PROCEEDING

INTERNATIONAL CONFERENCE ON SUSTAINABLE AGRICULTURE AND NATURAL RESORCES MANAGEMENT

"DRIVING SUSTAINABLE AGRICULTURE THROUGH DEVELOPING GREEN GROWTH STRATEGIES"

May 23, 2017 Medan

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Sustainable Agriculture and Natural Resources Management
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Preface

First of all, thanks to Allah SWT, for giving us of bless and grace, the entitled " International Conference on Sustainable Agriculture and Natural Resources Management (ICoSAaNRM)" can be finished.

ICoSAaNRM 2017 organized by Agriculture Faculty of University of Muhammadiyah Sumatera Utara (UMSU). ICoSAaNRM provide an international forum for sharing knowledge, information, experience and research result as well as there view of pregress and discussion on the theme "Driving Sustainable Agriculture Through Developing Green Growth Strategies.

We would also like to express our heartiest to thank to University of Muhammadiyah Sumatera Utara, steering committees, member of organizing committee, Keynote speakers, HGKNI, Presenters, Reviewers, Moderators, and participants for support to success of this conference.

Thank you

Medan, May 23, 2017

ICoSAaNRM Committee 2017

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Market Efficiency and Integration Analysis of Organic Vegetables in Medan

Muhammad Buhari Sibuea
Lucturer of Agribusiness Department of ,
University of Muhammadiyah Sumatera Utara,
Jl. Muhtar Basri No.3, Medan, 20238, Indonesia

Email: buchari65@yahoo.com
Faiz Ahmad Sibuea
Graduates of Agribusiness Department of Universitas Sumatera Utara

ABSTRACT

The study aims to analyze about marketing chain of organic vegetables, margin trading system, and level efficiency of organic vegetables market chain and the market structure and the integration of organic vegetables in a market. From theoretically, there are three basic theory is the basic for forming an efficient trading system is the theory of marketing chain and its functions, the farmer's share, the efficiency of marketing chain and transmission theory to analyze the structure of organic vegetables market price. The samples are vegetable farmers and institutions involved in organic vegetables chain in trading system which is comprised of ten farmers, a collectors and two whoiesalers supermarkets. The research found from three organic vegetables chain have three channels, wherever the first channel are from farmers to traders and then to wholesalers and consumers; the second channel are farmer to consumer and the third channel the growers to wholesalers and consumers. The farmer's share analysis concluded the second channel was the most efficient channel because the efficiency levels up to 100 percent, while based on a calculation form of marketing chain efficiency, generally that three organic vegetables have been efficient. Analysis of the organic market integration, organic vegetable market was monopsony market and monopoly market. The recommendations of research was expanding the market share of organic vegetables again in the city of Medan.

Keywords *: vegetables organic, market efficiency, market integration*

Background

Along with the increasing public awareness of the impact of conventional agricultural systems on the environment, health and food security, organic agriculture is now becoming a business in the agricultural world. Organic farming business besides producing a product that is safe for consumption, it is also expected in the long run can increase and maintain the level of production and fertility of the land
Vegetables are one of the horticulture groups that have their own meaning and position in the national development process in agriculture sub sector. Vegetables are an important source of vitamins and minerals for nutrition fulfillment. Assuming that organic vegetables are better than inorganic vegetables, it is necessary to increase the production and productivity of organic vegetables.

Vegetables can be cultivated in non organic or organic. Various obstacles encountered in organic vegetable cultivation include: (1) there is not yet sufficient price incentives for producers of organic agricultural products, (2) needing expensive investment at the beginning of development because they have to choose a truly sterile field of agrochemical material, (3) Of limited market share. Organic vegetables have a high selling value compared to non-organic vegetables. This is because the price of organic

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products, especially organic vegetables are more expensive and relatively stable than non-organic. The market share of organic vegetable products in the country is still limited or relatively small, ie upper middle class society.

Table 1. Organic Vegetable Commodity Prices at Various Levels

Number	Commodity	Prices of level farmers	Prices of level Suppliers	Price of level Consumers
1	Spinach	Rp 3000	Rp 5000	Rp 9000
2.	Kale	Rp 2800	Rp 4000	Rp 6000
3.	Celery	Rp 3000	Rp 4500	Rp 7000

From table 1 above it can be concluded that the price of vegetables at the farm level is always lower than the price of vegetables at the supplier level, this is because farmers do not have a strong bargaining position compared with other marketing institutions. In addition, farmers also do not have complete market information when the high price of vegetables depends on market information.

