

The Economic Impact of Agricultural and Clothing, Textile: An Input-Output Analysis

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Abstract

This paper presents an Input-Output Analysis for Vietnam from 1996 to 2007, an important source of information for the investigation of the inter-relations existing among different industries. The Input-Output Analysis is used to determine the role and importance of different economic value added, incomes and employment and it analyses the existing connection in an economy. This paper is focused on clothing and textile industry and the input-output analysis is finished for the agricultural, clothing and textiles Sector. Our result show that the total output multiplier of agriculture is decrease from 1996 to 2007 where as the total output multiplier of clothing and textile is increasing during the period of time. However the earning multiplier as well as the value adds multiplier of the textile and clothing are lower and look like decrease compare with agriculture sector.

JEL classification numbers: D57, C67, L6

Keyword: Input Output, clothing and textile, agriculture, Vietnam

1 Introduction

The textile and garment industry has made a remarkable contribution to the economic development of Vietnam and employs currently a large labor force of 2.5 million people. East Asia Textile Business Review 2009, from 2000 Export value of textiles and apparel from Vietnam is 1.9 billion US dollars to 2007 is 7.75 billion US dollars. Despite Vietnam's burgeoning population of 87 million and the government reporting of working age population of 44 million, labor supply continues to pose a challenge to the textile and apparel industry. Locals believe working in the industry means hard work and low income. Wages have improved from 2006 to 2009 due to worker strikes, but at US\$0.30 to \$0.60 per operator hour it remains one of the lowest cost labor markets in the region. Since 2000, the industry has achieved an annual growth rate of 20% and generated 2 million jobs,

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contributing 17% to the country's total export turn over. Vietnam shipped just over \$9 billion in garments and textiles in 2009 to primarily the United States and Europe, only a 1.3% decline year-on-year during a period when many industrialized economies were in recession.

By using the phases of the economic transition of Vietnam (1996-2007), exploring the three national input-output tables (1996, 2000 and 2007) to determine the role and importance of different economic value added, incomes and employment and it analyses the existing connection in Vietnam economy as well as the role of clothing and textiles Sector and agricultural in Vietnam economy.

The input-output analysis is the standard method for measuring the spread effects of changes in the final demand for the product of an industry or sector. The main applications of input-output analysis have been discussed in Leontief (1984), Miller and Blair (1985), Fleissner (1993), Holub and Schnabl (1994), United Nations (1996), Kurz, Dietzenbacher and Lager (1998), Thijs ten Raa (2006), Eurostat (2008).

In Vietnam the applications of input-output analysis have been discussed in Bui Trinh, Kiyoshi Kobayashi (2011), Ngoc Quang Pham (2007), Bui trinh, Kiyoshi Kobayashi (2012).

