

AGRICULTURE OUTPUT GROWTH IN EAST JAVA: AN INPUT-OUTPUT ANALYSIS BETWEEN 1985 – 1990 AND 1994-2000¹

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ABSTRAK

Studi pertumbuhan output di Jawa Timur bertujuan untuk mencari sumber-sumber pertumbuhan output dan mengidentifikasi bagaimana sektor pertanian yang diharapkan sesuai dengan tujuan pembangunan ekonomi. Menggunakan tabel input output tahun 1985-1990 dan 1994-2000 menunjukkan bahwa sektor pertanian adalah sektor yang mempunyai pertumbuhan output tertinggi ketiga di Jawa Timur, Melalui model dekomposisi Kubo dan Robinson menunjukkan bahwa sumber pertumbuhan output disebabkan oleh perluasan permintaan domestik dan subsektor tanaman pangan adalah subsektor yang mempunyai pertumbuhan tertinggi. Pertumbuhan tanaman pangan tergantung pada permintaan domestik dan pertumbuhan tanaman perkebunan, tergantung pada permintaan ekspor. Analisis ini menunjukkan bahwa industrialisasi pertanian adalah sektor utama dalam mendorong pertumbuhan ekonomi di Jawa Timur

Kata kunci: analisis input output, model permintaan dekomposisi, pertumbuhan output sektor pertanian

ABSTRACT

Study of agriculture output growth in East Java was aimed to find the sources of agriculture output growth and to identify how the agriculture can be expected to contribute to economic development objectives. Using input output tables in years 1985-1990 and 1994-2000 showed that the agriculture is the third highest output growth in East Java Province. By demand decomposition model of Kubo and Robinson of the input-output analysis indicated that the sources of agriculture output growth is due to the domestic demand expansion and the food crops sub sector as the highest growth. The food crops growth was mostly depend on the domestic demand and the estate crops was mostly depend on the export demand. The analysis showed that the agriculture industrialization will be the leading sector to achieve the economic growth in East Java Province.

Keywords: input output analysis, demand decomposition model and agriculture output growth

INTRODUCTION

Background

Agriculture has important roles in accumulating capital but there is assumed to be surplus labor in the rural/ agriculture sector will move into industry (Dowling and Valenzuela, 2004). However, the Indonesian economy showed that the contribution of agriculture to GDP decrease but the employment in agriculture is still quite large. The decrease of excess labor in agriculture is related to the process of industrialization and indicated to the range of developed and developing countries.

One possible strategy to improve the economy such as Indonesia which employs its labor quite large in agriculture is through the development of agro-industry (Fatah, 2007). In developed countries, there has been significant growth in the non-farm sector, which increased non-farm employment and raised urban wages. This created some disparity between farm and non-farm income and produced incentives for a large

labor migration from farms to urban areas (Chavas, 2001). Some research in economic development for several countries enlightened that there is an economic coherence between agriculture, industry and service development (Zhang and Felmingham 1997). Agricultural development successes in providing staple food for the people will spur industry and service sector to accelerate economic transformation.

The formulation of agro-based industry development was done after Indonesia has reached food self sufficiency especially rice in 1986 but most argued that agriculture still in underdeveloped as the agro industry still in undeveloped. Before year 2002, East Java province adopted the national policy as the centralized government consequences. In 1992, Indonesia introduced the agriculture development based on agribusiness development was patterned to increase the forward and backward linkage as the statement of agribusiness based of agriculture development. In the 1994/95, East Java initiated the agro based industry development as the

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consequences of the increase of agriculture production (Repelita VI 1994/95 - 1998/99) So in the period 1994 – 2000 the agriculture development with a strong emphasis on the continuing the agriculture production increasing which focused on agro-based industry and to increase export.

The agriculture growth has been identified as the key success of development in developing countries, such as Indonesia since most of the people earned in agriculture. The high economic growth will create the high domestic demand as well as its income growth (Mellor, 1966). Several scholars believed that the structural change of agriculture to industry will relatively reduce the agriculture role in the economy but keep the domestic demand and export demand to increase absolutely (Mellor, 1966 and Chenery, 1979). This situation also indicated by Hoselitz (in Ruttan, 1966) which stressed the agriculture sector will develop if the export demand increase and/or the economic growth will effect to the domestic industry improvement. The potential of domestic industry in Indonesia, especially in East Java is agro based industry since the agriculture still dominant in the economy.