Medan City is one of the potential areas of organic vegetables that are large enough to produce organic vegetables. But how marketing patterns and marketing agencies involved is not known. To that end, researchers here are interested in researching about the efficiency analysis of organic vegetable marketing and Integration of Organic Vegetable Market in Medan City.

Literature Review

Generally, all plants can be cultivated organically because at first the plants grow naturally, without additional (fertilization) from the outside. Only, there are plants that are sensitive to pests and diseases that need intensive maintenance. In addition, when organic cultivation is directed to the business, the selection of crops should consider the types sold in the market, such as onions, carrots, lettuce, peppers, and tomatoes (Pracaya, 2003).

Organic vegetables are one of the products produced by organic farming systems in addition to organic fruits, meats and eggs. These vegetables are produced without pesticides and fertilizers from other chemicals whose goal is to preserve the environment with the concept of back to nature (back to nature). The results obtained are vegetables that are free from chemical residues, safe to eat and much healthier so that generally the selling price of organic vegetables is more expensive than conventional vegetables On the development of agricultural sector in the future still encountered several obstacles, especially in the development of agricultural systems based on agribusiness and agro-industry. Constraints faced in the development of agriculture, especially small-scale farmers, among others:

First, the weakness of capital structure and access to capital resources. Second, land availability and soil fertility problems. Third, the procurement and distribution of production facilities. Fourth, limited ability in technology mastery. Fifth, weak organization and management of farming. Sixth, lack of quantity and quality of human resources for the agribusiness sector. There are two things that can be seen related to human resources is the availability and quality of human resources (Syahza,, 2007).

Marketing is an overall system of business activities shown to plan, price, promote and distribute goods and services that can satisfy the needs of both existing buyers and potential buyers. This means marketing is one of the main activities that must be done in the agricultural sector to distribute its produce (Downey and Erickson, 1987)

The cost of trading component comprises all types of expenditures by middleman and the marketing agency that play a direct and indirect role in the process of transferring goods and profits taken by the middleman or trading agency on its capital and services in carrying out such marketing activities. After grouped by the same type of cost, this marketing margin is called price spread dipersenkan to the purchase price of consumers, then the share margin.

Distance must be bridged so that the goods and services needed by consumers to meet the principle of place, amount, time, quality, type and at the price level worth paying consumers. The distribution sector is the bridge. This sector is responsible for moving, allocating, utilizing, diversifying the goods produced in the production sector, and this sector is a role model. Marketing efficiency is an indicator of good or bad marketing at each marketing agency. How much the sacrifice that must be spent in marketing activities to support the results that can be obtained from these marketing activities. Marketing efficiency can be sought by calculating output-input ratios in marketing activities undertaken (Sihombing L, 2010).

Research Methods

The research method used is purposive (purposely) and the area used as research place is in Medan City. Selection of the area is done because this city is the most areas that have farmers oriented to organic farming, especially in the organic vegetable cultivation. In this study, researchers used the sampling technique by tracer study method (tracer study). The study population as many as 13 people and the entire population serve as a sample of research. So, this sample of research consists of 10 farmers in Medan Johor. For collecting traders consisting of 1 person and 2 merchants wholesalers so that the overall sample is 13 people.

Characteristics of Sample Farmers

Age

The age of organic vegetable farmers who were the respondents in this study ranged from 40 to 60 years. This bias seen from the table as follows:

Table 2. Age of Farmer Sample

Number	Age (Tahun)	Farmers
1.	40-45	4
2.	46-50	2
3.	51-55	1
4	56-60	3
Amount		10

Source: Primary Data Processed, 2016

Education

In terms of education level of organic vegetable farmers in Medan City, the education of farmers is high. This can be seen from the table as follows:

Table 3. Farmers Education Level Organic Vegetables

Number	Level of Education	Farmers
1.	Graduated Primary School	-
2.	Graduated Junior High School	2
3.	Graduated Senior High School	5
4.	Graduated S1	3
Amount		**10**

Source: Primary Data Processed, 2016

Experience Farming

From 10 farmers, the average farmers' experience in farming is between 11-15 years. For more details, the classification of peasant experience can be seen in Table 7..

Table 4. Experience Farming

Number	Experience Farming	Farmers
1.	0 – 2	1
2.	3 – 5	9
Jumlah		**10**

Source: Primary Data Processed, 2016

Results and Discussion

Chain Analysis of Organic Vegetable Stores

Channel trading in the city of Medan In the picture shows that there are three channels of organic vegetable trading, namely

→ → →
→ →
→

The resulting organic vegetables are generally 60% sold to collecting traders while 40% are sold directly by farmers to consumers who come to the farm. The production supplied by collecting merchants to the supermarket market consists of 50 kg of spinach, 54 kg celery and 60 kg of water spinach because in this case all farmers always set production target for harvest as much as 100 kg.

