Factors Decomposition of Household Consumption on Agricultural Products in China: an Output Approach*

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Abstract: After experiencing the Asian financial crisis in 1997 and being a member of WTO in 2002, the usage of Chinese agricultural output has become more diversified. And the part as the final products for household consumption also has great changes. What are the reasons behind such changes? Drawing essence from De Boer (2008), this paper combines Montgomery decomposition with Input-Output technique, and decomposes determinants of Chinese residential consumption on agricultural products into scale effect, technological effect, structure effect and aggregate effect. The paper finds that: Firstly, in general technological effect had a remarkable role in upgrade of consumption structure of agricultural products; Secondly, primary agricultural products are more susceptible than processed agricultural products; Thirdly, globalization in the mid term caused consumption scale effect to have larger impact on consumption of agricultural products, but in the long term aggregate effect of final consumption demand had a stronger role; Fourthly, among processed

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agricultural products, consumption on alcohol and drink manufacturing sectors were more susceptible in the mid term, and the sugar producing sector and the food, oil and feedstuff processing sector were more susceptible in the long term.

Key words: Agricultural product consumption, Input-output table, Montgomery decomposition

1. Introduction

China's Engel coefficient and food self-supply ratio are higher than those of major economies in the world. By the end of 2010, Chinese residential expenditure on food consumption still accounted for about 38% of total consumption expenditure, far above consumption expenditure of other commodity categories. The food industry, especially the agriculture-related sector, has an important role in Chinese national economy. Residential consumption on agricultural products is always one of key fields for agricultural economics research (Yan, 2011). It is noteworthy that after 1997 Asian Financial Crisis and China's entry into the WTO, the output and consumption forms of Chinese agricultural products have been versatile, and accordingly the part for satisfying residential consumption demand in the forms of final products have changes greatly. Therefore, to better study Chinese consumption on agricultural products, it is necessary to further probe into the reasons for the change of agricultural product consumption, i.e. make an analysis of the change based on structural decomposition.

Structural Decomposition Analysis (SDA) can be ascribed to the seminal work by Leontief (1941) for analyzing the economic structure of the US. The core element of SDA is to decompose time series change of variables into the sum of concrete component change so as to measure and analyze the root of variable change and the impact of components on variable change. Subsequently, Rose & Casler（1996）and Dietzenbacher & Los（1998） explored the theoretic technique of SDA. So far it has become a major tool for quantitative economic analysis and been widely applied in economic research on economic growth, trade, labor, prices, energy and environmental protection, etc. (Hu et al, 2004；De Haan, 2001；Fujikaw et al, 2002；Chen&Guo, 2000；Song& Wang, 2004；Li, 2005；Guo, 2005；Yuan,

et. al., 2011； Xia, et. al. 2010). However, as pointed out by Dietzenbacher & Los（1998）, the largest problem of SDA is that the estimation result is not unique. For the change of a variable composed by r independent factors, there should be r! ways for structural decomposition. The non-unique feature has great impact on the actual effect of factor decomposition. Then De Boer（2008）drew the decomposition method from Montgomery (1929,1937), and successfully solved the non-uniqueness of estimation results by adopting a logarithm average form and introducing Montgomery decomposition technique into input-output SDA. The solution satisfies time reversibility and factor reversibility of independent component variables, thus is widely applied in factor decomposition （Hea et al, 2009；Li&Li, 2010；Wang, et al, 2008; Li&Wang, 2008； Xu&Zhang, 2011）. However, extant applications of Montgomery decomposition technique were more focused on analysis of energy and carbon emission, while research on consumption in combination with input-output technique is few.