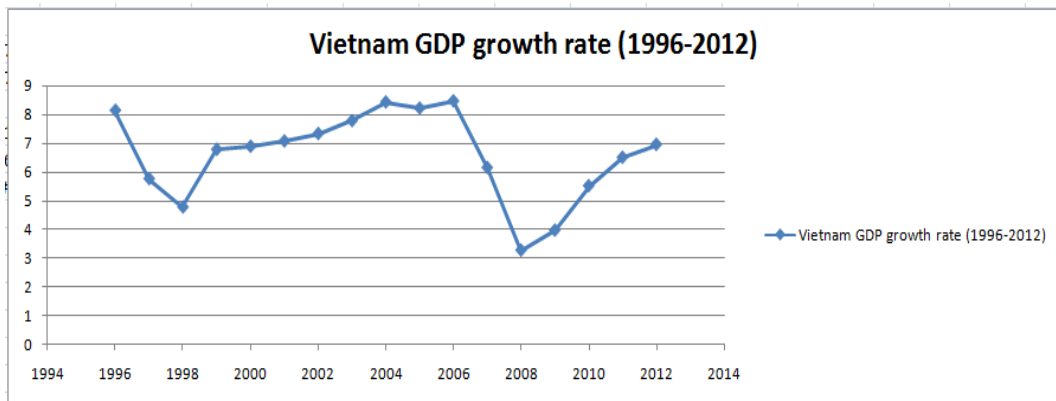


Figure1: Economic Growth in Vietnam, 1977-2003

Vietnam's market oriented reforms known as "Doi Moi" were launched after the Sixth Party Congress in December 1986 with the broad aims of reducing macroeconomic instability as well as accelerating growth. Since the Doi Moi implementations, there have been significant transformations to Vietnam's economy with remarkable achievements in GDP growth, inflation control, and expansion of exports, FDI attraction and poverty reduction. Economic structure continued the positive shift, GDP share of agriculture-forestry-fishery reduced to 20.25% from 20.36% in 2006 while industry and construction share increased to 41.61% from 41.56% in 2006, and share of the service sector increased to 38.14% from 38.08% in 2006

Table1: Structure of employed population by industrial sector in 2000- 2011

	Agriculture, forestry and fishery	Industry and construction	Services
2000	62.2	13.0	24.8
2001	60.3	14.5	25.1
2002	58.6	15.4	26.0
2003	57.2	16.8	26.0
2004	56.1	17.4	26.5
2005	55.1	17.6	27.3
2006	54.3	18.2	27.6
2007	52.9	18.9	28.1
2008	52.3	19.3	28.4
2009	51.5	20.0	28.4
2010	49.5	21.0	29.5
2011	48.4	21.3	30.3

Source: 2000-2010: The Statistics Yearbook; 2011: The 2011 Labour Force Survey

Between 1994 and 2004, the sector grew at an annual rate of 4.1 percent. Agriculture's share of economic output has declined in recent years, falling as a share of GDP from 42% in 1989 to 26% in 1999, as production in other sectors of the economy has risen. However, agricultural employment was much higher than agriculture's share of GDP; in 2005, approximately 60 percent of the employed labor force was engaged in agriculture, forestry, and fishing. Agricultural products accounted for 30 percent of exports in 2005. The relaxation of the state monopoly on rice exports transformed the country into the world's second or third largest rice exporter. Other cash crops are coffee, cotton, peanuts, rubber, sugarcane, and tea.

2 Research Method and Database

2.1 Input-output Models

The input-output table is a tool to give a comprehensive picture of a country's economy in aspects of production technology applied to create products (shown by input coefficients), use of output produced domestically (reflected by the structure of gross capital formation, final consumption and exports) and production income (described by the structure of compensation of employees, consumption of fixed capital, other net taxes on production and operating surplus). Moreover, the table is an economic tool or model for very useful analysis and forecast, which help economic managers make decisions, social-economic solutions benefiting national development. A very general and simplified overview of an I-O Through looking into I/O tables for some periods, economic managers, researchers and other users notice how productive technology changes, quality of economic growth during each period, the role of economic industries in the sense of increasing industries 'growth by the means of their backward and forward linkages

Table 2: A general view of an input-output table

		Intermediate input				Final demand	Total demand
		1	2	...	n	Y	X
Intermediate input	1	Z_{11}	Z_{12}	...	Z_{1n}	Y_1	X_1
	2	Z_{21}	Z_{22}	...	Z_{2n}	Y_2	X_2
	:	:	:	...	:	:	:
	n	Z_{n1}	Z_{n2}	...	Z_{nn}	Y_n	X_n
Value add		V_1	V_2	...	V_n		
Gross output		X_1	X_2	...	X_n		

In which: Total output = intermediate demand + final demand

$$X_1 = Z_{11} + Z_{12} + \dots + Z_{1n} + Y_1 \quad (1)$$

$$X_n = Z_{n1} + Z_{n2} + \dots + Z_{nn} + Y_n \quad (2)$$

$$\begin{bmatrix} X_1 \\ \cdot \\ \cdot \\ X_n \end{bmatrix} = \begin{bmatrix} Z_{11} + Z_{12} + \dots + Z_{1n} \\ \cdot \\ \cdot \\ Z_{n1} + Z_{n2} + \dots + Z_{nn} \end{bmatrix} + \begin{bmatrix} Y_1 \\ \cdot \\ \cdot \\ Y_n \end{bmatrix} \quad \Rightarrow \quad \begin{bmatrix} X_1 \\ X_2 \\ \vdots \\ X_n \end{bmatrix} = \begin{bmatrix} a_{11}X_1 + a_{12}X_2 + \dots + a_{1n}X_n \\ a_{21}X_1 + \dots + a_{2n}X_n \\ \vdots \\ a_{n1}X_1 + \dots + a_{nn}X_n \end{bmatrix} + \begin{bmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_n \end{bmatrix}$$