Farmer's Share Analysis and Efficiency Trading

In the analysis of farmer's share, channel I organic vegetables sold to merchant traders then sold to wholesalers and after that comes to the consumer. Channel II farmers sell directly to consumers. Channel III farmers sell to the wholesalers and after that comes to the consumer. Although through a bargaining system but ultimately it is the merchant that determines the price so that the price can be suppressed.

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Table 5. Percentage of Farmer's Share on Each Traffic Channel

No.	Saluran Tataniaga	*Farmer's Share (%)*		
		Kale	Spinach	Celery
1.	Channel Trading I	45	33,3	50
2.	Channel Trading II	100	100	100
3.	Channel Trading III	66,7	55,5	66,7

Source: Primary Data Processed, 2016

Based on Table 5, the largest share received by farmers is on channel management II that is 100 percent. The smallest part that farmers receive is in pattern I. Based on the three channels of trading, it can be seen that channel II is the most favorable trading arrangement for farmers.

The efficiency of trading is measured by looking at the value of efficiency and also see the price of consumers in the final levelThe level of efficiency of trading in the research area has different values based on existing channels. Table 10 shows the efficiency of each channel's trading account

Tabel 6. The Level of Trades Efficiency

Number	Channel Trading	Trade Efficiency		
		Kale	Spinach	Celery
1	Channel I	0,96	1,5	1,03
2	Channel II	∞	∞	∞
3	Channel III	0,88	3,3	2,15

Source: Primary Data Processed, 2016

Tabel 7. The Level Of Commodity Prices in Consumers

Number	Channel Trading I	Commodity Prices in Consumers		
		Kale	Spinach	Celery
1	Channel I	7000	9000	8000
2	Channel II	2800	3000	3000
3	Channel III	6000	10000	7000

Source: Primary Data Processed, 2016

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From table 6, the overall result of calculation of organic vegetable trading efficiency, it can be seen that channel II is an efficient channel. This is because farmers are able to sell goods directly to consumers without incurring the cost of trading.

From table 7, prices at the consumer level for each commodity are different. From the table we can conclude also that channel II is an efficient channel. This happens because farmers are able to sell these products directly to consumers with a relatively cheap price. From this study can be concluded that the smaller the price formed at the consumer level the more efficient the trading channel that is formed.

Analysis of Market Structure and Integration of Organic Vegetable Market

To measure market structure and market integration then use price transmission formula. The price transmission elasticity analysis is used to illustrate the response of product prices at the level of the producer farmers due to price changes at the exporter level through price information.

The results of the calculation of the transmission of price analysis is as follows:

Table 8. The levels of Price Transmission

Number	Channel Trading	Price Transmission		
		Kale	Spinach	Celery
1	Channel I	0,2	0,1	1,03
2	Channel II	1	1	1
3	Channel III	0,44	0,31	0,33

Source: Primary Data Processed, 2016

From the price transmission result, it can be concluded that cumulatively, there is no integrated and efficient integration between market of producers, traders and consumers so that with this condition the market is oligopsoni market means that the market is in the supply condition more than demand.

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The Contribution of Agricultural Sector Oneconomic Districts/Cities in North Sumatra Province

Desi Novita[1)], Mhd. Buhari Sibuea[2)], Ramadhoni[3)]

[1),3)] Departement of Agribusiness, Islamic University of North Sumatra
[2)] Departement of Agribusiness, University of Muhammadiyah Sumatera Utara

ABSTRACT

The agricultural sector is one of the most potential sectors to the growth and development of national economy, both in terms of income and employment. The contribution of the agricultural sector in Indonesia's development is no doubt. The purpose of this research is to know the contribution of agriculture sector in North Sumatra and contribution of agriculture sector to GRDP in every district/city in North Sumatra. The data used in this research is secondary data. The data collected is time series data from 2010 until 2014. Data analysis using description method and Location Quotion (LQ) method. The results showed that the agricultural sector is the sector that gives the largest contribution in the economy of North Sumatra. However, this contribution tends to decline from 2010-2014. The agricultural sector is a basic sector in 23 districts/cities in North Sumatra. Five districts/cities have the highest agricultural sector LQ scores are Kabupaten Karo (LQ 2.35), Nias Barat (LQ 2.33), West Phakpak Barat (LQ 2.31), Simalungun (2.26) and Nias Utara (LQ 2.20).