There are a few studies that examined the structural changes of the economy using IO (input output) such as Rashid and Elameer (1999) in the Malaysian case. However the Indonesian case is still quite rare, particularly in East Java.

Aims of the Study

This paper seeks to verify the allocation of the source of output growth in agriculture and how the sources can be expected to contribute to economic development objectives. The East Java province was used as the object analysis since the province has the largest farmer household in Indonesia was accounted at 4.1 million household or about 19.33% of Indonesian household farmers (Central Bureau of Statistic, 2003).

METHODOLOGY

In this study, a input output (IO) analysis was used to identify the agriculture output growth in East Java province. The input output tables from two periods (1985 to 1994; and 1994 two 2000) based on producer price transaction. The IO table provides the relation between supply and demand which output supply was determined by domestic demand and export and demand was originated from input for industry and final demand.

The agriculture output growth analysis of East Java province is similar to the analysis of Lee and Schuler (1993) which applied to the growth and structural change of agro industry in US. Lee and Schuler applied the Kubo, Robinson and Syrquin model, that is, the comparative analysis a cross country of multi sector in US (Dervis et al, 1982). The equation of model is based on open leontief system, when demand is equal

to supply, the equation could be written as follow:

$$X_i = D_i + W_i + E_i + M_i \dots\dots\dots(1)$$

Where : X_i = total output
 D_i = domestic demand
 W_i = intermediate demand
 E_i = export demand
i = the *i* of agriculture sector in East Java province

Intermediate demand could be determined by multiplying input coefficient with the amount of output (production), mathematically, $W = AX$ (where *A* is coefficient matrix of total I - O). While import ratio calculated as comparison between import to total domestic supply (Chenery, 1979), mathematically: $m_i = M_i / (D_i + W_i)$, thus equation 1 could be written as:

$$X = D + AX + E - m(D + AX) \dots\dots\dots(2)$$

$$= (I - \mu A)^{-1} (\mu D + E)$$

Where $\mu = I - m$ is a diagonal matrix from domestic supply ratio and $(I - \mu A)^{-1}$ is an inverse leontif matrix (domestic multiplier matrix). The output variables (*X*), domestic demand (*D*), and export demand (*E*) of *i* th sector, are placed in column vector of *i* x 1 in which filled by sector of *i*-th variable.

The same formula also used by Rashid and Elameer (1999) in decomposing output growth by using Kubo and Robinson approach (1979). They assumes that import coefficient is the same as the import from intermediate input and final demand since the IO tables did not differentiate the allocation of import from intermediate input and final demand.

Denoting the change in a variable from two 2 time spot (1 and 2), then total output growth decomposition from equation 2 and the result of manipulation could be formulated as follows:

$$\delta X = X_2 - X_1$$

$$\delta X = (I - \mu A)^{-1} (\mu \delta D + \delta \mu A + \delta E) + (I - \mu A)^{-1} (\mu \delta A + \delta \mu A)$$

$$(I - \mu A)^{-1} \mu \delta D + E) \dots\dots\dots(3)$$

In which notation 1 shows year 1994 and notation 2 stands for year 2000.

The equation (3) stated that the change of total demand can be decomposed to the growth output sources can be written as:

$$\delta X = (I - \mu A)^{-1} (\text{the change in domestic demand})$$

$$+ (I - \mu A)^{-1} \delta E (\text{the change in export demand})$$

$$+ (I - \mu A)^{-1} \mu \delta A X (\text{the change in intermediate input})$$

$$+ (I - \mu A)^{-1} \mu \delta A X (D + AX) (\text{the change in domestic supply ratio or import substitution})$$

Rashid and Elameer (1999) explained that (1) the change in domestic demand is the total effect of the output from each sector of expansion of domestic demand; (2) the change in export demand is the total effect on the output from each sector of increasing exports in all sectors; (3) the change in intermediate input is the total effect on the output from each sector

of changing input-output coefficient throughout the economy and (4) the change in domestic supply ratio or import substitution is the total effect on the output from each sector of increasing the proportion of domestic demand in all sectors that is supplied from domestic production instead of foreign sources.

