Analysis of the Role of Livestock Sub-Sector in Economic Growth in West Sumatra

A Suresti1*, F Tan2, Adrimas2 and U Dinata3

1Andalas University Animal Husbandry Faculty of Animal Husbandry Development and Business departamento, Jl. Kampus Unand Limau Manis Padang, West Sumatra Province 25163, Indonesia
2Andalas University Economic Faculty of economic development departamento, Jl. Kampus Unand Limau Manis Padang, West Sumatra Province 25163, Indonesia
3Research and community service institutions. Jl. Kampus Unand Limau Manis Padang, West Sumatra Province 25163, Indonesia

*Email: amnareres@yahoo.com

Abstract. This study aimed to analyze the role and growth of the livestock on economic development in West Sumatra Province. This study used Analysis of Location Quotient (LQ), Dynamic Location Quotient (DLQ) and Shift Share Analysis. The data used in this study had secondary data from the 2016-2019 period. The research method used Desk Study. The results showed that the livestock was a non-basis sub-sector. The average LQ value of in 2016-2019 was 0.96 and And this sub sector will remain a non-base in the future, this showed that the livestock had not changed its role in the future. The determining factor for this change in role was the structure of the economy.

1. Introduction
The aim of national development in Indonesia is to create a just and prosperous community life. Therefore, regional development planning is needed. The condition of the region in the future is determined by the ability of the region to solve various problems and problems faced, both current and future. The ability to solve this problem will determine the possible goals that will be desired. Therefore, to overcome various problems, especially those arising from the gap in welfare, it is necessary to carry out various planned development efforts so that the development efforts carried out can run effectively in achieving the desired goals. Therefore, a proper planning in accordance with the conditions in an area is an absolute requirement for development efforts.

The success of a region's economic development can be seen from the changes in the Gross Regional Domestic Product (GRDP). The role of each sector in the formation of GRDP of a region reflects the trend of the regional economic structure. Changes in the economic structure that occur generally move from the agricultural sector to the industrial sector and then to the service sector [1]. DRDP is the ability of a region to generate income or remuneration for the factors that participate in the production process of an area. The calculation of this income uses a domestic concept which means all added value generated by various factors or business fields that carry out business activities in the region or region that are included without regard to ownership of production factors. This is in line with the economic development in West Sumatra Province which has great potential in the agricultural sector in general and particularly in the livestock sub-sector. The sectoral role in the formation of West Sumatra's GRDP
is quite varied, the sector having the biggest role is the Agriculture Sector. The livestock is part of the agricultural sector which also contributes to GRDP in West Sumatra.[2]

The sector's contribution to the economy of West Sumatra Province can be seen in the structure of GRDP. As in previous years, the economy of West Sumatra Province still relies on the agricultural sector. This can be seen from the large role of the agricultural, forestry and fisheries sector business fields in the formation of West Sumatra Province GRDP in 2019, amounting to 22.17%. Where the food crops sub-sector contributed 6.44%, the horticulture sub-sector was 2.78%, the estate sub-sector was 5.48%, the fisheries sub-sector was 3.93%, the livestock sub-sector was 1.74%, the forestry and logging sub-sector 1.35%. [2]

Based on the GRDP data of the agricultural sector above, one of the agricultural sectors that is still experiencing problems is the livestock sub-sector. In the agricultural sector in 2019, the livestock sub-sector has the smallest contribution to the formation of GRDP of West Sumatra Province. As an illustration of the livestock sub-sector in West Sumatra Province in table 1, the value of the GRDP of the livestock sub-sector has always increased from year to year. Development, Contribution and Growth Rate of GRDP at 2010 Constant Prices for Livestock 2015-2019 West Sumatra Province can be seen in table 1 below.