This paper will extend Montgomery decomposition technique to the field of agricultural product consumption based on 1997, 2002 and 2007 input-output tables. From the output perspective, the paper will analyze major determinants of the change of Chinese residential consumption on agricultural products in the long run (1997-2007) and the mid term (2002-2007). There are many factors that influence the change. As the focus of this paper is output decomposition of agricultural products, the paper decomposes the change into scale effect, technology effect, structure effect and aggregate effect based on input-output theories, i.e. total output is displayed in the forms of intermediate products and final products.[1]

2. Traditional Structural Decomposition Methods

2.1 The first method: An expression with two-end decomposition

Generally, if variables X_i、Y_i（$i=1,\ldots,n$）are mutually independent, and

$$V_i = X_i Y_i \qquad (1)$$

[1] De Boer（2008）decomposed the change of industrial labor cost into the change of unit labor cost, technology, final demand coefficient and final demand level by introducing the coefficient of unit labor cost. Drawing from the essence of De Boer（2008）, the paper will decomposes the change of residential consumption into scale effect, technology effect, structure effect and aggregate effect by introducing the share coefficient of residential consumption on unit output.

With footnote 1 and 0 denoting the target period and the baseline period, ΔV_i can be decomposed from the two periods according to Dietzenbacher & Los (1998), and Li (2004):

$$\Delta V_i = X_{i1}Y_{i1} - X_{i0}Y_{i0} \quad (2)$$

$$= X_{i1}\Delta Y_i + Y_{i0}\Delta X_i \quad (3)$$

$$= X_{i0}\Delta Y_i + Y_{i1}\Delta X_i \quad (4)$$

Then, ΔV_i can be written in the form of：

$$\Delta V_i = \frac{1}{2}(X_{i1} + X_{i0})\Delta Y_i + \frac{1}{2}(Y_{i1} + Y_{i0})\Delta X_i \quad (5)$$

Formula (5) shows that the change of V_i can be decomposed into the sum of the changes of factors X_i、Y_i, where $\Delta Y_i = Y_{i1} - Y_{i0}$, $\Delta X_i = X_{i1} - X_{i0}$. When there are only two components, formula (5) can be used for factor decomposition. Even if the sequence of the two factor variable X_i、Y_i changes, the decomposition expression does not change, i.e. factor reversibility is satisfied. Meanwhile, if the baseline period and the target period are reversed in comparison, the decomposition outcome will be exactly inverse, i.e. time reversibility is satisfied. However, when there are more than two component factors, factor and time reversibility will not be satisfied because the structural decomposition expression will change with the sequence of factors, although formula (5) can be applied similarly.

2.2 The second method: An expression adopting mean value of all decomposition approaches.

Dietzenbacher & Los (1998) points out that if there are r independent factors, $r!$ structural decomposition approaches exist. At the occasion, formula (5) only calculates the arithmetic mean value of the two ends, neglecting the other $r!$-2 decomposition approaches. Therefore, the more reasonable decomposition methods should take account of all approaches and average all decomposition approaches instead of restricting to the two ends, which guarantees the uniqueness of calculation outcome. But the method has some shortcomings. For example, the decomposition approaches will increases with the increase of factor number, causing inconvenience for research.

2.3 The third method: An expression with Montgomery decomposition approach

Montgomery (1929，1937) takes logarithm average for two positive number, and

$$\text{defines} \quad L(a,b)=\frac{a-b}{\ln(a/b)} \quad , \quad \text{and} \quad L(a,a)=a$$

So formula (1) can be set as follows according to Montgomery (1929，1937):

$$L(V_{i1},V_{i0})=\frac{V_{i1}-V_{i0}}{\ln(V_{i1}/V_{i0})} \qquad (V_{i1},V_{i0} \text{ both are positive}) \tag{6}$$

Formula (6) can be adapted into

$$V_{i1}-V_{i0}=L[V_{i1},V_{i0}]\bullet\ln[V_{i1}/V_{i0}] \tag{7}$$

$$=L[V_{i1},V_{i2}]\bullet\ln[X_{i1}/X_{i0}]+L[V_{i1},V_{i2}]\bullet\ln[Y_{i1}/Y_{i0}] \tag{8}$$

That is the change of variable V_i in a period can be decomposed through formula (8), an expression that necessitates only one decomposition approach even if there are more than two decomposition factors. Furthermore, the method satisfies both time and factor reversibility without producing residual term. It is a totally ideal factor decomposition method.