RESULT AND DISCUSSION

This analysis used from two sources. The analysis of the period 1985 to 1990 in the East Java was cited from Anindita² (1997) and the analysis of the period 1994 to 2000 was calculated from Input Output tables 1994 and 2000 was taken from the East Java Statistics office. There is different for riel price between the analysis period 1985-1990 and the period 1994-2000. The period 1985 - 1990 was used their 1985 constant prices and the period 1994 - 2000 was used their 1993 constant prices. However, the analysis is expressed in the percentage so the real evidence will unchange.

The overall analysis of agriculture output growth compares the two periods to identify the structural shifts, if any, and identify the major sources of growth and relate to the development objectives.

Economy structure in East Java during 1985 - 2000

The East Java province has undergone substantial change as it responded to various government policy and strategy. The role of agriculture of GDP has declined from about 31.6% in year 1985 to be about 26.7% in year 1990 and continue to decline at about 18.3% in the years 1994 and at about 17.8% in year 2000 (see table 1.)

Table 1. The percentage of GDP and employment in East Java, 1985 - 2000

Sectors	1985	1990	1994	2000
Agriculture				
% GDP	31.6%	26.7%	18.3%	17.8%
% employment	54.8%	46.1%	24.8%	25.7%
Industry				
% GDP	16.6%	20.3%	25.6%	24.1%
% employment	9.7%	12.0%	7.1%	7.8%
Trade, hotel and restaurant				
% GDP	19.3%	21.7%	13.5%	15.7%
% employment	13.2%	18.7%	25.6%	24.1%
Trade, services and others				
% GDP	32.5%	31.3%	42.6%	42.4%
% employment	22.3%	23.2%	42.6%	42.4%

Source: various issues from Central Bureau Statistic

The percentage of employment in agriculture also declined from about 54.8% in year 1985 to be 25.7% in year 2000. These experiences indicated that agriculture still occupied the highest employment since the declining incidence of the GDP role was not coinciding to a declining trend of the employment. The industry

² Anindita (1997) calculated the decomposition of total output growth in the East Java for period 1985 to 1990 with the same methodology.

which mostly consist of agro industry was experiencing to increase but in small portion that is from about 16.6% in year 1985 to be about 20.3% in year 1990 and continually increase up to 25.6% in year 1994. However, the employment absorption was increasing from about 9.7% to 12.0% and relatively still constant at around 7% in years 1990 and 2000. This experienced implied that industrialization in agriculture was not succeed in absorbing the surplus labor from agriculture.

Source of regional output growth

• Period 1985 - 1990

The highest output growth sources in the East Java for period 1985 - 1990 was driven by domestic demand at about 33.7% and followed by intermediate input, export demand and domestic supply ratio (Figure 1). The domestic demand expansion, particularly in the agriculture and agro-based industry is the leading sector in the East Java Economy (see table 2) whereas other sectors have only a small effect to the output growth. The mining and services sectors were contributing only about 0.3% to the total output growth. So within the all sectors, the agriculture and agro-based industry were found to be the leading sector in the East Java economy in the period 1985 - 1990 and the two sector was mostly driven by domestic demand and intermediate input.

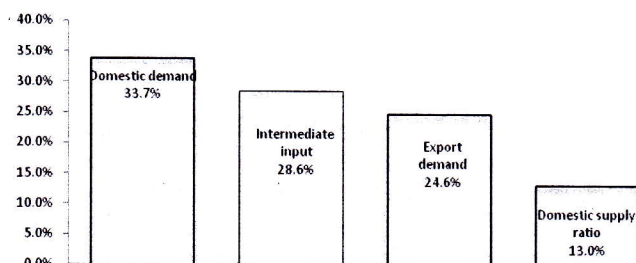


Figure 1. Decomposition of East Java Output Growth Sources, 1985 - 1990

Table 2. Decomposition of output demand to total output growth in East Java province, 1985-1990 (%)

Sectors	Output growth sources:				Output total change
	Domestic demand	Intermediate input	Export demand	Domestic supply ratio	
Agriculture	10.2%	12.6%	8.1%	5.4%	36.3%
Mining	0.0%	0.3%	0.0%	0.0%	0.3%
Agro-based industry*)	23.5%	4.7%	16.6%	7.6%	52.4%
Non agro-based industry	0.0%	10.7%	0.0%	0.0%	10.7%
Services	0.0%	0.3%	0.0%	0.0%	0.3%
Total	33.7%	28.6%	24.6%	13.0%	100.0%