Table 1. Development, Contribution and Growth Rate of GRDP at 2010 Constant Prices, livestock Sub sector 2015-2019, West Sumatra Province.

| Year | GRDP of Livestock sub sector(billion Rp) | Contribution (%) | Growth Rate |
|------|-----------------------------------------|-----------------|-------------|
| 2015 | 2.103.860,99                            | 1,50            | 1,96        |
| 2016 | 2.140.747,31                            | 1,45            | 1,75        |
| 2017 | 2.238.969,27                            | 1,44            | 4,59        |
| 2018 | 2.349 654,71                            | 1,70            | 4,94        |
| 2019 | 2.521 082,25                            | 1,74            | 7,30        |

Source: West Sumatra Central Statistics Agency, 2020

For the development of livestock development with the data above, it is necessary to analyze the role of the livestock sub-sector using economic-based theory so that it can be used by the government as material for regional development planning and evaluation in order to facilitate the government in determining development policies in West Sumatra Province. The Location Quotient (LQ) method is used to identify the leading sectors (basis) in an area. The Location Quotient (LQ) method aims to identify a leading commodity and the method of commodity analysis in an area, whether included in a basis or non-basis.

Base sectors are sectors that export goods and services to places outside the boundaries of the economy of the society concerned, while non-base sectors are sectors that make goods needed by people who live within the boundary, the economy of the community concerned. The essence of a basic economic model is that the direction and growth of a region are determined by the region's exports. These exports can be in the form of goods and services, including labor. Income in the base sector is a function of external demand (exogenous), namely demand from outside which results in exports from the region [3].

The location quotient (LQ) analysis technique is a starting way to determine the ability of a region in a particular activity sector. Although this technique does not provide final conclusions, in the first stage it is sufficient to provide an overview of the capacity of the region concerned in the observed sector. Basically, this technique presents a relative comparison between the ability of a sector of the area that was investigated by the ability of the same sector in the wider region [4].

Based on the above problems and the low contribution of the livestock sector to the Gross Domestic Product as well as awareness of the importance of the livestock sector in producing animal food in West Sumatra Province. Conducting this research is necessary to identify the role of the livestock sub-sector in economic growth in West Sumatra. The objectives of this study are: a) to identify the role of the livestock sub-sector, whether the basic or non-basic sector in the economy of the West Sumatra Province, b) to identify changes in the role of the livestock sub-sector in the regional economy of West Sumatra Province, c) to determine what factors are causing a change in this role.
2. Materials and method

2.1 Research Methods
The research method used in this research is Desk Study Method, namely literature study.

2.2 Types and Sources of Data
The types of data used in this study are secondary data for the period 2016 - 2019 published by various related agencies or institutions, namely the Central Bureau of Statistics of West Sumatra Province (Overview of Gross Regional Domestic Product of West Sumatra Province and Regency / City According to Business Field 2016-2019).

2.3. Research Variables
The variables in this study include: Gross Regional Domestic Product, Potential of Animal Husbandry Subsectors. To find out the role of the livestock sub-sector in West Sumatra Province, using data on Indonesian GDP for 2016-2019, GRDP of West Sumatra Province for 2016-2019.

2.4 Data and Analysis data
Analysis of the data used in this study is to analyze using Location Quotient (LQ) analysis. The LQ method is used to analyze the condition of an area whether an area is a basic or non-base sector. The data used is the Gross Regional Domestic Product of West Sumatra Province and Regency / City by Business Field 2016-2019 and livestock populations in all districts and cities in the Province West Sumatra 2016-2019.

a. Location Quotient (LQ)
(Location Quotient), with the formula:

\[ LQ = \frac{Si}{Sj} \times \frac{Ni}{Nj} \]  (1)

Where:
- \( LQ \) = Location Quotient index for livestock sub-sector in West Sumatra Province
- \( Si \) = GRDP value of livestock sub-sector in West Sumatra Province
- \( Sj \) = Total GRDP of West Sumatra Province
- \( Ni \) = GDP value of Indonesian livestock subsector
- \( Nj \) = Total GDP of Indonesia

The ability of an area in certain activities can be determined by using the Location Quotient Analysis Technique (Location Quotient: LQ). This technique provides a relative comparison between the ability of a sector in the area under investigation with the same capability in a wider area. The unit used as a measure to produce the LQ coefficient is the amount of labor, production results, or other units that can be used as criteria. The structure of the LQ formulation provides several values, namely \( LQ > 1 \), \( LQ = 1 \), \( LQ < 1 \) which means:

- \( LQ > 1 \) means that the commodity is a base sector meaning that the production of the commodity concerned has exceeded the consumption needs in the region where the commodity is produced and the excess can be sold outside the region.
- \( LQ < 1 \) means that the production of this commodity is not sufficient for consumption needs in the area concerned and the fulfillment is imported from other regions.
- \( LQ = 1 \) means that the production of the commodity concerned is only sufficient for the local area.