3. Montgomery factor decomposition in combination with input-output technique

3.1 Model

The foundation for SDA in input-output techniques mainly comes from the balance relationship of input-output tables:

$$AQ+BF=Q \qquad \text{or} \qquad Q=LBF \tag{9}$$

Where A denotes direct consumption coefficients, Q total output vector, $L=(I-A)^{-1}$ Liontief inverse matrix, B final demand structural matrix with structural coefficients of final consumption, capital formation and exportation as column vectors, F final demand amount matrix with aggregate amount of final consumption, capital formation and exportation as column vectors.

To decompose the change of agricultural product consumption, this paper introduces consumption scale coefficient c_i according to De Boer（2008）, which means the share of

residual consumption in total output of a sector. Then residual consumption V on agricultural products can be given as follows:

$$V = \hat{C}Q = \hat{C}LBF \tag{10}$$

Where $\hat{C}$ is the diagonal matrix of consumption scale coefficient c_i. If l_{ij}、b_{jk}、f_k represents elements of Matrix L、B、F, then formula (10) can be written in the form of:

$$v_i = \sum_{j=1}^{n}\sum_{k=1}^{m} c_i l_{ij} b_{jk} f_k \tag{11}$$

So the following expression can be set according to Montgomery decomposition method:

$$L(v_{i1}, v_{i0}) = \frac{v_{i1} - v_{i0}}{\ln(v_{i1} / v_{i0})} \tag{12}$$

$$\Delta v_i = v_{i1} - v_{i0} = L(v_{i1}, v_{i0}) \bullet \ln(v_{i1} / v_{i0}) \tag{13}$$

$$= L(v_{i1}, v_{i0}) \bullet \ln \frac{c_{i1} l_{ij1} b_{jk1} f_{k1}}{c_{i0} l_{ij0} b_{jk0} f_{k0}} \tag{14}$$

$$= L(v_{i1}, v_{i0}) \bullet \ln \frac{c_{i1}}{c_{i0}} + L(v_{i1}, v_{i0}) \bullet \ln \frac{l_{ij1}}{l_{ij0}}$$

$$+ L(v_{i1}, v_{i0}) \bullet \ln \frac{b_{jk1}}{b_{jk0}} + L(v_{i1}, v_{i0}) \bullet \ln \frac{f_{k1}}{f_{k0}} \tag{15}$$

$$= DC_i + DL_i + DB_i + DF_i \tag{16}$$

Therefore, the ways in which residential consumption on agricultural products can be decomposed into the impact from consumption scale change, i.e. scale effect DC_i, the impact from technological change, i.e. technological effect DL_i, the impact from the change of final demand structure, i.e. DB_i, and the impact from final demand amount, i.e. aggregate effect DF_i.

3.2 Data

After 1997 Asian Financial Crisis and China’s entry into the WTO in 2002, the usage forms of agricultural product output has been more diversified, of which the residual

consumption demand in the form of final products has changed correspondingly. The paper selects time points of 1997, 2002 and 2007, and investigates major determinants of Chinese residential consumption on agricultural products from the long run (1997-2007) and the middle term (2002-2007). The raw data of the decomposition method comes from 1997, 2002 and 2007 IO tables of China. However, extant IO tables are based on current prices and fail to represent real economic change in consideration of price factors. With 1997 as a benchmark year, the paper transforms 2002 and 2007 input output tables into constant-price IO tables. The paper focuses on the agriculture, forestry, animal husbandry, fishery, food, oil and feedstuff processing, sugar making, butchering and meat and egg processing, other food processing, alcohol and alcohol drink manufacturing, and other beverage manufacturing, tobacco processing sectors. In light of the fact that division of sectors is not consistent among the three IO tables, this paper classifies the former four sectors into primary agricultural product sector and the latter seven sectors into agricultural product processing sector based on the natures of sectors and their activity contents.[2] Because residential consumption on the service sector of the agricultural, forestry, husbandry and fishery is zero, the paper will not analyze it.

