

Agricultural Sector Investment Impact of Economy Province Maluku

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Abstract

Development of the agricultural sector is part of the economic development undertaken over the years. The agricultural sector used as a leading sector in improving society and government revenue. One response indicated by the central government is a change of policy more autonomy to the regions, namely the granting of authority to local governments to determine the direction of regional development policies that are expected to affect national development targets, such as economic growth, job creation and distribution of income will be affected by the investment. To see the impact of agricultural investment on the economy of Maluku used two approaches that approaches based on data input and output are formed using process simulation approach to the agricultural sector investment activities. Impact Investment agricultural sector is capable of forming revenues of 455.00 billion dollars and form as much as 333 314 people jobs. The role of the agricultural sector is still quite dominant in the Moluccas economy, while the downstream industry sector has not evolved significantly. This condition is a challenge and an opportunity for economic development of the Moluccas. Development opportunities are open to industrial processing and preserving of fish and other food processing. This condition will be achieved if accompanied by investment, improving the quality of human resources, entrepreneurship, and the development of appropriate technology.

Keywords: Output, Income, and Labor

1. Introduction

Development of the agricultural sector is part of the economic development undertaken over the years. The agricultural sector used as a leading sector in improving society and government revenue. One response indicated by the central government is a change of policy more autonomy to the regions, namely the granting of authority to local governments to determine the direction of regional development policies that are expected to affect national development targets, such as economic growth, job creation and distribution of income will be affected by the investment.

Formation and accumulation of capital or investment is seen as one of the factors and also a major factor in economic development. This is due to the formation of capital will lead to the full utilization of existing resources. So that the capital formation will result in increased size of the national output. Investing is not just only increase national output but also employment opportunities.

During this time, the investment in the agricultural sector is considered less profitable as well as an activity that is deemed to be and continue to be traditional in nature. By some, the development in the agricultural sector is considered less can accelerate the progress of a country. Industry sector which is considered as the most potential in generating profits as well as accelerating economic growth and progress of a country. In fact, the industrial sector will go well, when the sector of agriculture as the basis for the Indonesian economy to grow and evolve with formidable. This is due to that the agricultural sector has a very extensive linkages with other sectors in the economy of Indonesia.

As is known, that the agricultural sector during the crisis, in 1998, is a sector that still exist and the savior for the Indonesian economy. So should all parties, especially the government as the party is obliged to provide the dissemination and promotion of investment for investors in Indonesia as well as those who give consent to investment and should give special attention to agricultural development towards more advanced agriculture. One is by increasing investment in the agricultural sector (BPS, 2007).

2. Methods

2.1. Methods and Data Analysis

The used of Data in this research is secondary data types. The data used is Input Output for Moluccas in 2007 on the basis of producer prices. The method uses a mathematical economic research and analysis Input Output assisted with the Excel program.

2.2. Input-Output Analysis

Input-output analysis is the region's economy analysis in a comprehensive manner as to see the connection between economic sectors in the region as a whole. Thus, in case of changes in the level of production on a

particular sector, the impact on other sectors. Moreover, this analysis is also related to the level of prosperity of the community through the primary input (value-added). That is, due to changes in the level of production in these sectors, it can be seen how much the prosperity of society increases or decreases. Each product must require input so that the product can be produced. The results of the product can be consumed directly or as an input to produce other products or inputs for the same product in the next round, for example seedlings. Input can be the output of other sectors that are often referred to as intermediate inputs in the form of raw materials and primary inputs such as labor, expertise, equipment, and capital. Factor s of production will be rewarded the public revenue in accordance with the role or involvement. This illustrates that the sectors in the economy of a region intertwined with each other (Tarigan, 2006).

Input-output table is a matrix that photographing economic activity of a region or country at a particular time (1 year) of economic activity that records transactions related input output across sectors and was first introduced by W. Leontief (Nazara 1997 Budiharsono 2001, Muchdie 2002). Input-output table is able to estimate the impact of the development of a sector such as in this study agriculture in the area/country as a whole to the public revenue (Miller & Blair 1985). Input output table consists of four quadrants: (1) Intermediate quadrant (Quadrant I) is a quadrant demand Between the flow of goods and services used in the production process, (2) Final demand (quadrant II or Gross Domestic Regional Product) is the end of the transaction request originated of production output and imported into a variety of uses, (3) primary input quadrant (quadrant III = value added), i.e. the use of primary inputs that generate gross regional domestic product, and (4) primary input-finals demand quadrant (quadrant IV) that the transaction Between the direct primary input to final demand without transmission mechanism (rarely used).