Keywords :GDRP, Agriculture, LQ

Introduction

Indonesia, as one of the developing countries with the agricultural sector as the main source of livelihood. The fact that most of the land in the territory of Indonesia is designated as agricultural land and almost 50% of the total workforce is still dependent on working in the agricultural sector (Dillon, 2004). In addition, the agricultural sector is one sector that produces inputs or raw materials for the industrialization process. Such a situation demands that economic development in Indonesia should be based on sustainable agricultural development.

The agricultural sector as one of the economic sectors includes a very potential sector in contributing to the growth and development of the national economy. The role of the agricultural sector in Indonesia's development is no doubt. In Indonesia, agricultural development is directed at increasing agricultural production to meet domestic food and industrial needs, increasing export and income of farmers, expanding employment opportunities, and promoting equity. However, the role of the agricultural sector does not necessarily contribute to the largest Gross Regional Domestic Product (GRDP) for some regions but for some areas again agriculture contributes the most to the GRDP.

North Sumatra Province is one of the areas that have potential in agriculture is quite high. Unfortunately, the contribution of the GRDP to the agricultural sector is less followed by the large growth rate of agriculture sector. Based on data from the Badan Pusat Statistik (BPS) (2015), the growth rate of the agricultural sector increased in 2011, but decreased to 5.31% (in 2012), decreased by 4.71% (2013) and 4.37% in 2014. Whereas growth rate GRDP also continues to increase every year. This condition indicates a change in the contribution of the agricultural sector in the North Sumatra economy in general, and districts in particular.

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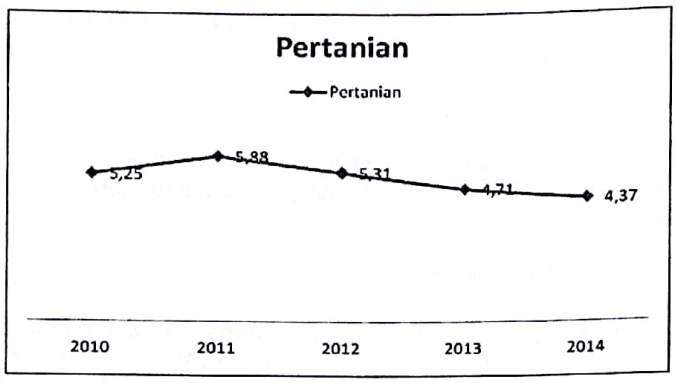

Picture 1. Growth of GRDPat 2010 Constant Market Price by Agriculture Sector (Persentage)

Source: GRDP of North Sumatera , Badan Pusat Statistik (BPS), 2016

Agriculture is one of the sectors that become the main driving force in the economic activities of regencies / cities in North Sumatra, one of the activities of regional development. One indicator to see the economic growth of a region is by looking at the progress of growth and increasing the value of GRDP both based on current prices and constant prices from year to year. If the value of GRDP has increased significantly in each year, it can be said the economy of a region getting better, on the contrary if the GRDP of a region shows stagnation and even decline from year to year it can be concluded that the economic development of a region experiencing barriers.

The growing regional economy will show changes in the role of each sector and changes in the regional economic structure. In general, the structure of the economy moves from the agricultural sector to the industrial sector and then to the service sector. This process will work well if considering the sectors that have comparative advantage and become a priority in the economy (Ma'mun and Irwansyah, 2012).

Based on the description of the background, further research on the contribution of the agricultural sector in the formation of GRDP in each regency / city and to know which districts/city make the agricultural sector as the leading sector of the region.

Method

The data used in this research is secondary data. The data collected is time series data from 2010 until 2014. Time series data is data consisting of one object but consists of some time period. This study was conducted using secondary data sourced from Badan Pusat Statistik (BPS) of North Sumatra Province. The data obtained are GDP data of economic sectors at constant 2010 prices according to business field in 33 districts/cities in North Sumatra.

Data analysis method used is descriptive method and LQ method. Descriptive method is done to know the contribution amount of Agricultural Sector in 33 regencies / cities in North Sumatera Province. Calculation of contribution of Agriculture Sector to PDRB used formula:

$$Pit = \frac{Sit}{} \times 100\%$$

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Tt

Note:
pit = The amount of contribution of Agriculture Sector in year t (%)
Sit =GRDP of Agriculture Sector in year t (Rp)
Tt = Total GDP in year t (Rp)

The Location Quotion (LQ) method is used to identify the leading sectors in each region. The LQ method is the relative comparison between the capabilities of a sector in the area under investigation with similar capabilities over a larger area.

$$LQ = \frac{Vi/vt}{Yi/yt}$$

The structure of the LQ formula gives several values: LQ> 1, LQ = 1, LQ <1.