The use of LQ as a basis for determining the base sector in a region has several weaknesses. For example, the use of labor units as a basis for calculation uses several assumptions such as (i) the quality of labor for each industry is considered to be the same and, (ii) each industry has a single production. Whereas in reality the quality of labor varies and one industry can produce more than one type of product. However, this approach in its early stages has been able to provide an overview of the ability of the observed sectors in a particular area.
b. Dynamic Location Quotient

The role of livestock sub-sector in the future can be determined using the Dynamic Location Quotient (DLQ) method.

\[
DLQ = \left[ \frac{(1+g_{ij})/(1+g_{n})}{(1+G_{i})/(1+G)} \right]^{t}
\]

Information:
- \( g_{ij} \) = Average growth rate of livestock subsector in West Sumatra
- \( g_{n} \) = Average growth rate of GRDP growth in West Sumatra
- \( G_{i} \) = Average growth rate of livestock subsector in Indonesia
- \( G \) = Average growth rate of GRDP growth in Indonesia
- \( t \) = Number of years analyzed

Criteria:
1) \( DLQ > 1 \) = The livestock sub-sector can still be expected to become a base sector in the future
2) \( DLQ \leq 1 \) = The livestock sub-sector cannot be expected to become a base sector in the future.

c. Shift Share analysis

Used Shift Share analysis, namely the Total Shift Share (TSS) equation can be broken down into several components of Structural Shift Share (SSS) and Locational Shift Share (LSS) which can be used to determine factors. causes of changes in the role of the livestock sub sector in West Sumatra

\[
TSS = \sum (PR_{ij} + PP_{ij} + PP_{Wij})
\]

Where:
- \( PR_{ij} \) = Regional Growth, with the formula: \( Y_{ij} (Ra) \)
- \( PP_{ij} \) = Proportional Growth, with the formula: \( Y_{ij} (Ri - Ra) \)
- \( PP_{Wij} \) = Regional Share Growth, with the formula: \( Y_{ij} (ri - Ri) \)
- \( Y_{ij} \) = GRDP of the livestock sub sector in West Sumatra
- \( Ra \) = Economic growth rate of GDP in Indonesia
- \( Ri \) = Growth rate of Indonesian livestock sub-sector
- \( Ri \) = Growth rate of livestock sub-sector in West Sumatra

\[
SSS = \sum (PR_{ij} + PP_{ij})
\]

\[
LSS = \sum (PP_{Wij})
\]

\[
TSS = SSS + LSS
\]

Description:
- \( TSS \) = Total Shift Share
- \( SSS \) = Structural Shift Share
- \( LSS \) = Locational Shift Share

Criteria:

a. If the SSS value > LSS means the most determining factor for the change in the role of the livestock sub sector is the economic structure factor
b. If the SSS value < LSS means the most determining factor for the change in the role of the livestock sub sector is the location factor.
c. If the value of SSS = LSS means that the economic structure and location factors are both strong in determining the change in the role of the livestock sub sector.

The factors that cause changes in sectoral roles can be determined by using Shift Share analysis by calculating the Total Shift Share (TSS). TSS consists of Structural Shift Share (SSS) and Locational Shift Share (LSS). If the SSS value was greater than the LSS value, it means that the factor causing changes in the role of an economic sector is the structure of the economy. if the LSS was greater than the SSS, what determines the change in the role of an economic sector was the location factor.
Meanwhile, if SSS was the same as LSS, the economic structure and location factors are both strong as factors that determine changes in the role of the economic sector.

3. Result and discussion
The rate of economic growth for each sub-sector is one of the macro indicators to see the economic performance in the agricultural sector. The rate of economic growth is calculated based on changes in GRDP at constant prices for the year concerned against the previous year. Based on secondary data, the growth rate of the livestock sub-sector from 2016 to 2019 tends to increase. This can be seen in Table 6 also shows that the rate of economic growth in the livestock sub-sector has varied as well, the economic growth in the livestock sub-sector is positive and tends to increase, meaning that economic growth for the livestock sub-sector is better compared to other sub sectors. The growth rate of the food crop, horticulture, plantation, livestock sub-sector and Agriculture Services and Hunting can be seen in the following table.