For rows :

$$\sum_{i=1}^n X_{ij} + F_i = X_j \quad \forall i = 1, 2, 3, \dots, n \dots \dots \dots (1)$$

where: X_i = Number of total output of the -i sector (row)

X_{ij} = Total output of the -i sector purchased the -j sector

F_i = total final demand sector output -i

For column

$$\sum_{j=1}^n X_{ij} + V_i + m_j = X_i \quad \forall j = 1, 2, 3, \dots, n \dots \dots \dots (2)$$

Where : X_j = Number of total output of sector j (column)

X_{ij} = Total output of the i-th sector are sold to sector j

V_j = Total added value to the sector-j

m_j = Import sector j

$i = j = 1, 2, 3, \dots, n$

Flow between sectors can be transformed into the coefficients assuming fixed purchase amount.

$$a_{ij} = \frac{x_{ij}}{X_j} \dots \dots \dots (3)$$

Or $x_{ij} = a_{ij} X_j \dots \dots \dots (4)$

By inserting equation (4) into equation (1) obtained:

$$\sum_{i=1}^n a_{ij} x_j + F_i = x_j \quad \forall i = 1, 2, 3, \dots, n \dots \dots \dots (5)$$

In matrix notation the equation (5) can be written, as follows:

$$AX + F = X \dots \dots \dots (6)$$

Basic relationship of input output table:

$$(I-A)^{-1} F = X \dots \dots \dots (7)$$

Leontief inverse matrix $(I-A)^{-1}$, which is how the increase in the production of a sector will lead to the development of other sectors.

2.3. Impact Investing

To see the impact of agricultural investment on the economy of Maluku used two approaches that approaches based on data input and output are formed using process simulation approach to the agricultural sector investment activities.

a. Impact on Output formation (X_{fid})

$$X_{fid} = (I-A)^{-1} (fid) \dots \dots \dots (8)$$

b. Impact on Employment (Lik)

$$L_{ik} = e (1-A)^{-1} (fid) \dots\dots\dots (9)$$

c. Impact on income (I)

$$I = \sum P x_i \quad \sum V x_i \quad xV_{fid} \dots\dots\dots (10)$$

in which:

$(1-A)^{-1}$ = inverse matrix Leontif

e = coefficient matrix labor

V = matrix coefficient value added

fid = value of agricultural investment

P_{xi} = value of wages and salaries in the sector i domestic transactions matrix

V_{xi} = gross value added sector i in domestic transactions matrix

2.4. Simulation analysis

An impact analysis can capture the effect of exogenous variables in a relative sense. To determine the impact of changes in exogenous variables on the output, income, and employment, the simulation analysis. In this case the injection will be given scenario and the reallocation of the exogenous variables, namely investment. Scenario simulation can be done as follows:

1. Simulation Investment Fund Reallocation
 - a. Reallocation of industrial sector investment by 10 percent being diverted to the agricultural sector.
 - b. Building sector investment reallocation of 10 percent is diverted to the agricultural sector.
2. Simulation Increased Investment Funds
 - a. Injection investment of 10 percent is allocated to the agricultural sector.
 - b. Injection investment of 10 percent of the food crop sector
 - c. Injection investment of 10 percent of the plantation sector
 - d. Injection investment of 10 percent of the livestock sector
 - e. Injection investment of 10 percent of the fisheries sector
 - f. Injection investment of 50 percent of the agricultural sector

3. Discussion

3.1 . Economic Structure Maluku

3.1.1. Structure of Supply and Demand

Input-output table is one of the instruments of data that can be used for various purposes of economic analysis. One of them can be used to look at the structure of demand and supply and services in the Moluccas. In the terminology of the IO tables, the demand is differentiated according to the request and the final request. Request include a request by the production sector in order to meet the needs of production, while the final demand is the demand that is used to meet domestic consumption and consumer end outside the territory of the province of Maluku. While the supply of goods and services consist of domestic production (domestic output) and imports, both originating from other regions and abroad.