If using the production value as a calculation material (Tarigan.R, 2005), then:

a. LQ is greater than one (LQ> 1)

This means that the commodity is a base sector, meaning that the production of the commodity concerned has exceeded the consumption needs in the area where the commodity is produced and the excess can be sold outside the region. In this case the level of special sector specialization at Regency / Municipality i is greater than the same sector at the Provincial level.LQ is smaller than one (LQ <1)

Production of these commodities is not sufficient for consumption in the area concerned and the fulfillment is imported from other regions. In this case the specialization of a particular sector at the Regency / Municipality i is smaller than the same sector at the Provincial level.

C . LQ is equal to one (LQ = 1)

The production of the commodities concerned is only sufficient for local needs. In this case the level of a particular sector specialization at the Regency / Municipality is equal to the same sector at the Provincial level.

Result and Discussions

Economy of North Sumatra

The economy in North Sumatra can be seen through the Gross Regional Domestic Product (GRDP) of North Sumatra Province. GRDP of North Sumatra at current market price in 2014 were 523.77 trilliun rupiahs. Base on constant market prices in 2010, GRDP of North Sumatra in 2014 was amounted to 419.65 trilliun rupiah.Overall, the economy of North Sumatra in 2014 grew by 5.23 percent, which decreased from 2013 which was 6.08 percent.

Agriculture sector was a major contributor with the role of 23.18 percent (at current market prices) and the role of 24.85 percent (at constant market prices) in 2014. GRDP of North Sumatra at constant market prices in 2014. This can be seen in table 1 below:

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Tabel 1. Gross Regional Domestic Productby Indutrial Origin at 2010 Constant Market Prices (Billion Rupiahs) 2010-2014

Industrial Origin	Years					Average
	2010	2011	2012	2013	2014	
1. Agriculture, Forestry & Fishing	**85,561**	**90,592**	**95,405**	**99,899**	**104,269**	**95,145**
2. Mining & Quarrying	3,336	3,693	4,135	5,211	5,489	4,373
3. Manufacturing	70,540	72,815	76,922	80,648	83,042	76,793
4. Electricity & Gas	501	570	553	532	551	542
5. Water Supply Sewerage Waste Management Remediation Activity	316	336	354	374	396	355
6. Construction	38,650	41,921	44,718	48,144	51,411	44,969
7. Wholesale & Retail trade, Repair of Motor Vehiches and Motorcycles	56,555	60,589	65,384	69,025	73,817	65,074
8. Transportation & Storage	14,101	15,545	16,827	18,075	19,107	16,731
9. Accommodation & Food Service Activities	6,936	7,527	8,035	8,663	9,225	8,077
10. Information & Communication	7,465	8,209	8,930	9,625	10,321	8,910
11. Financial & Insurance Activities	9,676	10,519	11,581	12,738	13,100	11,523
12. Real Estate Activities	12,814	14,052	15,030	16,072	17,132	15,020
13. Business Aciivites	2,711	3,001	3,182	3,395	3,624	3,183
14. Public Administration & defense	11,212	12,213	12,522	12,940	13,836	12,545
15. Education	6,690	7,011	7,357	7,970	8,478	7,501
16. Human Health & Social Work Activities	2,500	2,900	3,207	3,554	3,803	3,193
17. Other Services Activities	1,510	1,646	1,775	1,908	2,042	1,776
GRDP	**331,085**	**353,147**	**375,924**	**398,779**	**419,649**	**375,717**

Source: GRDP of North Sumatra, BPS, 2016 (Processed)

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Based on the above table shows that the agricultural sector gives the largest contribution to the GRDP of the Province of North Sumatra from 2010 to 2014 (average contribution of 25.35%). The manufacturing sector is the sector which contributes the second largest after agriculture sector. The growing processing industry sector in North Sumatera Province is generally agroindustry. This sector means that the processing industry derived from the agricultural sector as input production.

Contribution of Agricultural Sector to GRDP ini Every District/city in North Sumatra Province

Development in Indonesia runs by making economic growth a target. However, economic growth does not necessarily reflect the advancement of the Indonesian economy. The high economic growth in Indonesia before the crisis era did not illustrate that the growth is the business units owned by most Indonesians. On the contrary, what drives growth are foreign-owned business units and conglomerates. Similarly, the increasing per capita income of Indonesia does not show the income of every Indonesian citizen getting better.

Each region has a livelihood in accordance with the characteristics of each region. People's livelihoods are usually associated with land use and natural resources. Examples are agriculture, livestock, plantation, fishery, forestry, mining, industry, mining. Livelihoods are also usually associated with services, transportation, tourism etc.

The agricultural sector is the sector that absorbs the most labor. The agricultural sector should receive greater attention. The number of household farming businesses is currently declining. The government is expected to increase its contribution in the agricultural sector due to the large number of people working as farmers. The government is thinking about how to grow in the agricultural sector. The government is also expected to take action for the welfare of peoples working as farmers.