The technical coefficients are calculated from the values taken from the matrix of transactions divided by total input

$$a_{ij} = x_{ij}/X_j \quad (3)$$

The equation (1) can be written as follow:

$$x_{ij} = a_{ij} * X_j \quad (4)$$

$$\begin{bmatrix} X_1 \\ X_2 \\ \vdots \\ X_n \end{bmatrix} = \begin{bmatrix} a_{11}X_1 + a_{12}X_2 + \dots + a_{1n}X_n \\ a_{21}X_1 + \dots + a_{2n}X_n \\ \vdots \\ a_{n1}X_1 + \dots + a_{nn}X_n \end{bmatrix} + \begin{bmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_n \end{bmatrix} \quad \Rightarrow \quad \begin{bmatrix} X_1 \\ \cdot \\ \cdot \\ X_n \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} & \dots & a_{1n} \\ a_{21} & a_{22} & \dots & a_{2n} \\ \cdot & \cdot & \cdot & \cdot \\ a_{n1} & a_{n2} & \dots & a_{nn} \end{bmatrix} \begin{bmatrix} X_1 \\ \cdot \\ \cdot \\ X_n \end{bmatrix} + \begin{bmatrix} Y_1 \\ \cdot \\ \cdot \\ Y_n \end{bmatrix}$$

$$\mathbf{X} = \mathbf{A}_{n \times n} \mathbf{X} + \mathbf{Y} \quad (5)$$

$$(\mathbf{I} - \mathbf{A})\mathbf{X} = \mathbf{Y} \quad (6)$$

$$\mathbf{X} = (\mathbf{I} - \mathbf{A})^{-1} \mathbf{Y} \quad (7)$$

The final demand changes due to changes in industry output as bellow:

$$\Delta \mathbf{X} = (\mathbf{I} - \mathbf{A})^{-1} \Delta \mathbf{Y} \quad (8)$$

2.2 General Structure of Multiplier Analysis

Most of frequently used types of multipliers are those that estimate the effect of exogenous changes on: 1) Outputs of the sectors in the economy
 2) Income earned by households in each sector because of the new output
 3) Employments (Jobs, in physical term)
 4) The value adds that is created by each sector in the economy because of the new output. The Input-Output Analysis is used to determine the role and importance of different economic value added, incomes and employment and it analyses the existing connection in an economy. This paper is focused on Agricultural, clothing and textiles Sector and the input-output analysis is finished for the Agricultural, clothing and textiles Sector.

2.3 Linkages in Input-Output Models

The Input-Output analysis offers two distinctive results for each analyses sector, namely backward linkages and forward linkages. First, the backward linkage used to present the internal transactions, showing that the increase in the total production of sector j increases the demand of sector j for inputs from the rest of the economic sectors. Because of their property, backward linkages are also reported in the bibliography as multipliers. I-O tables generate various types of multipliers. The forward linkage presents the intersectoral transactions, showing that an increase in total production of sector j increases its total supply to the rest of the Multipliers are mean of estimating the overall change in the economy due to changes in final demand. Among all the information provided by input-output, multipliers are one of the most frequently used. The Output Multiplier (OM): Output Multiplier predicts how much increased economic activity in other industries is caused by every additional dollar increase in one specified industry. The output multipliers allow us to estimate the amount of economic activity that is generated from an increase in the value of real estate activity (White, 2002). The sum of each column shows the total increase in national output resulting from 1 VND increase in final demand for the column heading sector. The Earnings Multiplier (EM): Earnings multipliers for a given industry in a region show the earnings that a given industry pays, both directly and indirectly, to households employed in regional industries to deliver an additional dollar of output (White, 2002). EM is obtained using the total requirements table and direct earnings coefficients as:

$$\mathbf{C} = \mathbf{E} * (\mathbf{I} - \mathbf{A})^{-1} \quad (9)$$

Where: \mathbf{C} is the earnings multiplier matrix, \mathbf{E} is $n \times n$ matrix containing the i th sector's earnings coefficient in its i th diagonal and zeros elsewhere.