In 2007, the demand for goods and services in the province of Maluku reaches 9:09 trillion. Of the total value of these requests majority (59.87 percent) is the domestic final demand by consumers and by 1.79 trillion, or by 19.67 percent to meet the growing demand by consumers outside the province of Maluku or in exports, the balance of 1.86 trillion rupiah, or by 20:46 percent is demand by sectors of production for the needs of production activities in Maluku province. To meet the demand for goods and services, Maluku province away from domestic production at 7:36 trillion, or by 80.91 percent, while the rest of 19:09 per cent had to be imported from outside the province of Maluku.

Observation of the structure of supply and demand for each sector, shows that the agricultural sector group of the bid which totaled 2.36 trillion dollars by 96.87 percent capable supplied from domestic production, only by 3.13 per cent comes from outside the region. Of the amount of the offer is 14.90 percent fraction allocated to meet the demand, 43.73 per cent for domestic consumption, and the sides of 41.37 percent for export. From the composition of the bid can be said that for agricultural products dependency Maluku province with other regions is very small, due to meet existing demand is mostly generated in the province of Maluku. While the composition of demand, production of agricultural products in the Moluccas are almost evenly allocated to meet domestic consumption and export, only a small portion is further processed for production activities. The dominant agricultural sector in the province of Maluku is the fisheries sector, where the sector is largely used for domestic consumption demand and only a small portion is used as an input the food industry. This indicates that the production activities in Maluku province only uses less raw materials from the agricultural sector (less than 15 percent), most of his request to meet the demand from outside the province of Maluku.

In the mining and quarrying sector, existing supply of 0:54 trillion able to be provided or produced entirely in the domestic. Of the number of offerings, 0.15 trillion or 29.11 percent of allocated to meet production activities in Maluku and 39.15 percent to meet domestic consumption and the remaining 31.74 per

cent to meet the demand from outside the province of Maluku or exported.

Impact of Final Demand Against Establishment of Regional Output

From the calculation of the impact of the output of each sector of the economy is affected by final demand components as listed in Table 1 it can be seen that most of the output that is created in Maluku province formed due to the boost household consumption. Magnitude of the output value reached 7:36 trillion, trillion at 3:54 derived from household consumption. In other words, the role of household consumption in creating output reached 45.59 percent of the total output of which is formed in the province of Maluku.

Other components are also considerable influence in shaping the output is export and government consumption, these two components form the output of the Moluccas economy by 2:17 trillion dollars and 999.60 billion dollars. While other components of final demand investment, its influence on the formation of only the output of 651.39 billion dollars.

Table 1. Impact of Final Demand Against Establishment Economic Output by Sector (Million)

Code	Sector	Household	Government	Invest	Export	Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Agriculture	1.022.622,10	9.309,66	170.425,33	1.158.766,50	2.361.123,59
2	Mining and Quarrying	4.546,73	186,78	31.598,79	17.894,60	54.226,90
3	Processing industry	251.706,17	20.678,01	89.809,18	407.224,86	769.418,22
4	Electricity, Gas and water supply	53.858,40	3.605,09	2.204,89	3.153,69	62.822,08
5	Construction	34.637,90	2.915,50	208.413,65	5.168,66	251.135,71
6	Tread Hotels and Restaurant	1.106.291,26	35.283,27	110.862,84	428.922,18	1.681.359,55
7	Transportation and communication	573.002,75	19.232,93	33.502,79	136.096,79	761.835,26
8	Bank and Finances Institution	334.218,79	3.763,42	2.103,38	7.638,88	347.724,48
9	Services	159.345,73	904.629,77	2.467,69	5.759,83	1.072.203,01
	Amount	3.540.229,83	999.604,43	651.388,56	2.170.625,98	7.361.848,79

Source : Central Bureau of Statistics (BPS) Province, be tread

Table 2. Contributions Demand End To The Formation of Economic Output by Sector (Percent)

Code	Sector	Household	Government	Invest	Export	Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Agriculture	28,89	0,93	26,16	53,38	32,07
2	Mining and Quarrying	0,13	0,02	4,85	0,82	0,74
3	Processing industry	7,11	2,07	13,79	18,76	10,45
4	Electricity, Gas and water supply	1,52	0,36	0,34	0,15	0,85
5	Construction	0,98	0,29	32,00	0,24	3,41
6	Tread Hotels and Restaurant	31,25	3,53	17,02	19,76	22,84
7	Transportation and communication	16,19	1,92	5,14	6,27	10,35
8	Bank and Finances Institution	9,44	0,38	0,32	0,35	4,72
9	Services	4,50	90,50	0,38	0,27	14,56
	Amount	100,00	100,00	100,00	100,00	100,00