To see the magnitude of the contribution and the magnitude of the growth rate of the agricultural sector to the Gross Regional Domestic Product of districts/cities in North Sumatra we can see in table 2 below:

Table2. Contribution of Agricultural Sector to Gross Regional Domestic Product among Regency in North Sumatera Year 2010-2014

District/City	Years					Average
	2010	2011	2012	2013	2014	(%)
Karo	60.37	60.23	59.68	59.26	58.66	59.64
Nias Barat	60.24	59.5	59.21	58.8	58.26	59.20
Pakpak Bharat	57.93	58.34	58.71	59.01	59.35	58.66
Simalungun	57.95	57.73	57.38	57.07	56.74	57.37
Nias Utara	55.73	55.92	56.09	56.15	55.72	55.92
Padang Lawas	55.37	54.99	54.53	54.13	53.75	54.55
Samosir	53.36	52.7	53.01	53.02	52.96	53.01
Tapsel	56.06	55.99	53.2	46.65	46.38	51.65
Nias	50.97	50.58	50.58	50.65	50.15	50.58
Taput	50.94	50.46	50.05	49.57	48.72	49.94
Tapteng	49.93	49.89	49.93	49.77	49.44	49.79

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Nias Selatan	49.56	49.38	48.91	48.51	48.3	48.93
H. Hasundutan	50.13	49.41	48.72	48.46	47.51	48.84
Dairi	49.54	48.96	48.59	48.18	47.47	48.54
Madina	48.28	48.31	48.38	48.46	48.12	48.31
Langkat	45.86	45.35	44.91	44.54	43.84	44.90
Paluta	45.48	45.22	44.83	44.52	44.31	44.87
Sergai	44.08	44.03	43.58	43.14	42.7	43.50
Asahan	43.63	43.35	42.71	42.48	42.44	42.92
Labura	39.82	40.75	40.37	40.42	40.39	40.35
Tobasa	35.84	35.47	35.39	35.11	34.72	35.30
Labusel	31.98	32.46	32.36	32.42	32.34	32.31
Labuhanbatu	28.67	28.84	28.95	28.93	28.8	28.83
Sibolga	24.4	24.25	23.92	23.6	23.11	23.85
Batu Bara	21.82	21.81	21.5	21.48	21.43	21.60
Tanjung Balai	18.73	18.24	17.74	17.3	17.19	17.84
G. Sitoli	15.73	15.45	15.29	15.22	15.07	15.35
Deli Serdang	14.25	14.08	13.76	13.01	12.27	13.47
P. Sidimpuan	13.82	13.37	13.03	12.6	12.12	12.98
Binjai	4.83	4.73	4.55	4.14	3.91	4.43
P. Siantar	2.35	2.26	2.18	2.10	2.00	2.17
T. Tinggi	1.66	1.6	1.55	1.51	1.42	1.54
Medan	1.36	1.23	1.15	1.1	1.09	1.18
North Sumatra	**25.84**	**25.65**	**25.37**	**25.05**	**24.84**	**25.35**
Indonesia	**13.92**	**13.63**	**13.45**	**13.27**	**13.17**	**13.48**

Source: GRDP of North Sumatra. BPS. 2016 (Processed)

From Table 2 above.it can be seen that almost all districts have significant agricultural sector contribution and exceed the contribution of agriculture sector in North Sumatra and Indonesia. There are 23 districts (69.70%) that have contribution of agricultural sector aboveaverage contribution of agriculture sector of North Sumatera Province and also 23 regency and 4 city (81.81%) have contribution of agriculture sector above average of contribution of agriculture sector nationally .

The highest contribution of agricultural sector is Karo district with average contribution of 59.64%. followed by West Nias district with an average of 59.20%. Pakpak Bharat district with an average of 58.66%. The contribution of the agricultural sector and the rate of growth of the agricultural sector is one indicator of the economic growth of a region that describes the level of economic growth. This indicator can be used as an assessment parameter to the extent to which the success of development in an area within a certain period. Given the large contribution of the agricultural sector. the district / city governments in North Sumatra are expected to prioritize the development of the leading sectors by not

neglecting other sectors in planning and implementing development in an effort to increase the GRDP in each district/city.