\mathbf{I} is the identity matrix and matrix $(\mathbf{I} - \mathbf{A})^{-1}$ is the so-called Leontief inverse or the interdependence coefficients or total requirements table.

The last equation indicates that a change in total output is the product of a change in total final demand multiplied by $(\mathbf{I} - \mathbf{A})^{-1}$. The Leontief matrix is the result of a matrix transformation through which multiplier coefficients can be calculated. These coefficients summarise all indirect effects.

The value-added multiplier (VAM) represents a change in total value-added for every VND change in final demand for a given sector. VAM are obtained using the total requirements table and direct VA coefficients as:

$$\mathbf{T} = \mathbf{V} * (\mathbf{I}-\mathbf{A})^{-1} \quad (10)$$

Where: T is the VA multiplier matrix; V is n×n matrix containing the ith sector's VA coefficient in its ith diagonal and zeros elsewhere.

The Input-Output analysis offers two distinctive results for each analyzed sector, namely backward linkages and forward linkages. First, the backward linkage used to present the internal transactions, showing that the increase in the total production of sector j increases the demand of sector j for inputs from the rest of the economic sectors. Because of their property, backward linkages are also reported in the bibliography as multipliers. I-O tables generate various types of multipliers.

The forward linkage presents the intersectoral transactions, showing that an increase in total production of sector j increases its total supply to the rest of the economic sectors that are using the product of sector j as an input in their production process (Bonfiglio et al., 2006).

The forward linkage coefficients (FL) are computed as:

$$OFL = \sum_{j=1}^n b_{ij} \quad (11)$$

Where: b_{ij} are the corresponding element of the total requirements matrix.
For earnings:

Table 3: The forward linkage coefficients for output

Sectors	1996	2000	2007
	OFL	OFI	OFL
Crops	1.9437	1.6115	2.2658
others agricultural	1.9505	2.0184	3.3062
Retail and wholesale trade, tourism and private servise	2.0293	2.0991	1.9247
Mining	2.5173	1.6021	1.6109
Processed foods	2.7703	2.5683	3.4457
Textiles and clothing	3.2593	3.4569	3.4323
Wood and paper	3.3517	2.8217	2.6818
Chemicals	3.2743	2.6793	3.2456
Machinery	3.4772	3.2760	3.0353
Other manufacturing	3.1748	2.7632	2.4812
Utilities	2.8741	1.7566	1.7500
Construction	3.2654	3.0054	2.7638
busines and other services	1.7571	1.7275	1.8053
Government	2.0606	1.9112	1.9527

$$EFL = \sum_{j=1}^n c_{ij} \quad (12)$$

Where: c_{ij} are the corresponding element of the earning multiplier matrix.

Table 4: The forward linkage coefficients for earning

Sectors	1996	2000	2007
	FLEM	FLEM	FLEM
Crops	0.1826	0.1514	0.2129
others agricultural	0.0419	0.0434	0.0710
Retail and wholesale trade, tourism and private servise	0.0062	0.0064	0.0059
Mining	0.0387	0.0246	0.0247
Processed foods	0.0071	0.0066	0.0089
Textiles and clothing	0.0356	0.0378	0.0375
Wood and paper	0.2130	0.1793	0.1704
Chemicals	0.1286	0.1052	0.1275
Machinery	0.0725	0.0683	0.0633
Other manufacturing	0.0598	0.0520	0.0467
Utilities	0.1329	0.0812	0.0809
Construction	0.0515	0.0474	0.0436
busines and other services	0.0648	0.0637	0.0666
Government	0.0560	0.0520	0.0531

Forward linkages depict changes in output, employment and income of the whole economy as a consequence of a change in added value within the chosen sector.

The economic structural shift towards industrialization and modernization is the major policy of the Party and Government. This process inevitably will increase the proportion of labor in industry, construction and services, and reduce the proportion of the labor force in agriculture. Table 1 indicates a shift in the labor structure between the three main industrial sectors over the past 10 years: "Agriculture, forestry, fishing", "Industry and construction" and "Services". Until now, "Agriculture, forestry, fishing" accounted for 48.4% of labor (a decline of 13.8 percentage points compared to 2000), "Industry and construction" accounts for 21.3% and "Services" for 30.3%.