Source: Central Bureau of Statistics (BPS) Province Maluku, be tread

When we explore the impact of the final demand for the formation of output by sector, the greatest influence on the formation of the final demand of output in agriculture that reaches 2:36 trillion or by 32.07 percent, then the second and the third largest is trade, hotels and restaurants (1.68 trillion rupiah) and the services sector (1:07 trillion). The full impact of each component of final demand for the establishment of economic output in Maluku can be seen in Table 1 and 2.

3.2 Impact of Final Demand Creation Against Public Revenue

The impact of the final demand for the creation of income communities in Maluku had shown the same pattern with the creation of its output, influence the creation of public revenue in Maluku turns largely due to the influence of household consumption. Household consumption affect the creation of a revenue of 755.46 billion dollars. This component affects the generation of revenues in the Moluccas of 45.59 percent followed by exports and government consumption respectively by 25.58 and 22:28 percent. The remaining amount of 6:56 per cent is the influence of the investment.

Table 3. Impact of Final Demand Against Establishment Income Economy by Sector (Million)

Code (1)	Sector (2)	Household (3)	Government (4)	Invest (5)	Export (6)	Amount (7)
1	Agriculture	197.064,71	1.794,02	32.841,87	223.300,46	455.001,05
2	Mining and Quarrying	1.294,07	53,16	8.993,50	5.093,08	15.433,81
3	Processing industry	35.855,02	2.945,54	12.793,13	58.008,34	109.602,03
4	Electricity, Gas and water supply	12.514,30	837,66	512,32	732,78	14.597,06
5	Construction	3.035,83	255,53	18.266,36	453,01	22.010,73
6	Tread Hotels and Restaurant	268.703,28	8.569,83	26.927,09	104.179,43	408.379,64
7	Transportation and communication	120.620,38	4.048,64	7.052,53	28.649,16	160.370,72
8	Bank and Finances Institution	54.720,09	616,17	344,38	1.250,68	56.931,31
9	Services	61.658,92	350.046,98	954,87	2.228,77	414.889,54
	Amount	755.466,59	369.167,54	108.686,06	423.895,69	1.657.215,88

Source : Central Bureau of Statistics (BPS) Maluku Province, be tread

When we observe in the economic sector, the impact of the final demand for the creation of the largest public revenue occurred in the agricultural sector (455.00 billion dollars), the second largest and third place in the trade, hotel and restaurant and services sector respectively 414.88 billion and 408.38 billion. The full impact of each component of final demand for the creation of public revenue in Maluku province for each sector can be seen in Table 3 and 4.

Table 4. Percentage of Final Demand Against Establishment of Revenue by Sector Economics (Percent)

code (1)	Sector (2)	Household (3)	Government (4)	invest (5)	Export (6)	Amount (7)
1	Agriculture	26,09	0,49	30,22	52,68	27,46
2	Mining and Quarrying	0,17	0,01	8,27	1,20	0,93
3	Processing industry	4,75	0,80	11,77	13,68	6,61
4	Electricity, Gas and water supply	1,66	0,23	0,47	0,17	0,88
5	Construction	0,40	0,07	16,81	0,11	1,33
6	Tread Hotels and Restaurant	35,57	2,32	24,78	24,58	24,64
7	Transportation and communication	15,97	1,10	6,49	6,76	9,68
8	Bank and Finances Institution	7,24	0,17	0,32	0,30	3,44
9	Services	8,16	94,82	0,88	0,53	25,04
	Amount	100,00	100,00	100,00	100,00	100,00

Source : Central Bureau of Statistics (BPS) Maluku Province, be tread

3.3 Impact of Final Demand Creation Of Employment

From the foregoing description has explained that the workforce is one of the factors of production against the remuneration is one of the components of the primary input. So in accordance with the basic assumption of IO, the workforce has a linear relationship with the output. This means that the rise and fall of output in all sectors will affect the rise and fall of the number of workers in the sector.