In addition, negative values in IO tables have to be processed due to the principle of positive variable values required by Montgomery decomposition method, e.g. import, stock change and miscellaneous accounts. As for import account, the column vector can be transformed into the row vector. As for negative values in stock change and miscellaneous accounts, stock change equals inventory increase minus inventory decrease. As officially released IO tables only represent the change of inventory, the paper decompose stock change account into two accounts- increase and decrease, i.e. positive values placed in the increase account and negative values placed in the decrease account. Then similar with the treatment of an import account, negative-value account will be transformed into a row vector, which will not influence the outcome of factor decomposition.

4. Empirical Analysis

[2] The division of primary and processing agricultural sectors can be seen in Zhu (2006).

In IO analysis, total output is composed of intermediate output and final demand (consumption, investment and export). Technology change is represented by the change of direct consumption coefficients. Meanwhile, a coefficient on residential share in unit output is introduced to represent consumption scale. Therefore, the ways of impact on residential consumption on agricultural products can be decomposed into scale, technological, final demand structure and final demand aggregate effects.

4.1 General analysis on factor decomposition

Table 1 gives the decomposition effects of the change of Chinese residential consumption on agricultural products in from 1997 to 2002. In general, consumption on primary agricultural products tended to decrease, while consumption on processed agricultural products tended to increase. The tendency is outstanding in the middle term (2002-2007), when consumption on primary agricultural products decreased by RMB383,980,740,000, while consumption on processed agricultural products increased by RMB 620,625,230,000, indicating a clear consumption upgrade.

As for factor effects, on one hand scale effect, technological effect and final demand structure effect facilitate the upgrade of consumption structure of agricultural products, while final demand aggregate effect inhibits the upgrade. That is consumption on primary agricultural products decreased due to scale change, technological change and change of final demand structure, and the scale effect, technological effect and final demand structure effect are all negative, while the change of final demand aggregate made consumption on primary agricultural products rise. On the other hand, final demand aggregate effect and technological effect promote consumption increase of processed agricultural products, while consumption scale effect and final demand structure effect inhibit the consumption increase of processed agricultural products. For example, from 2002 to 2007, final demand aggregate change and technological change caused the consumption on processed agricultural products to rise by RMB802,301,290,000 and RMB8,237,304,000 respectively, while consumption scale change and final demand structure change caused the consumption on processed agricultural products to fall by RMB213,749,570,000 and RMB50,299,540,000.

Table 1 Factor decomposition of change of Chinese residential consumption on agricultural products from 1997 to 2007 (Unit:RMB10,000)

Decomposition effect	1997-2007		2002-2007	
	Consumption change of primary agricultural products	Consumption of processed agricultural products	Consumption of primary agricultural products	Consumption of processed agricultural products
Scale	-47245336	-38880001	-44698892	-21374957
Technological	-16589112	12358551	-18270818	8237304
Structure	-48739601	-26146771	-36624711	-5029954
Aggregate	85624482	115890418	61196347.4	80230129
Total	-26949568	63222197	-38398074	62062523

Source: calculated based on 1997, 2002 and 2007 IO tables.

4.2 Decomposition of change of Chinese residential consumption on agricultural products: long-term analysis (1997-2007)

To make in-depth research on change of consumption on agricultural products, detailed analysis on disaggregated sectors is necessary, including further decomposing structure effect and aggregate effect into the demand structure and aggregate change from final consumption, capital formation and export. For details of the long-term change of consumption on disaggregated agricultural sectors and their factor effect coefficients are shown in attached table 1.

Residential consumption on primary agricultural products such as agricultural, forestry and husbandry sectors dropped, while residential consumption on processed agricultural sectors such as food, oil and feedstuff processing, butchering and meat and egg processing, aquatic product processing, other food processing, other beverage manufacturing and tobacco processing sectors. Among other, residual consumption on butchering and meat and egg processing and other food processing increased by RMB1,208,329,000,000 and RMB367,590,530,000 respectively. Residential consumption on alcohol and alcohol drink manufacturing and sugar producing sectors decreased. The outcome shows that consumption structure of agricultural products became reasonable and upgraded.