3 Empirical Result

By using the original Vietnam Input Output table 138 sectors publishing in 2007, 112 sectors in 2000, and 96 sectors in 1996 we integrated in to 14 sectors for three tables as follow:

Table 5: Vietnam Input Output table 14 sectors

	Vietnam Input Output table 14 sectors
1	Construction
2	Crops
3	Retail and wholesale trade, tourism and private service
4	others agricultural
5	Mining
6	Processed foods
7	Textiles and clothing
8	Wood and paper
9	Chemicals
10	Machinery
11	Other manufacturing
12	Utilities
13	business and other services
14	Government services

3.1 Technical Coefficient

In 2007 Textile and clothing industry purchasing from Retail and wholesale trade, tourism and private service 0.0750 VND, 0.0962VND from Chemicals and 0.0073 from Agriculture where as Agriculture purchase from Textile and clothing industry just only 0.0011VND, 0.0565 from Retail and wholesale trade, tourism and private service and 0.1732 VND from chemical. Furthermore, in 2007 Textile and clothing industry supplied 0.0067 VND to produce every 1 RON of Machinery and 0.0098 VND to Other manufacturing as well as 0.0023 to government.

In 2000 Textile and clothing industry purchasing from Retail and wholesale trade, tourism and private service 0.153VND, 0.0375VND from Chemicals and 0.0112 from Agriculture where as Agriculture purchasing from Textile and clothing industry 0.00027VND, 0.03 from Retail and wholesale trade, tourism and private service and 0.118VND from chemical. Furthermore, in 2000 Textile and clothing industry supplied 0.009 VND to produce every 1 RON of construction, 0.003 to government and just only 0.001 VND to Other manufacturing 0.0008 VND machinery.

In 1996 Textile and clothing industry purchasing from Retail and wholesale trade, tourism and private service 0.1677VND, 0.0556VND from Chemicals and 0.0290 from Agriculture where as Agriculture purchasing from Textile and clothing industry 0.0002VND, 0.1112 from Retail and wholesale trade, tourism and private service and 0.1547VND from chemical. Furthermore, in 1996 Textile and clothing industry supplied 0.0103 VND to produce every 1 VND of wood and paper, 0.0031 to government and 0.0162 VND to Other manufacturing 0.017 VND machinery.

Via technical coefficient 2007, 2000, 1996 we can see in 1996 to produce 1 VND Textile and clothing industry purchasing from Retail and wholesale trade, tourism and private service 0.1677VND, but in 2000 to produce 1 VND Textile and clothing industry purchasing from Retail and wholesale trade, tourism and private service just only need 0.153 VND and 0.0750VND in 2007. Similarly, in 1996 to produce 1 VND Textile and clothing industry purchasing from Agriculture 0.1677VND, , but in 2007 to produce 1 VND Textile and clothing industry purchasing from Agriculture just only need 0.153 VND.