Table 5. Workers Affected by Component Final Demand by Sector Economics (People)

Code (1)	Sector (2)	Household (3)	Government (4)	Invest (5)	Export (6)	Amount (7)
1	Agriculture	144.361	1.314	24.059	163.580	333.314
2	Mining and Quarrying	141	6	982	556	1.685
3	Processing industry	5.668	466	2.022	9.171	17.327
4	Electricity, Gas and water supply	1.882	126	77	110	2.195
5	Construction	1.774	149	10.676	265	12.865
6	Tread Hotels and Restaurant	32.362	1.032	3.243	12.547	49.184
7	Transportation and communication	18.833	632	1.101	4.473	25.040
8	Bank and Finances Institution	2.237	25	14	51	2.327
9	Services	12.894	73.202	200	466	86.762
	Amount	220.153	76.953	42.374	191.219	530.699

Source: Central Bureau of Statistics (BPS) Maluku Province, be tread

Table 6. Percentage of Workers Affected by Final Demand Components According to the Economic Sector (Percent)

Code (1)	Sector (2)	Household (3)	Government (4)	Invest (5)	Export (6)	Amount (7)
1	Agriculture	65,57	1,71	56,78	85,55	62,81
2	Mining and Quarrying	0,06	0,01	2,32	0,29	0,32
3	Processing industry	2,57	0,61	4,77	4,80	3,26
4	Electricity, Gas and water supply	0,85	0,16	0,18	0,06	0,41
5	Construction	0,81	0,19	25,20	0,14	2,42
6	Tread Hotels and Restaurant	14,70	1,34	7,65	6,56	9,27
7	Transportation and communication	8,55	0,82	2,60	2,34	4,72
8	Bank and Finances Institution	1,02	0,03	0,03	0,03	0,44
9	Services	5,86	95,13	0,47	0,24	16,35
	Amount	100,00	100,00	100,00	100,00	100,00

Source: Central Bureau of Statistics (BPS) Mauku Province, be tread

From the calculation of final demand impact on employment, as it is seemingly in Table 5 it can be seen that the greatest form of labor that still comes from the influence of household consumption, which reached 220 153 people, followed by exports amounted to 121 219 people, government consumption of 76 953 people, and investment reached 42 374 people. More details when we see in the sector, it is seen that the agricultural sector is the most dominant sectors of employment creation, reaching 333 314 people, or 55.38 percent of the total workforce in the Moluccas, and the third is the second largest services (88 762 people) and trade , hotels and restaurants (49 184 people). When viewed as a whole, the agricultural sector in the province of Maluku consistently been the leading sector in the creation of the output, income, and employment.

4. Conclusion

1. The role of the agricultural sector of the economy is still quite dominant in the Moluccas, while the downstream industry sector has not evolved significantly. This condition is a challenge and an opportunity for economic development of the Moluccas. Development opportunities are open to industrial processing and preserving of fish and other food processing. This condition will be achieved if accompanied by investment, improving the quality of human resources, entrepreneurship, and the development of appropriate technology.
2. Impact Investment agricultural sector is capable of forming revenues of 455.00 billion dollars and form as many as 333 314 people jobs.
3. The problem of income distribution should also be a common concern. Therefore, it is necessary to build a clear framework, encouraging self-reliance of local communities so that the economy can be run as expected.

References

- [BPS] Central Bureau of Statistics. 2007. Input Output. Cooperation Regional Planning Board of Maluku Province with the Central Bureau of Statistics Maluku province. Ambon.
- Budiharsono S. 2001. Technical Analysis Coastal and Ocean Development. PT. Pradnya Paramita. Jakarta.
- Jansen RC, GR West. 1986. *Input Output for practioners: Theory and Application*. Australian Government Publishing Service, Canberra.
- John E Rowcroft. 1994. *Mathematical Economics An Integrated Approach*. Prentice Hall Canada Inc. Scarborough, Ontario.
- Miller RE, PD Blair. 1985. *Input Output Analysis: Foundation and Extensions*. Prentice Hall, Inc., Englewood Cliffs, New Jersey.
- Muchdie. 2002. Structure of Indonesian Economic Space: Analysis of Inter-Regional Input Output Model. Assessment Center for Regional Development Technology Policy, Agency for the Assessment and Application of Technology. Jakarta.
- Nazara S. 1997. Analysis of Input Output. LPFE-UI, Jakarta.
- Tarin, Robinson. 2006. *Regional Economics: Theory and Applications*. Jakarta: PT Earth Literacy.

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