*) includes hotel and restaurants

• Period 1994 - 2000

The sources of total output growth of East Java in the period 1994 - 2000 was illustrated in the figure 2. In the figure 2, the export demand is the highest contribution to the total output growth during 1994 - 2000 and it was contributed at 52.54% and followed by the domestic demand, intermediate input and domestic supply ratio (import substitution) as much as 43.31%, 2.10% and 2.05%, respectively. These implied that export demand

and domestic demand is the economic driver of the East Java province.

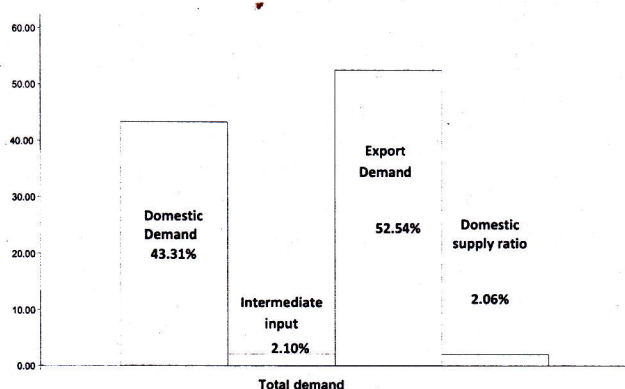


Figure 2. Decomposition of East Java Output Growth Sources in period 1994 - 2000

From the decomposition of output growth within 5 sectors (see Table 3) showed that agro-based industry was accounted at 30.48% of total output changes which sources of output growth mainly from export demand that is about 21.48%. The highest output growth sources contributed from export demand and domestic demand was approximately 52.55% and 43.31%, respectively. So the period 1994 to 2000, services and agro-based industry would be the leading sector of the East Java Province.

Table 3. Decomposition of output demand to total output growth in East Java province (%). (1994 – 2000)

Sectors	Output growth sources:				Output total change
	Domestic demand	Inter-mediate input	Export demand	Domestic supply ratio	
Agriculture	10,72	0,93	5,35	-1,04	15,95
Mining	-0,03	1,31	1,84	-0,81	2,31
Agro-based industry*)	6,46	0,71	21,48	1,83	30,48
Non agro-based industry	0,77	0,28	7,44	2,02	10,50
Services	25,39	-1,13	16,44	0,05	40,75
Total	43,31	2,10	52,55	2,05	100,00

*) includes hotel and restaurants

The result in Table 1 also showed that the East Java economy is export oriented and the domestic demand is the second market for economy growth of East Java.

From experience of the two periods indicated that the agro-based industry would be the leading sector in East Java province and it has found that the source output growth was shifted from domestic demand and intermediate input driven to export demand and domestic demand driven

Sources of agricultural output growth

• Period 1985 to 1990

Results of the analysis showed that domestic demand, intermediate input, export demand and supply output ratio has a positive effect to the total agriculture output growth in the period 1985-1990 in 5 aggregations. The domestic demand and intermediate input were the highest driven and contributing at about 34.4% and

22.4%, respectively.

From the table 3 illustrated that the food crops have contributed the highest agriculture growth in that period. It was accounted at about 46.8% and it followed by estate crops, livestock and its product, fishery and forestry at about 29.9%, 18.2%, 2.6% and 2.5% respectively. The domestic demand and intermediate input demand is the highest driven of the all agriculture output growth. The highest domestic demand contributed by food crops at about 22.87% and followed by livestock and its products by 6.8%. The highest intermediate input contributed by estate crops was about 16.7%. This experience expressed to the consequence of the government policy stressed to the food crops production to attain the self sufficiency.