Table 6: Multiplier for VIETNAM, 1996, 2000 and 2007

Sectors	1996		2000		2007		1996		2000		2007		1996		2000		2007	
	OM'	RK	OM''	RK	OM'''	RK	EM'	RK	EM''	RK	EM'''	RK	VA'	RK	VM''	RK	VA'''	RK
Construction	1.1475	1	1.0000	1	1.1548	2	0.0199	2	0.0158	2	0.0195	1	0.035199	1	0.026523	1	0.0335	1
agricultural	2.2951	9	1.7760	6	2.3247	7	0.1173	10	0.1067	11	0.1346	13	0.160944	9	0.135597	8	0.1718	11
Retail and wholesale trade, tourism and private servise	7.0069	14	4.0684	12	3.7211	12	0.1780	14	0.0833	10	0.0787	10	0.374367	13	0.179637	11	0.1576	9
others agricultural	1.9901	7	1.8527	7	1.8066	4	0.0539	7	0.0514	6	0.0420	6	0.0873	6	0.078173	5	0.0630	4
Mining	1.7890	5	1.4970	4	1.6162	3	0.0361	5	0.0279	4	0.0331	4	0.064202	4	0.04796	4	0.0579	3
Processed foods	1.4362	4	1.3573	3	2.6355	11	0.0119	1	0.0084	1	0.0331	3	0.049888	2	0.043618	2	0.0900	5
Textiles and clothing	1.7994	6	2.1221	9	2.4243	10	0.0248	3	0.0273	3	0.0338	5	0.070236	5	0.078257	6	0.0937	6
Wood and paper	2.7552	11	2.4531	10	2.4149	9	0.1260	11	0.1122	12	0.1171	12	0.229542	11	0.20366	12	0.2113	12
Chemicals	4.0119	12	4.3418	13	5.9281	14	0.1378	12	0.1471	14	0.1956	14	0.282749	12	0.310717	13	0.3930	14
Machinery	6.1207	13	5.2543	14	4.5029	13	0.1648	13	0.1237	13	0.1071	11	0.409603	14	0.321547	14	0.2832	13
Other manufacturing	2.5839	10	2.8118	11	2.3338	8	0.0578	8	0.0604	8	0.0521	7	0.159097	8	0.175891	10	0.1489	8
Utilities	2.1198	8	1.6792	5	1.8634	6	0.0803	9	0.0655	9	0.0739	9	0.184244	10	0.150791	9	0.1671	10
busines and other services	1.3512	3	1.9034	8	1.8458	5	0.0470	6	0.0571	7	0.0617	8	0.096975	7	0.117725	7	0.1261	7
Government services	1.2987	2	1.1802	2	1.1292	1	0.0356	4	0.0326	5	0.0307	2	0.051837	3	0.04576	3	0.0429	2

In this section we will be analyses for the textile and clothing and agricultural sector in the output, earnings, value added and employment multiplier. The results presented in Table 5

In 2007 the total increase of 2.4243 VND in the Vietnam economy output resulted from 1 VND increase in final demand for textile and clothing rank number 10th position. In other words, the 2.4243 VND (OM'') is composed of 1.00 VND of direct materials and labor, plus additional 0.4243 VND of increased output in other related industries where as increase of 2.3247 VND in the Vietnam economy output resulted from 1 VND increase in final demand for agriculture rank number 7th position . In other words, the 2.3247 VND (OM''') is composed of 1.00 RON of direct materials and labor, plus additional 0.3247 VND of increased output in other related industries. Thus the rank of textile and clothing is higher than agricultural sector in year 2007.

In 2000 the total increase of 2.1221 VND in the Vietnam economy output resulted from 1 VND increase in final demand for textile and clothing rank number 9th position where as increase of 1.7760 VND in the Vietnam economy output resulted from 1 VND increase in final demand for agriculture rank number 6th position. Thus the rank of textile and clothing is also higher than agricultural sector in year 2000.

However, in 1996 the total increase of 1.7994 VND in the Vietnam economy output resulted from 1 VND increase in final demand for textile and clothing rank number 6th position where as increase of 2.2951 VND in the Vietnam economy output resulted from 1 VND increase in final demand for agriculture rank number 9th position. Thus the rank of textile and clothing is lower than agricultural sector in year 2000.

Comparison the position of textile and clothing and agricultural sector we can see that the rank of Agricultural sector with decreasing from 9th position in 1996 to 6th position in 2000 and 7th position in 2007. However the position of textile and clothing sector with increasing from 6th position in 1996 to 9th position in 2000 and 10th position in 2007

In general From 1996-2000 the Vietnam economy slowdown however the rank of the clothing and Textile still increase from 6ⁱⁿ 1996 to 9 in 2000 and 10 in 2007 when the Vietnamese economy seems to return to its track of high economic growth.