In general, scale, technological, structural and aggregate effects had more impact on consumption on primary agricultural products than processed agricultural products. For example, change of final demand amount resulted in increase of primary agricultural products, with an impact coefficient of (-3.18)[3], and its impact coefficient on process agricultural products stood at 1.83. In details, the four effects had more influence on fishery and forestry consumption, followed by sugar producing and food, oil and feedstuff processing, while butchering and meat and egg processing, and other food processing were subject to weaker influence. For example, whenever technological effect increased by one unit, residential consumption on the fishery sector would decrease by 9.64 units, and sugar consumption would drop by 1.15 units, while the impact coefficients for butchering and meat and egg processing and other food processing were (-0,05) and 0.2 respectively. Whenever final consumption amount increased by one unit, residential consumption on fishery and forestry would increase by 29.58 and 9.05 units respectively, consumption on sugar and food, oil and feedstuff processing sector would increase by 3.68 and 3.17 units respectively, while the impact coefficients for butchering and meat and egg processing and other food processing were 0.64.

As for effects of factors, on one hand the change of consumption scale, final consumption structure, capital formation structure, aggregate amount and export structure reduced residential consumption on almost all agricultural product sectors, while final consumption amount and export amount had opposite roles, and increased residential consumption on agricultural products with positive effects. On the other hand, technological change increased residential consumption on sectors of aquatic product processing, other food processing, other beverage processing and tobacco processing, i.e. positive effects on the above-mentioned sectors, while it had negative impact on other agricultural sectors and reduced corresponding consumption. Therefore, change of consumption on various agricultural sectors shows that technological effect had a remarkable role in facilitating upgrade of consumption structure of agricultural products. Consumption amount and export amount promoted more consumption on both processed agricultural products and primary agricultural products, while adjustment

[3] The data in the parentheses are impact coefficients, i.e. the value of factors' influence on change of consumption on agricultural product sectors. The same below.

of final demand structure such as change of consumption scale, capital formation and exports further inhibited consumption on processed agricultural products.

As for the degree of factor effects, the aggregate effect of final consumption demand had the most influence on change of residential consumption on agricultural products, followed by scale effect and export aggregate effect, and capital formation structural change and aggregate change had less influence. For example, change of final consumption demand amount, consumption scale change and change of export amount increased residential consumption on the sugar producing sector by 3.68, 4.02 and 3.46 units, while change of capital formation structure increased the consumption on the same sector only by 0.02 unit and change of capital formation amount decreased the consumption by 0.47 unit, with lower impact.

4.3 Decomposition of change of Chinese residential consumption on agricultural products: mid-term analysis (1997-2007)

Although change of Chinese residential consumption on agricultural products was slow in the long run, the consumption fluctuated greatly in the mid term, with an obvious rise of consumption on processed agricultural products. As indicated by table 1, Chinese residential consumption on agricultural products increased by RMB632,221,970,000 from 1997 to 2007. The rise tendency was more remarkable in the mid term, as Chinese residential consumption on agricultural products increased greatly by RMB620,625,230,000 from 1997 to 2007. To make better analysis between long term and mid-term, attached table 2 is given for mid-term change of Chinese residential consumption on agricultural products. Comparison between attached table 1 and attached table 2 indicates some similarities and difference between mid term and long term changes.

The similarities are as follows. Firstly, just as in the long term, residential consumption on primary agricultural products decreased such as agriculture and husbandry sectors, and residential consumption on most of processed agricultural products increased in the mid term. Secondly, generally factors had more influence on consumption on primary agricultural products than consumption on processed agricultural products. As for disaggregated sectors, the fishery and forestry sector were subject to relatively large influence, while the influence on butchering, meat and egg processing and other food processing was smaller. Thirdly, as for factor effects, mid-tem technological effect had similarity with long-term technological effect,

both of which had remarkable impact on upgrade of consumption structure of agricultural products. Consumption amount and export amount both facilitated increase of processed agricultural products and increase of primary agricultural products. Adjustment of final demand structure such as consumption scale, capital formation and export further inhibited consumption on processed agricultural products. Fourthly, as for the impact degrees of factors, capital formation structural and aggregate change had relatively smaller influence.

