, rising agricultural cost, much circulation links and low provision rate in most



Note: Note: The data were from the State Statistics Bureau and *Business Report*.

Fig. 10 Comparison of average wholesale price and vegetable purchase amount changes

large cities, etc. Thus, the next question is how to reduce vegetable price.

Secondly, under the premising of rising average price of five kinds of vegetables, the average price of five kinds of vegetable changed at different spans, which were because that the tomato and cucumber were similar in species, growth and market demand.

Thirdly, comparatively speaking, the average price of five kinds of vegetable and retail price from 2004 to 2011 increased. However, the ratio of annual average retail price in average wholesale price first increased and then decreased. The average monthly retail price of five kinds of vegetable fluctuated in the same way as the average monthly wholesale price from 2010 to 2011.

Fourthly, under the premise of mounting disposable income per capita in urban family, the percentage of vegetable expenditure in total family expenditure in China increased year after year. Meanwhile, the poorer a family is, the more they spend on vegetable. Therefore, the rising vegetable price has influenced low income families life.

4.2 Suggestions Based on the existed data, the high vegetable price in China is subjected to seasonal changes, rising demand on holidays, increased agricultural income, many circulation links and low self-sufficient rate. Several suggestions were put forward on how to restrain the fast increase of vegetable price.

Firstly, information guidance. In the past, because of limited access to information, farmers suffered a lot from growing plants blindly. So it is necessary to provide guidance to farmers on how to grow plants. In fact, right now, the first domestic vegetable index in China has been published officially. The Shouguang index covers all the information needed in various aspects, such as production, circulation, consumption, etc. The publication is conducive to the changes of vegetable demand and supply, price changes and future trend, which has great significance to the formulation of vegetable development plan, and guidance to standard vegetable production.

Secondly, diversified ways to sell agricultural products. With the rapid urbanization progress in China, on the one hand, the

(To page 21)

- [1] CHEN YF. Causes analysis on vegetable price growth in recent years and prediction on long term trend[J]. China Cucurbits and Vegetables, 2008 (1): 47-48. (in Chinese).
- [2] DU J. Vegetable price fluctuation and relationship with climate based on wavelet analysis with typical vegetables in Jiangsu Province as example[D]. Nanjing: Nanjing Agricultural University, 2008. (in Chinese).
- [3] LIU HT, MA YQ, CUI XH. Vegetable prices stabilize space seeing from whole sale and retail gradient[J]. Price Theory and Practice, 2008(5): 36-37. (in Chinese).
- [4] LU LX, JIANG LN. Research of vegetable price fluctuation based on marketing economics[J]. Journal of Hubei University of Economics, 2010(5): 30-33. (in Chinese).
- [5] LIU TS, WU L. Vegetables price formation and countermeasures in China based on perspective of economics[J]. Price Theory and Practice, 2011(2): 40-41. (in Chinese).
- [6] SUN Q, MU YY. Vegetable price fluctuation, causes and influencing factors in China[J]. Rural Finance Research, 2011(8): 29-30. (in Chinese).
- [7] YU RZ. Shandong vegetable industry organization[D]. Jinan: Shandong Agricultural University, 2005. (in Chinese).
- [8] ZHAO AP, ZHAO YS, WANG C, *et al.* Research on vegetable price changes and transmission mechanism between wholesale and retail markets[J]. Chinese Agricultural Science Bulletin, 2011, 27(4): 253-260. (in Chinese).