Comparison of Agriculture Sector Contribution Including Superior Sector of District/City in North Sumatra

Basic economic theory states that the determinant factor for economic growth of a region is directly related to the demand for goods and services from outside the area concerned. The regional economic sector can be divided into two sectors.namely the base sector and the non-base sector. The base sector is a sector capable of producing goods and services for local consumption and able to export outside the region concerned. While the non-base sector is a sector that is only able to produce goods and services for local market consumption and has not been able to export out of the region concerned (Arsyad. 1999). Economic growth of a region can be improved by knowing which sectors are the basic sector.where the base sector can encourage the economy of the region concerned.so it can be determined priority development of any sectors of the economy that can encourage economic growth of a region.

In view of the large contribution of agriculture sector including the major sector of regencies / cities is by looking at the average contribution rate in each year through the calculation of Location Quotient (LQ). The value of the calculation of Location Quotient (LQ) ranges from LQ> 1. LQ = 1. LQ <1. Categorized leading sectors if the value of LQ> 1.otherwise if the value of LQ = 1 and LQ <1 then it is not said superior sector. To see which districts/cities are the main sectors of agriculture can be seen in the following table:

Table3. Average LQ Value of Agriculture Sector in every regency / city in North Sumatera Year 2010-2014

	LQ Value of Agriculture Sector					Average
District/City	2010	2011	2012	2013	2014	LQ
Karo	2.33	2.34	2.35	2.36	2.36	2.35
Nias Barat	2.33	2.31	2.33	2.34	2.34	2.33
Pakpat Bharat	2.24	2.27	2.31	2.35	2.38	2.31
Simalungun	2.24	2.25	2.26	2.27	2.28	2.26
Nias Utara	2.15	2.18	2.21	2.24	2.24	2.20
Padang Lawas	2.14	2.14	2.14	2.16	2.16	2.15
Samosir	2.06	2.05	2.08	2.11	2.13	2.09
Tapanuli Selatan	2.16	2.18	2.09	1.86	1.86	2.03
Nias	1.97	1.97	1.99	2.02	2.01	1.99
Tapanuli Utara	1.97	1.96	1.97	1.97	1.96	1.97
Tapanuli Tengah	1.93	1.94	1.96	1.98	1.98	1.96
Nias Selatan	1.91	1.92	1.92	1.93	1.94	1.93
Humbang Hasundutan	1.93	1.92	1.92	1.93	1.91	1.92
Dairi	1.91	1.90	1.91	1.92	1.91	1.91
Mandailing	1.86	1.88	1.90	1.93	1.93	1.90

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Natal						
Langkat	1.77	1.76	1.76	1.77	1.76	1.77
Padang Lawas Utara	1.76	1.76	1.76	1.77	1.78	1.77
Serdang Bedagai	1.70	1.71	1.71	1.72	1.71	1.71
Asahan	1.68	1.69	1.68	1.69	1.70	1.69
Labuhanbatu Utara	1.54	1.58	1.59	1.61	1.62	1.59
Toba Samosir	1.38	1.38	1.39	1.40	1.39	1.39
Labuhanbatu Selatan	1.23	1.26	1.27	1.29	1.30	1.27
Labuhanbatu	1.10	1.12	1.14	1.15	1.15	1.13
Sibolga	0.94	0.94	0.94	0.94	0.93	0.94
Batu Bara	0.84	0.85	0.84	0.85	0.86	0.85
Tanjung Balai	0.72	0.71	0.69	0.69	0.69	0.70
Gunung Sitoli	0.60	0.60	0.60	0.60	0.60	0.60
Deli Serdang	0.55	0.54	0.54	0.51	0.49	0.53
Padang Sidimpuan	0.53	0.52	0.51	0.50	0.48	0.51
Binjai	0.18	0.18	0.17	0.16	0.15	0.17
Pematang Siantar	0.09	0.08	0.08	0.08	0.08	0.08
Tebing Tinggi	0.06	0.06	0.06	0.06	0.05	0.06
Medan	0.05	0.04	0.04	0.04	0.04	0.04
North Sumatra	**1.85**	**1.88**	**1.88**	**1.88**	**1.88**	**1.87**

Source: GRDP of North Sumatra. BPS. 2016 (Processed)

In table 3 above can be seen that there are 21.21% or 7 districts which each year has a significant increase in LQ value of agriculture sector.the districts are: Pakpak Bharat, North Nias, Padang Lawas, Samosir, Nias, Mandailing Natal District and North Labuhanbatu Regency. The increase is from 2% to 4% per year.indicating that the 7 districts experience an increase in income in the agricultural sector each year. Although the 7 districts are increasing every year. Karo Regency is still the highest in providing income to the agricultural sector. Karo Regency gets an average LQ of agricultural sector of 2.35.while the value of LQ North Sumatra every year is quite stable at 1.88.