The differences are as follows. Firstly, in the mid term, residential consumption on the fishery decreased and on alcohol and alcohol drink processing increase, which is opposite to the situation in the long term. Secondly, among processed agricultural products, consumption alcohol and alcohol drink processing was subject to remarkable influence in the mid term, while consumptions on sugar producing and food, oil and feedstuff processing were subject to obvious influence in the long term. Thirdly, technological change reduced residential mid-term consumption on the tobacco processing sector and increased mid-term consumption on the food, oil and feedstuff processing sector, which were opposite to the situation in the long term. Fourthly, in the mid term change of consumption scale had larger impact on the change of residential consumption on agricultural products, while in the long term, aggregate effect of final consumption demand had larger impact on the change.

5. Conclusions

The paper finds that combining the Montgomery method with input-output SDA can avoid the shortcoming of non-uniqueness of decomposition calculation results, and effectively solve the issue of factor reversibility and time reversibility, and further probe into the real source of change of variables. Therefore, the paper makes empirical analysis on Chinese residential consumption on agricultural products in the long term (1997-2007) and in the mid term (2002-2007) based on China's 1997, 2002 and 2007 IO tables. The major findings are as follows:

Firstly, as a whole, upgrade of consumption structure of agricultural products mainly depended on the inhibiting role of scale effect, technological effect and structure effect of final demand on primary agricultural products, and facilitating role of technological effect and aggregate effect on processed agricultural products. That is although consumption on primary

agricultural products tended to decrease and consumption on processed agricultural products tended to rise, scale effect, technological effect, structure effect of final demand inhibited consumption on primary agricultural products while aggregate effect of final demand and technological effect promoted increase of consumption on processed agricultural products.

Secondly, as for agricultural product sectors, generally primary agricultural products were more subject to factors than processed agricultural products. In details, the fishery and forestry sectors were more susceptible, while butchering and meat and egg processing, and other food processing sectors were less susceptible. Meanwhile, the alcohol and alcohol drink manufacturing and the other beverage manufacturing sector were more susceptible in the mid term, and the sugar producing sector and the food, oil and feedstuff processing sector were more susceptible in the long term.

Thirdly, as for effects of factors, technological effect played a remarkable role in facilitating upgrade of consumption structure of agricultural products. Consumption amount and export amount facilitated increase of both processed agricultural products and primary agricultural products, while adjustment of final demand structure such as consumption scale, capital formation and export further inhibited consumption on processed agricultural products.

Fourthly, as for impact degrees of factors, change of consumption scale had larger impact on change of residential consumption on agricultural products in the mid term, and aggregate effect of final consumption demand had a larger role in the long term. In either the long term or the mid term, structure and aggregate change of capital formation had a minor role in change of consumption on agricultural products.

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Attached Table 1 Change of consumption on disaggregated agricultural sectors and impact coefficients of factors from 1997 to 2007