Table 2. The growth rate of the food crop, horticulture, plantation, livestock sub-sector and Agriculture Services and Hunting in West Sumatra Province 2016-2019

| Business fields                                | 2016  | 2017  | 2018  | 2019  | Average |
|-----------------------------------------------|-------|-------|-------|-------|---------|
| Food Crop                                     | -0.15 | 3.42  | 2.29  | -0.02 | 1.39    |
| Horticultural crop                            | 1.57  | 3.37  | -3.76 | 5.25  | 1.61    |
| Plantation Crops                              | 3.53  | 3.74  | 6.51  | 2.09  | 3.97    |
| Livestock                                     | 1.75  | 4.59  | 4.94  | 7.3   | 4.65    |
| Agriculture Services and Hunting              | 2.11  | 3.83  | 0.25  | 1.85  | 2.01    |

Source: Central Bureau of Statistics West Sumatra Province 2020

The economic sector in a region basically consists of basic and non-basic sectors. The base sector is the economic sector that meets market demand for goods and services in the economy of a region. This sector depends on the amount of resources it has, where the more resources you have, the more it will be able to meet the needs of the area concerned, it can also meet demands from outside the boundaries of the area. The non-base sector can only meet demand from within the region itself [5].

3.1 Identification of Base Sector and Subsector

Table 3. LQ Value of Agriculture Sector in West Sumatra Province 2016-2019

| No   | Business fields                                | 2016  | 2017  | 2018  | 2019  | Average |
|------|-----------------------------------------------|-------|-------|-------|-------|---------|
| A    | Agriculture, Forestry and Fisheries           | 1.80  | 1.79  | 1.78  | 1.76  | 1.78    |
| 1    | Agriculture, Animal Husbandry, Hunting and Agricultural Services | 1.86  | 1.86  | 1.84  | 1.82  | 1.84    |
| a)   | Food Crops                                    | 2.10  | 2.12  | 2.14  | 2.17  | 2.13    |
| b)   | Horticultural Plants                          | 2.56  | 2.56  | 2.29  | 2.28  | 2.42    |
| c)   | Plantation Crops                              | 1.73  | 1.72  | 1.76  | 1.72  | 1.73    |
| d)   | Livestock                                     | 0.95  | 0.96  | 0.96  | 0.95  | 0.96    |
| e)   | Agriculture and Hunting Services              | 2.61  | 2.60  | 2.52  | 2.49  | 2.56    |
| 2    | Forestry and Logging                          | 2.15  | 2.02  | 2.07  | 2.08  | 2.08    |
| 3    | Fisheries                                     | 1.45  | 1.44  | 1.46  | 1.45  | 1.45    |

Source: Processed data, 2020
Based on Table 3, it can be seen that the livestock sub-sector during 2016-2019 was a non-basic sub-sector in the regional economy in West Sumatra Province. Because it had an average LQ value <1 (0.96). LQ was less than one (LQ <1): the production of this commodity was not sufficient for consumption needs in the area concerned and the fulfillment is imported from other regions. The LQ value of the livestock sub-sector for the past 4 years has played a role whose activities still remain as a non-basic sub-sector. This shows that the activities of the livestock sub-sector in West Sumatra are only able to meet the needs of their own region therefore a deeper policy is needed to increase this sub-sector to become a basis.

3.2 The Role of the Animal Husbandry Subsector in the Future

Based on the results of the analysis Dynamic Location Quality (DLQ) in table 3 above, it can be seen that the role of the livestock sub-sector had not changed into a base sub-sector. According to tables 3 and table 4 combining two analyzes, namely LQ and DLQ, it found that the livestock sub-sector which is not expected to experience a change in role from the non-basic sector during 2016-2019 becomes the base sub-sector in the future. The food crops and forestry sub-sector was predicted to become still the base sector in the future.