Table 3. Decomposition of agriculture output growth in 1985 - 1990 in 5 sector aggregation (%)

Sectors	Output growth sources (%):				Total Output Change (%)
	Do-mestic demand	Inter-mediate input	Export demand	Domestic supply ratio	
1. Food crops	22.8 (48.7)	10.7 (23.0)	15.0 (32.0)	-1.7 (-3.64)	46.8%
2. Estate crops	4.03 (13.5)	16.7 (55.8)	1.14 (3.81)	8.07 (27.0)	29.9%
3. Livestock and its products	6.8 (37.5)	5.9 (32.7)	5.2 (28.8)	0.2 (1.1)	18.2%
4. Forestry	0.4 (14.35)	0.5 (20.54)	0.6 (23.38)	1.1 (41.73)	2.5%
5. Fishery	0.52 (20.22)	0.52 (19.99)	0.59 (16.04)	1.05 (43.76)	2.6%
Total	34.5%	34.4%	22.4%	8.7%	100%

Note: Figures in the parentheses indicate contribution as percentage of total output growth for its sectors
Source : Anindita (1997)

In the output growth of agriculture sector which consist of 21 sectors showed that paddy (1) is the highest contribution to the agriculture output total growth at about 35.4% (see Table 4). This indicated that paddy was the main focus of Indonesian government to attain the self sufficiency. The vegetable and fruits as the second highest was contributing at 11.7% to the total growth. The other sectors have a positive effect to the total growth in agriculture except other food crops (5) and clove (10).

The other food crops is consist of soybean and etc which, the East Java was fulfilled the domestic supply mostly obtain from import. The clove has a negative effect at - 4.1% indicated that a policy effect of government to clove. At the period 1985 – 1990, the government issued the monopoly of clove through BPPC (*Badan Penyelenggara Pemasaran Cengkeh* or Marketing Supporting Board for Clove). The BPPC practices a monopoly of clove has resulted to the lower price of clove in the farm and then reduced the supply of clove.

• Period 1994 to 2000

The agricultural output growth analysis in period 1994 - 2000 has shifted from the period 1985 – 1990. The results of total agriculture output growth in the

Table 4. Decomposition of agriculture output growth in 1985 - 1990 in 21 sector aggregation

IO code	Sector	Sources of output growth				Total Output Change (%)
		Do-mestic demand	Inter-mediate input	Export demand	do-mestic supply ratio	
1	Paddy	50.2%	34.3%	14.8%	0.7%	35.4%
2	Maize	32.5%	37.0%	34.1%	-3.6%	4.7%
3	Cassava	33.1%	32.1%	34.7%	0.1%	3.0%
4	Vegetables and fruits	43.2%	13.4%	44.3%	-0.8%	11.7%
5	Other food crops	32.6%	69.3%	-22.3%	20.5%	-8.3%
6	Sugarcane	4.5%	92.9%	2.6%	0.0%	9.3%
7	Coconut	38.3%	-111.3%	18.6%	154.4%	1.0%
8	Tobacco	19.4%	71.3%	1.0%	8.2%	8.9%
9	Coffee	4.2%	37.5%	4.0%	54.3%	7.1%
10	Clove	76.0%	81.7%	-2.7%	-55.0%	-4.1%
11	Other estate crops	-24.6%	50.0%	2.8%	71.9%	8.0%
17	Livestock	18.9%	24.4%	53.7%	3.0%	6.6%
18	Slaughtering	63.1%	32.3%	4.6%	0.0%	7.2%
19	Poultry and its products	23.2%	45.8%	31.0%	0.0%	4.3%
20	Wood	14.4%	20.5%	23.4%	41.7%	2.5%
21	Fishery	20.2%	20.0%	16.0%	43.8%	2.6%
Total		28.1%	34.8%	22.3%	14.9%	100.0%

period 1985 to 1990 indicated the highest contribution of output changes in agriculture sector are the domestic demand and the export demand and the intermediate input has shifted to the domestic demand and export demand but the intermediate input has a low effect to the output growth in the period 1994 - 2000 (see Table 3). In the period 1994 - 2000, the domestic demand and the export demand are the highest contribution to the total agriculture growth, contributing about 67.8% and 33.50%, respectively. However, the highest sector contribution has similar sectors that are food crops and estate crops which contributing 56.0% and 21.6%, respectively. This result is consistent with the main focus of government to the food sector for the both periods.