Industry		Amount of change (Unit: RMB10,000)	Impact coefficients									
			Scale effect	Tech effect	Structural effect				Aggregate effect			
					Final consumption	Capital formation	Export	Total	Final consumption	Capital formation	Export	Total
Consumption on primary agricultural products	Agriculture	-12479244	1.77	0.76	1.73	0.02	0.27	2.02	-2.19	0.35	-1.7	-3.54
	Forestry	-26674	16.06	4.49	0.31	-0.01	-0.13	0.17	-9.05	2.69	-13.36	-19.72
	Husbandry	-14666945	1.4	0.33	1.07	0.01	0.12	1.2	-1.36	0.32	-0.89	-1.93
	Fishery	223296	-19.07	-9.64	-20.65	-0.59	-5.66	-26.9	29.58	-4.47	31.49	56.6
	Total	-26949568	1.75	0.62	1.55	0.02	0.24	1.81	-2.01	0.37	-1.55	-3.18
Consumption on processed agricultural products	Food, oil and feedstuff processing	3318795	-2.52	0.76	-1.81	-0.04	-0.4	-2.25	3.17	-0.57	2.42	5.01
	Sugar producing	-156592	4.02	1.15	1.92	-0.02	0.61	2.51	-3.68	0.47	-3.46	-6.68
	Butchering and meat and egg processing	12746113	-0.07	-0.05	0.02	0	-0.18	-0.17	0.64	-0.08	0.72	1.28
	Aquatic product processing	5453110	-0.55	0.25	-0.12	0	-0.33	-0.46	0.49	-0.07	1.34	1.76
	Other food processing	38775454	-0.25	0.21	0.03	-0.01	-0.04	-0.02	0.64	-0.05	0.46	1.05
	Alcohol and alcohol drink manufacturing	-3535043	2.23	0.27	1.67	0.03	0.05	1.75	-2.08	0.32	-1.48	-3.25
	Other beverage producing	2092926	-2.19	0.49	-0.89	-0.01	-0.29	-1.19	1.8	-0.27	2.35	3.89
	Tobacco processing	4527435	-0.88	0.2	-0.77	-0.02	-0.17	-0.96	1.76	-0.23	1.11	2.64
	Total	63222197	-0.62	0.2	-0.27	-0.01	-0.14	-0.41	1.04	-0.12	0.92	1.83

Source: same with table 1.

Attached Table 2 Change of consumption on disaggregated agricultural sectors and impact coefficients of factors from 2002 to 2007

Industry		Amount of change (Unit: RMB10,000)	Impact coefficients									
			Scale effect	Tech effect	Structural effect				Aggregate effect			
					Final consumption	Capital formation	Export	Total	Final consumption	Capital formation	Export	Total
Consumption on primary agricultural products	Agriculture	-13702095	1.45	0.68	0.89	0.04	0.27	1.19	-1.12	0.35	-1.54	-2.32
	Forestry	37154	-1.29	-8.95	0.04	0.02	0.07	0.13	4.51	-1.47	8.08	11.12
	Husbandry	-20961385	0.98	0.23	0.58	0.02	0.07	0.67	-0.55	0.24	-0.57	-0.88
	Fishery	-3771748	1.12	1.02	1.19	0.02	0.46	1.67	-1.14	0.29	-1.96	-2.81
	Total	-38398074	1.16	0.48	0.75	0.03	0.18	0.95	-0.82	0.29	-1.06	-1.59
Consumption on processed agricultural products	Food, oil and feedstuff processing	3431425	-2.32	1.16	-0.71	0.00	-0.20	-0.92	1.58	-0.45	1.94	3.07
	Sugar producing	-216035	2.41	0.92	0.47	0.06	0.26	0.80	-1.37	0.44	-2.20	-3.13
	Butchering and meat and egg processing	12024543	-0.07	-0.05	0.02	0	-0.18	-0.17	0.64	-0.08	0.72	1.28
	Aquatic product processing	4020939	-0.55	0.25	-0.12	0	-0.33	-0.46	0.49	-0.07	1.34	1.76
	Other food processing	32582475	-0.25	0.21	0.03	-0.01	-0.04	-0.02	0.64	-0.05	0.46	1.05
	Alcohol and alcohol drink manufacturing	3359248	2.23	0.27	1.67	0.03	0.05	1.75	-2.08	0.32	-1.48	-3.25
	Other beverage producing	2510087	-2.19	0.49	-0.89	-0.01	-0.29	-1.19	1.8	-0.27	2.35	3.89
	Tobacco processing	4349841	-0.88	0.2	-0.77	-0.02	-0.17	-0.96	1.76	-0.23	1.11	2.64
	Total	62062523	-0.62	0.2	-0.27	-0.01	-0.14	-0.41	1.04	-0.12	0.92	1.83

Source: same with table 1.