In addition.there are 23 districts with LQ greater than 1 meaning that the agricultural sector in 23 districts is larger than the same sector at the provincial level. These sectors are the basis sector.meaning that the production of agricultural commodities already exceeds the consumption needs in the area where the commodity is produced and the excess can be sold outside the region. So it can be concluded that the agricultural sector in 23 districts including the leading sectors that have the highest LQ score in 23 districts.

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Of the 23 districts, there are 8 districts with an average LQ above 2.including Karo Regency with an average LQ of 2.35. West Nias Regency of 2.33. Pakpak Bharat Regency of 2.31. Kabupaten Simalungun 2.26. North Nias Regency is 2.20. Padang Lawas District 2.15. Samosir District 2.09. South Tapanuli Regency 2.03.

Table 4. Average LQ Value of District/ City in Agricultural Sector Year 2010-2014

No	District/City	Agriculture LQ Value	Base/Non Base
1	Karo	2.35	Base
2	Nias Barat	2.33	Base
3	Pakpat Bharat	2.31	Base
4	Simalungun	2.26	Base
5	Nias Utara	2.20	Base
6	Padang Lawas	2.15	Base
7	Samosir	2.09	Base
8	Tapanuli Selatan	2.03	Base
9	Nias	1.99	Base
10	Tapanuli Utara	1.97	Base
11	Tapanuli Tengah	1.96	Base
12	Nias Selatan	1.93	Base
13	Humbang Hasundutan	1.92	Base
14	Dairi	1.91	Base
15	Mandailing Natal	1.90	Base
16	Langkat	1.77	Base
17	Padang Lawas Utara	1.77	Base
18	Serdang Bedagai	1.71	Base
19	Asahan	1.69	Base
20	Labuhanbatu Utara	1.59	Base
21	Toba Samosir	1.39	Base
22	Labuhanbatu Selatan	1.27	Base
23	Labuhanbatu	1.13	Base
24	Sibolga	0.94	Non Base
25	Batu Bara	0.85	Non Base
26	Tanjung Balai	0.70	Non Base
27	Gunung Sitoli	0.60	Non Base
28	Deli Serdang	0.53	Non Base
29	Padang Sidimpuan	0.51	Non Base
30	Binjai	0.17	Non Base
31	Pematang Siantar	0.08	Non Base
32	Tebing Tinggi	0.06	Non Base
33	Medan	0.04	Non Base
34	**North Sumatra**	**1.87**	**Base**

Source: GRDP of North Sumatra. BPS. 2016 (Processed)

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The highest LQ value in the agricultural sector is in Karo Regency. The value of LQ in Karo Regency is 2.35 where the value of LQ> 1 which means the level of specialization of agriculture sector in Karo Regency is greater than the same sector at the provincial level and the commodity is the base sector.meaning that the agricultural commodity production has exceeded the consumption needs in the region Where the commodity is produced and the excess can be sold out of the region. So it can be concluded that the agricultural sector in 23 districts including the leading sectors.

Table 3 above shows that there are 23 districts or 69.70% whose LQ value of agricultural sector is more than one. This indicates that the district / city has an advantage in agriculture sector.while 2 districts and 8 cities or 30.30% of LQ value of agriculture sector is less than one. The LQ score of less than 1 indicates that the sector is said to be non-base (not the leading sector). Nevertheless.from 23 districts with LQ value of agricultural sector more than one.only 15 districts or 45.45% whose LQ value of agricultural sector exceeds the average LQ of agriculture sector of North Sumatra. This condition shows that only 15 districts or 45.45% are able to give the biggest income in the agricultural sector every year.while 10 districts and 8 cities or 54.55% of LQ value of agricultural sector are still below the

Conclusion

Based on the results of the discussion.then there are some things that become conclusions.namely:

1. The agricultural sector contributes the most to PDRB in 23 regencies / cities in North Sumatra. There are 2 regencies and 8 cities that the agricultural sector does not contribute greatly. namely: Deli Serdang. Batu Bara. Sibolga. Tebing Tinggi. Pematang Siantar. Tebing Tinggi. Medan City. Binjai City. Padangsidimpuan City. Sitoli.
2. The agricultural sector is the leading sector in 23 regencies in North Sumatra in 2010-2014. There are 10 districts / municipalities that the agricultural sector is not a leading sector. namely: Deli Serdang. Batu Bara. Sibolga. Tanjung Balai. Pematang Siantar. Tebing Tinggi. Medan City. Binjai City. Padang Sidimpuan City. Sitoli. However. the average in each regency / city (33 districts / municipalities) of the superior sector is the agricultural sector.
3. Contribution of agriculture sector in districts / municipalities including the leading sector of agriculture sector. which has the highest LQ value that is Karo Regency of 2.35.

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