Table 4. DLQ dan LQ value Sector Agriculture I West Sumatra Province 2016-2019

| NO | Business fields                        | LQ | DLQ |
|----|---------------------------------------|----|-----|
| 1  | Agriculture, Forestry and Fisheries   |    |     |
|    | A. Agriculture, Animal Husbandry, Hunting and Agricultural Services | 1.78 | 0.44 |
|    | a. Food Crops                        | 2.13 | 1.55 |
|    | b. Horticultural Plants              | 2.42 | 0.04 |
|    | c. Plantation Crops                  | 1.73 | 0.83 |
|    | d. Livestock                         | 0.96 | 0.63 |
|    | e. Agriculture and Hunting Services  | 2.56 | 0.20 |
| 2  | Forestry and Logging                 | 2.08 | 12.85 |
| 3  | Fisheries                            | 1.45 | 0.78 |

Source: secondary data processed, 2020

The activities of the non-basic sub-sector in livestock showed that this sub-sector did not have a high enough competitive advantage, so that the non-basic sub-sector only functions as a support such as services industries so that a deeper policy is needed to increase this sub-sector to become a basis. This indicates that by using an Economic-Based Model. In this model, the economy of a region represented by the value of its GRDP is divided into two main sector groups, namely the basic sector and the non-basis sector. The base sector is a sector that becomes the backbone of a region's economy because it has a fairly high competitive advantage, on the other hand, the non-basic sector is other sectors that are less potential but function as supporting industries such as services industries. Therefore, in this model, the economic growth of a region is largely determined by the development of the respective regional base sector and the size of the influence is determined by the magnitude of the multiplier coefficient [7]. Thus, both economic growth and export growth are positively related to the sector-based activities of a region.
3.3. Factors that cause changes in the role of the livestock subsector in regional development in West Sumatra.

This analysis is a method for looking at economic activity in an area using a variety of data. Changes in economic activity indicators can be seen from two points in time, namely the final year of analysis and the base year of the analysis. Shift share analysis aims to analyze changes in sectors / sub sectors at two points in time (initial year and end year) in a region. In other words, shift share analysis can find out how the development of a sector / sub sector in a region is relative to other sectors / sub sectors. The growth of the economic sector in a region is influenced by several components, namely: the regional growth component, abbreviated as PR. The proportional growth component (proportional or industrial mix growth component) is abbreviated as PP and the regional share growth component is abbreviated as PPW [8]. Further [9] reports that the shift share analysis technique divides growth as changes in a regional variable , such as labor, added value, income or output, during a certain period of time become the influence of the growth of the national industrial mix / industrial mix and competitive advantage.as a whole, the sub-sector in West Sumatra has a positive TSS component value. This illustrates that the growth of these sub sectors is positively influenced by national growth. In this case, the national general policy has a positive effect on the growth of the sub sectors of the development sector in West Sumatra, including the livestock sub-sector. Regional Growth, proportional growth and regional share growth Components in the Gross Regional Domestic Product of the agricultural sector in West Sumatra Province on the basis of constant prices 2013-2017 can be seen in the following table

Table 5. Regional Growth , proportional growth and regional share growth Components in the Gross Regional Domestic Product of the agricultural sector in West Sumatra Province on the basis of constant prices 2013-2017 (million rupiah)

| No  | Business fields                  | PRij     | %  | PPij     | %  | PPWij   | %  | Total             |
|-----|---------------------------------|----------|----|----------|----|----------|----|--------------------|
| A   | Agriculture, Forestry and Fisheries | 5.492.721,16 | 0.16 | -1.423.116,21 | -0.04 | -679.768,19 | -0.02 | 3.389.836,75     |
| 1.  | Agriculture, Animal Husbandry, Hunting and Agricultural Services | 4.385.233,35 | 0.16 | -1.382.726,31 | -0.05 | -540.107,40 | -0.02 | 2.462.399,64     |
| a.  | Food Crops                      | 1.519.675,42 | 0.16 | -1.324.829,80 | -0.14 | 350.766,54 | 0.04 | 545.612,16       |
| b.  | Horticultural Crops             | 842.485,94  | 0.16 | 53.237,30     | 0.01 | -648.613,54 | -0.12 | 247.109,70        |
| c.  | Plantation Crops                | 1.560.277,25 | 0.16 | -253.441,70  | -0.03 | -62.179,47  | -0.01 | 1.244.656,07     |
| d.  | livestock                       | 343.589,94  | 0.16 | 26.155,98    | 0.01 | 10.589,02   | 0.00 | 380.334,94        |
| e.  | Agriculture and Hunting Services | 119.204,80  | 0.16 | -39.445,26   | -0.05 | -35.072,77  | -0.05 | 44.686,77         |
| 2.  | Forestry and Logging            | 324.214,13  | 0.16 | -215.957,82  | -0.11 | -63.011,16  | -0.03 | 45.245,14         |
| 3.  | Fishery                         | 783.273,68  | 0.16 | 78.349,43    | 0.02 | 20.568,86   | 0.00 | 882.191,97        |