Table 6. Decomposition of agriculture output growth sources in 5 subsectors aggregation (%)

Agriculture sub sectors	Output growth sources (%):				Total change (%)
	Do-mestic demand	Inter-mediate input	Export demand	Domestic supply ratio	
1. Food crops	39.7 (71.1)	1.6 (2.9)	17.3 (30.9)	-2.7 (-4.9)	56.0
2. Estate crops	9.3 (42.9)	2.8 (13.2)	12.3 (57.0)	-2.8 (-13.1)	21.6
3. Livestock and its products	12.1 (105.1)	1.0 (8.5)	1.3 (11.7)	-2.9 (-25.2)	11.5
4. Forestry	0.2 (8.0)	0.2 (8.1)	1.8 (89.7)	-0.1 (-5.8)	2.0
5. Fishery	5.9 (66.0)	0.3 (2.9)	0.7 (8.3)	2.1 (22.8)	9.0
Total	67.18	5.85	33.50	-6.53	100.00

From table 7, the sources of agriculture output growth was consisting of 21 sectors. The highest output growth has a same result with the period 1985 - 1990 that is contributed by paddy (1) of an estimated 25.9% in period 1994 to 2000. The others high output growth consisted of other food crops (5), coconut (9), poultry and its products (20), fishery (21) and maize (2)

expanded approximately 19.6%, 12.2%, 9.4%, 9.0% and 8.7%, respectively.

The negative growth of agriculture are experienced by vegetables and fruits (5) and slaughtering (19) were lost approximately at -1%, and -1,1% respectively. This also consistent with the results of domestic supply ratio of those subsectors has a positive number. This implied that those subsectors still fulfillment from import. The trade liberalization in Indonesia was initiated since 1985 when some of duty of agriculture import was assigned at 0-5% and result to some of agriculture product, particularly vegetables and fruits.

The interesting number of domestic demand of sectors: sugarcane (6) and other estate crops (11) has a negative value. This implied that those subsectors potentially stimulated from export demand. Such as the sugarcane is processed to be sugar and the East Java is the largest production sugar in Indonesia. However, the some sectors such as other food crops has negative number for domestic supply ratio has consistent to the result of them, that indicated the fact of the most of other food crops production such as groundnut was exported, but some beans such as soybeans is still imported. At that period the trade liberalization was done and when the international price was declining and result to the lower of the domestic price as well as the international price.

Table 7. The sources of agricultural growth of 21 sectors in East Java (1994 - 2000), in %

IO code	Sector	Sources of output growth				Total output growth
		Domestic demand	Inter-mediate input	Export demand	domestic supply ratio	
1	Paddy	101.3	0.7	0.8	-2.9	25.9
2	Maize	13.9	13.8	72.5	-0.3	8.7
3	Cassava	30.3	2.7	66.4	0.6	2.8
4	Vegetables and fruits	-33.9	-6.5	-21.3	161.7	-1.0
5	Other food crops	57.0	0.4	44.7	-2.1	19.5
6	Sugarcane	-18.3	23.7	106.8	-12.3	4.8
7	Coconut	75.7	-0.6	16.7	8.2	12.2
8	Tobacco	-15.4	-161.0	117.1	159.3	2.0
9	Coffee	161.3	311.8	66.8	-439.9	0.9
10	Clove	43.9	357.6	219.9	-521.5	0.3
11	Other estate crops	-29.1	75.3	115.7	-61.9	1.5
17	Livestock	63.2	9.6	29.5	-2.2	3.1
18	Slaughtering	-51.6	-10.5	-63.4	225.5	-1.1
19	Poultry and its products	101.6	6.0	-2.7	-4.9	9.4
20	Wood	8.0	8.1	89.7	-5.8	2.0
21	Fishery	66.0	2.9	8.3	22.8	9.0
Total		67.2	5.8	33.5	-6.5	100.0

Sources of agro-industry output growth

• Period 1985 - 1990

The main sources of agro industry growth were contributing from domestic demand and export expansion. The both was contributing at 44.6% and 31.6%, respectively. The increase output growth in agro industry substantially was contributed by manufacture of cigarette (24) at about 28.7%. Manufacture of food

preserving and processing (17) and manufacture of other foods (22) as the second ranked, contributing 15.6% and 16.7% respectively.

Table 8. The sources of agro industry growth in East Java (1985 - 1990), in percentage.