The EM" for textile and clothing underlines that 1 VND increase in the final demand of this sector would increase the earnings in the economy by 0.0338VND rank 5th position. This amount is paid for wages to people directly and indirectly involved in the creation of each additional VND of output. Higher EM was registered in 2000 when 0.0273 VND rank 3th positions was paid in wages due to 1 VND increase in final demand for textile and clothing. In 1996 The EM" for textile and clothing underlines that 1 VND increase in the final demand of this sector would increase the earnings in the economy by 0.0248VND rank 3th position the same with year 2000 where as the EM" for agriculture with higher rank in 2007 with the rank 13th position 11th position in 2000 and 10th position in 1996. . This amount of agriculture is paid for wages to people directly and indirectly involved in the creation of each additional VND of output higher EM was registered in 2007, 2000, 1996 with 0.1346 VND 0.1067 VND 0.1173, respectively for textile and clothing. Its mean that the earning for agriculture still higher textile and clothing during 1996 to 2007. Similarly, the result in table 9 show that the VA of agriculture still higher compare with textile and clothing. Thus during 1996 to 2007 Vietnam government try to change economic structure from the economy depend on agricultural in to industrialize economy. However, with the higher output of industries like machinery, other manufacturing ..., especially textile and clothing industry the income of employee still not improve than before.

Table 7: Forward linkages for VIETNAM, 1996, 2000 and 2007

Sectors	1996		2000		2007		1996		2000		2007	
	FLO'	RK	FLO''	RK	FLO'''	RK	FLEM'	RK	FLEM''	RK	FLEM'''	RK
Construction	1.943728	2	1.611532	2	2.265791	6	0.182615	13	0.151405	13	0.212873	14
agricultural	1.950463	3	2.018381	6	3.306156	12	0.041898	5	0.043357	5	0.071102	10
Retail and wholesale trade, tourism and private service	2.029288	4	2.099071	7	1.924731	4	0.006199	1	0.006412	1	0.00588	1
others agricultural	2.517288	6	1.602058	1	1.61087	1	0.038664	4	0.024607	3	0.024742	3
Mining	2.770335	7	2.568298	8	3.44573	14	0.007135	2	0.006614	2	0.008874	2
Processed foods	3.259306	10	3.456893	14	3.432271	13	0.035597	3	0.037755	4	0.037486	4
Textiles and clothing	3.351728	13	2.821695	11	2.681796	8	0.21299	14	0.179309	14	0.170419	13
Wood and paper	3.274259	12	2.679251	9	3.245623	11	0.128597	11	0.105228	12	0.127472	12
Chemicals	3.477208	14	3.276023	13	3.035339	10	0.072476	10	0.068283	10	0.063266	8
Machinery	3.17477	9	2.763213	10	2.481192	7	0.059772	8	0.052023	8	0.046714	6
Other manufacturing	2.874127	8	1.756551	4	1.750029	2	0.13287	12	0.081205	11	0.080903	11
Utilities	3.265428	11	3.005382	12	2.763825	9	0.051534	6	0.04743	6	0.043618	5
busines and other services	1.757118	1	1.727486	3	1.805273	3	0.064832	9	0.063739	9	0.066609	9
Government services	2.060617	5	1.911235	5	1.952715	5	0.05603	7	0.051968	7	0.053096	7

The term forward linkage is used to indicate this kind of interconnection of a particular sector with those sectors to which it sells its output.

In table 6 the forward linkages for the output, earnings and employment were estimated for both years 1996, 2000 and 2007, respectively. For 2007, the high dependence in other sectors in terms of output is characteristic for agriculture (3.30616), mining (3.44573),

woods and paper (3.245). The textile and clothing with lower interdependence (2.6818), constructions (2.265) and the lowest one is others agriculture (1.61087). However, the forward linkage of the textile and clothing in 1996 and 2000 with 3.35173 and 2.8217, respectively is larger than the forward linkage of the agriculture with 1.950 and 2.018. It means that a VND's worth of expansion of the output of the textile and clothing sector is more essential to the Vietnam economy than a similar expansion in the output of agriculture sector, from the point of view of the overall productive activity that it could support.

The earnings forward linkage coefficients of the textile and clothing sector is very high 0.21299 in 1996 rank 14th position, 0.1793 rank 14th position and 0.1704 rank 13th position in 2007 compare with earnings forward linkage coefficients of the agriculture is lower with forward linkage coefficients 0.0419 rank 5th position in 1996, 0.0443 rank 5th position in 2000 and a little bit high in 2007 with forward linkage coefficients 0.1704 rank 10th position. Generally, The earnings forward linkage coefficients of the textile and clothing sector is higher compare with Agriculture from 1996 to 2007.