Source: Processed data, 2020

The table above shows the net shift value (Total SSij) of all sub sectors in the agricultural sector is positive (+). This indicates that the entire sub sector is progressive. Based on the table 5, it can be seen that all sub-sectors including livestock in the agricultural sector in West Sumatra provide positive (+) GRDP growth. The analysis shows that the agricultural sector had the potential to contribute to the GRDP of the West Sumatra region. Although there were four sub-sectors in the agricultural sector which are low competitiveness, such as the livestock sub-sector, the agricultural and hunting services sub-sector, the forestry sector and logging and the fisheries sector, their development has positive growth for the economic growth of West Sumatra.

The total number of SS total, the livestock sub-sector shows a positive amount of Rp. 380,334.94 which means that the growth of the livestock sub-sector is growing relatively faster when compared to the GDP growth of the same sector at the national level. Although the livestock sub-sector in West
Sumatra still contributes low to the GRDP of the Province of West Sumatra, its GDP growth had increase every year. The livestock sub-sector in West Sumatra province based on the Shift Share analysis in 2016–2019 is influenced by several components:

The influence of the national growth component (PRij or Nij) of this sub-sector had a positive effect in contributing to GRDP, namely IDR 343,589.94 to the national GRDP contribution. The table above also explains that regional growth in each sub-sector in the agricultural sector had a positive impact on income / economic value added in each sub-sector due to the increase in national economic growth of 0.16. This analysis showed that the effect of national animal husbandry policies has a very good impact on the growth of the sub-sectors in West Sumatra because this analysis also looks at the differences in the growth rates of sectors and sub-sectors in the regions and the national ones [10].

The influence of the industrial mix component (PPij) has a positive effect on the growth of the livestock sub-sector and grows relatively faster than the growth of the same sector at the national level. The proportional growth component or the influence of the industrial mix component grows due to sector differences in final product demand, differences in raw material availability, differences in industrial policies and differences in market structure and diversity. Proportional growth is used to measure the speed of growth of a sub-sector at the local level compared to its upper level. Proportional growth arises from sub-sector differences in policies that occur in these sub sectors, differences in market structure and diversity. It can be seen from the table that the proportional growth value of each sub sector in the agricultural sector varies, the agricultural, forestry and fisheries sectors have a value negative. only the horticultural and livestock sub-sector has a positive proportional growth. This indicates that the sub-sector livestock has better competitiveness than other sub-sectors in agriculture proportionally in giving influence to regional growth and has the potential to increase its contribution to the growth of GRDP in West Sumatra Province. If the livestock sub sector can achieve the goals of policies government such as increasing natural resources and increasing the construction of infrastructure, it is possible to obtain maximum results in the management of the livestock sub sector. Although this component has a positive effect on the growth of the livestock sub-sector in West Sumatra, the level of technology application is relatively limited so that the productivity of this sector grows slowly, this can be seen in its contribution to small regional economic growth. This also indicates that regional policies have not been fully able to provide a significant accelerating effect on productivity growth in the livestock sub-sector in West Sumatra.

While the growth in the share of the region or the influence of the competitive advantage component that occurs in each sub-sector in the agricultural sector arises due to an increase or decrease in GRDP or job opportunities in one region compared to other regions. The fast and slow pace of growth is determined by comparative advantage, market access, institutional support, social and economic infrastructure as well as regional economic policies in the region which are supported by institutions, socioeconomic infrastructure and local policies in the region. Based on the data in the growth value table of the share of the agricultural sector is negative but the livestock sub-sector is positive, this shows that the livestock sub-sector has a comparative advantage and can compete with other sub sectors in agriculture. From the data above, it can be seen that the factors causing the role of the livestock sub-sector and other sub sectors in the agricultural sector can be seen in the Table 6.