IO code	Agro-based industry sector	Sources of output growth :				Total output growth
		Domestic demand	Inter-mediate input	Export demand	domestic supply ratio	
17	Manufacture of food processing and preserving	38.8	1.7	45.5	14.0	15.6
18	Manufacture of oil and fat	31.8	5.8	28.2	34.1	6.1
19	Rice milling	66.1	18.0	15.7	0.2	9.1
20	Manufacture of flour, all kinds	30.4	9.5	43.8	16.3	6.4
21	Sugar factory	48.4	5.2	38.6	7.8	9
22	Manufacture of other food products	39.9	8.1	30.5	21.5	16.7
23	Manufacture of beverages	15.8	38.2	12.3	33.7	2.5
24	Manufacture of cigarette	52.7	4.2	41.7	1.4	28.7
25	Restaurant and hotel	40.7	35.4	-38.1	62.0	5.9
Total		44.9	8.9	31.6	14.6	100

The high output from manufacture of food processing and preserving due to the increase of food crops production. The Indonesian was attaining the food self-sufficiency since 1985 but afterward the increase of the production did not fulfill the increase of consumption.

• Period 1994 - 2000

The sources of agro-industry output growth was mainly from the growth of export demand and domestic demand. The export demand is the highest growth with contributing at 68.82% and the domestic demand is the second highest expansion was accounted for about 36.33%. This result is consistent to the results of East Java economy total growth sources (see Table 1). But there is a structural shift growth from the domestic demand driven in the period 1985 – 1990 to be the export demand driven in the period 1994 – 2000.

The results of agro-industry growth showed that the manufacture of cigarette is the highest total output growth in East Java as much as 48.71% of total output growth which originated from that manufacture. This is a similar finding with the previous period since the manufacture cigarette was growing faster at that both period (1985 – 1990 and 1994 - 2000) in East Java.

The negative growth of some manufacture indicated that the period 1994 – 2000, Indonesia was hit by the financial crisis. The crisis started in 1997 and it was recovery by 2000. The crisis has affected the negative growth of some of agro-industry, particularly the manufacture of beverages since most of its equipment obtained from import,

Table 9. The sources of agro industry growth in East Java (1994 - 2000), in percentage.

IO code	Agro-based industry sector	Sources of output growth :				Total output growth
		Domestic demand	Inter-mediate input	Export demand	Domestic supply ratio	
17	Manufacture of food processing and preserving	-43.1	-43.3	184.9	1.5	2.8
18	Manufacture of oil and fat	75.9	0.5	5.1	18.6	4.1
19	Rice milling	107.9	-4.8	6.3	-9.3	7.0
20	Manufacture of flour, all kinds	30.7	5.2	58.1	6.0	6.9
21	Sugar factory	40.0	-2.8	114.7	-51.9	1.3
22	Manufacture of other food products	66.6	-2.5	46.1	-10.2	2.7
23	Manufacture of beverages	-1.4	0.3	-110.3	211.4	-0.3
24	Manufacture of cigarette	3.0	4.2	103.2	-10.4	48.1
25	Restaurant and hotel	76.8	0.8	23.0	-0.6	27.4
Total		36.3	0.9	68.8	-6.1	100.0

CONCLUSION AND SUGGESTION

These experiences indicated that agriculture still occupied the highest employment since the declining incidence of the GDP role was not coinciding to a declining trend of the employment. The industry which mostly consists of agro industry was experiencing to increase but in small portion that is from about 16.6% in year 1985 to be about 20.3% in year 1990 and continually increase up to 25.6% in year 1994. However, the employment absorption was increasing from about 9.7% to 12.0% and relatively still constant at around 7% in years 1990 and 2000. This experienced implied that industrialization in agriculture was not succeed in absorbing the surplus labor from agriculture.

There is a structural shift growth from the domestic demand driven in the period 1985 – 1990 to be the export demand driven in the period 1994 – 2000. However, from the experience of the two periods indicated that the agro-based industry would be the leading sector in East Java province and it has found that the source output growth was shifted from domestic demand and intermediate input driven to export demand and domestic demand driven

This experience expressed to the consequence of the government policy stressed to the food crops production to attain the self sufficiency and resulted to the highest output growth of food crops and manufacture of food processing and preserving

The results of agro-industry growth showed that the manufacture of cigarette is the highest total output growth in East Java in the period 1985 – 1990 and 1994 – 2000.

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