Table 8: Variation of the final demand 2007 due to 1% and 10% change in Agriculture sector final demand

Sectors	Xunit	X'ajusted1%	X'ajusted/Xunit	X"ajusted10%	X"ajusted/Xunit
Construction		2.2658	2.2658	1.0002	1.0018
agricultural		3.3062	3.3162	1.0127	1.1269
Retail and wholesale trade, tourism and private service		1.9247	1.9247	1.0005	1.0046
others agricultural		1.6109	1.6109	1.0026	1.0262
Mining		3.4457	3.4457	1.0001	1.0009
Processed foods		3.4323	3.4323	1.0049	1.0491
Textiles and clothing		2.6818	2.6818	1.0004	1.0045
Wood and paper		3.2456	3.2456	1.0004	1.0044
Chemicals		3.0353	3.0353	1.0007	1.0069
Machinery		2.4812	2.4812	1.0002	1.0017
Other manufacturing		1.7500	1.7500	1.0002	1.0022
Utilities		2.7638	2.7638	1.0001	1.0007
business and other services		1.8053	1.8053	1.0001	1.0010
Government services		1.9527	1.9527	1.0002	1.0017

Table 9: Variation of the final demand 2007 due to 1% and 10% change in textile and clothing sector final demand

Sectors	Xunit	X'ajusted1%	X'ajusted/Xunit	X"ajusted10%	X"ajusted/Xunit
Construction	2.26579	2.26579	1.00029	2.26579	1.00285
agricultural	3.30616	3.31616	1.00011	3.40616	1.00115
Retail and wholesale tr	1.92473	1.92473	1.00023	1.92473	1.00229
others agricultural	1.61087	1.61087	1.00028	1.61087	1.00282
Mining	3.44573	3.44573	1.00007	3.44573	1.00071
Processed foods	3.43227	3.43227	1.00022	3.43227	1.00220
Textiles and clothing	2.68180	2.69180	1.02083	2.78180	1.20834
Wood and paper	3.24562	3.24562	1.00072	3.24562	1.00718
Chemicals	3.03534	3.03534	1.00024	3.03534	1.00239
Machinery	2.48119	2.48119	1.00041	2.48119	1.00407
Other manufacturing	1.75003	1.75003	1.00041	1.75003	1.00406
Utilities	2.76383	2.76383	1.00010	2.76383	1.00104
busines and other servi	1.80527	1.80527	1.00018	1.80527	1.00183
Government services	1.95271	1.95271	1.00015	1.95271	1.00151

In the table 11 and table 12 when a 10% increase in demand for textile and clothing leads to an increase in output in the sector by 20%, however when we increase 10% in demand for agriculture leads to an increase in output in the sector just only 12%. Further more when we increase 1% in demand for Textile and clothing leads to an increase in output in the sector by 2% where as demand for agriculture just increase in output 1.2%. the construction sector is also increase higher with 0.28% when we increase 10% textile and clothing sector compare with 0.18% when we increase 10% in demand for agriculture. The business and other service increase 0.18% when we increase 10% in demand for textile and clothing where as increase in output in the business and other service sector just only 0.1% when we we increase 10% in demand for agriculture. In generally the impact of textile sector to total Vietnam economy is more higher compare with agriculture.

4 4 Conclusions

This paper presents an Input-Output Analysis for Vietnam from 1996 to 2007, an important source of information for the investigation of the inter-relations existing among different industries. The Input-Output Analysis is used to determine the role and importance of different economic value added, incomes and employment and it analyses the existing connection in an economy. This paper not only focused on clothing and textile industry and the input-output analysis is finished for the Agricultural, clothing and textiles Sector but also show the replacement between agricultural and clothing, textile Industry after the Vietnam government try to change structure of economy from the economy depend on agricultural in to industrialize economy. Furthermore, This paper also show that during 1996 to 2007 Vietnam government try to change economic structure from the economy depend on agricultural in to industrialize economy. However, with the higher output of industries like machinery, other manufacturing ..., especially textile and clothing industry the income of employee still not improve than before. Furthermore, the earning multiplier as well as the value adds multiplier of the textile and clothing are lower

and look like decrease compare with agriculture sector. This study also helps the policy makers have been better overview of Vietnam's economy.

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