By looking at the results of this study, it showed that the livestock sub-sector in West Sumatra is still a non-basis sub-sector and will be estimated to still be a non-basis sector. This constant change results from the structure of the economy. Economic growth has resulted in changes in the structure of the economy. Structural transformation itself is a process of changing the structure of the economy from the agricultural sector to the industrial, trade and service sectors, where each economy will undergo a different transformation. Changes in the structure or economic transformation of West Sumatra from traditional to modern are still weak, including in animal husbandry development efforts. This is indicated by the cultivation of livestock so far that has been carried out by smallholder breeders, reaching 98% with a 2-4 head ownership scale and carried out semi-intensively. This business pattern certainly needs to be improved, both in terms of business scale and in terms of better business management in order to improve the welfare of breeders.
Table 6. Factors Causing Changes in the Role of the Agricultural Sector and Sectors Other Economic

| No | Business fields | Total Shift Share | SSS          | LSS          | Causative factor      |
|----|-----------------|-------------------|--------------|--------------|-----------------------|
| A  | Agriculture, Forestry and Fisheries | 3.389.836,75 | 4.069.604,943 | 679.768,1928 | economic structure    |
| 1  | Agriculture, Animal Husbandry, Hunting and Agricultural Services | 2.462.399,64 | 3.002.507,037 | 540.107,3973 | economic structure    |
| a  | Food Crops      | 54.5612,16 | 194.845,6155 | 350.766,5445 | Location              |
| b  | Horticultural Plants | 247.109,7 | 895.723,2441 | 648.613,5441 | economic structure    |
| c  | Plantation Crops | 1.244.656,07 | 1.306.835,543 | 62.179,4311 | economic structure    |
| d  | Livestock       | 380.334,94 | 369.745,9201 | 10.589,0495 | economic structure    |
| e  | Agriculture and Hunting Services | 44.686,77 | 79.759,5442 | 35.072,7342 | economic structure    |
| 2  | Forestry and Logging | 45.245,14 | 108.256,3032 | 63.011,6321 | economic structure    |
| 3  | Fisheries       | 882.191,97 | 861.623,1125 | 20.568,8573 | economic structure    |

Source: Processed data, 2020

The welfare of breeders is the ultimate goal of the success of the economic development of a region which can be seen from the changes in the Gross Regional Domestic Product (GRDP). The added value provided by the livestock sub-sector in West Sumatra has led to the product processing industry. This shows that the role of the livestock sub-sector in the formation of GRDP of a region reflects the tendency of the regional economic structure. Changes in the economic structure that occur generally move from the agricultural sector to industry and then to the service sector.

From the results of this study, it is hoped that a comprehensive and integrated policy with all parties, including the government, universities, and business actors is needed in order to increase the competitiveness of livestock. This linkage between all parties is an innovation system that exists in the regions. Where all stakeholders have to collaboration in the activities for improving the competitiveness livestock. Accordance with the results of research to the development of livestock in need of regional innovation systems that can improve competitiveness through innovation policy, institutional and innovation program and improving the innovation capacity [11].

4. Conclusion
Livestock sub sector plays a very important role in supporting the achievement of food security in West Sumatra Province. Based on the results of the study, it showed that the activities of the livestock sub-sector in the period 2016-2019 still played a role as a non-base sub-sector (Average LQ 0.96). However, the role of the livestock sub-sector would not change in the future, it is estimated that it will not experience a change in the role of the non-base sector during 2016-2019 to become the basic sub-sector in the future. This can be seen from the DLQ value of 0.63. This change in role is caused by a change in the economic structure (the value of Structural Shift Share was greater than the value of Locational Shift Share).

Recommendations
The development of the livestock sub-sector in West Sumatra is a strategic industry because this industry is a provider of animal protein which is very much needed by modern society, as well as being able to create large numbers of jobs. The results showed that the current competitiveness of the West Sumatra livestock industry in terms of production capacity and added value of livestock products is still low to meet the national demand for meat and in West Sumatra. West Sumatra Animal Husbandry Innovations have been up and running, but have not been able to increase competitiveness and increase the regional economy. This is believed to be due to the absence of an integrated system, therefore strengthening the innovation system in the livestock sector needs to be done both at the level of innovation policy,
institutional and innovation programs as well as increasing the capacity of innovation in the field of breeders.

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