

# Influence of Physical and Social Factors of Livestock on Duck Farmers' Income and Regional Development: A Case of Rokan Hulu Regency, Riau Indonesia

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**Abstract:** Livestock sector plays an important role for regional economy. Physical and social planning is one strategy to spur economic growth, so it must be well planned. The aims for this research were: 1) to study physical and social planning of duck farmers' income; 2) to study development planning. The location of the research was determined purposively because the district was the center of duck farming in Riau. Sampling of 180 farmers was taken using Purposive Sampling. Physical factors consist of population and livestock production while livestock social factors consist of unemployment rate, population of poor people and Human Development Index (HDI). The positive influence of physical and social planning of livestock on the income of duck farmers and regional development was analyzed using path analysis. Based on the results of path analysis, 1. the planning of Human Development Index (HDI), population of poor people, unemployment rate, livestock production and total of duck population have a positive effect on the income of duck farmer 2. Farmer duck income, HDI, population of poor people, unemployment rate, duck production and rate of duck populations have a positive effect on the development of the area in Rokan Hulu. Based on the results of the research, it is recommended that the Rokan Hulu government makes efforts to empower duck farmers in order to increase duck farmer income, to improve the HDI, to reduce population of poor people and unemployed rate, to increase productivity of duck livestock, to absorb labor in the field of duck farming as one indicator of regional development and to make efforts to provide business capital for people's livestock in duck farming.

**Index Terms:** physical and social planning, income of duck farmers, duck production, HDI.

## I. INTRODUCTION

Livestock development is an effort to improve the welfare of farmers and to encourage the realization of regional economic development through productive activities that are competitive. Utilization of land resources needs to be adapted to the environmental conditions of their livestock (Ardi, 2016) so that livestock farming is sustainable. One approach

that can be done is a parametric approach with a classification system and population division on the basis of commodity characteristics (Abdurrahman, 2010). Livestock development planning is a development process that is intended to make changes towards better development by utilizing available resources (Ekowati, 2005).

According to Halim (2017), planning consists of several components, namely; a) physical planning, which is directed at physical arrangements, in the form of; spatial planning, location of residence and use of livestock land, b) Economic planning related to economic growth, income distribution and productivity, c) social planning, a plan discussing education, health, etc., d. ) Social planning, which is directed at making social development planning in the area. Livestock sector certainly has a strategic role in development because; it will act as an absorber of labors, a staple food producer and even as a determinant of price stability.

Livestock development can be carried out through integrated intensification, extensification, diversification and rehabilitation (integrated farming system) to increase people's income (Nadra., 2018; Janizweski, 2018; Sumekar, 2013). The development of livestock sector can be done through an approach related to several variables. The first variable is physical variable in the form of; selection of superior seeds, housing, management of maintenance of health and disease, and reproduction. The second variable is social variables consisting of labor, education and institutional levels. The third is economic variables in the form of; capital, farmer family income, inflation. The fourth is development variables in the form of; road and irrigation facilities (Yongki, 2016). Agricultural development is a strategy to spur economic growth (Sumekar, 2013) so as to provide a multiplier effect on other sectors, thus the agricultural sector has an important role on the regional economy. For the Rokan Hulu government, this sector has an important role in regional development and development. The sector is able to make a significant contribution to the formation of regional GDP, as in Table 1.

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**Table 1.** GRDP Growth Rate per Business Field in Rokan Hulu Regency.

Sector/lapangan Usaha	PDRB Value (000 Rupiah)/Year		Growth rate (%)		Average		Contribution (%)	
Agriculture, livestock, Fisheries	2017	2018	15.16	16.17	3.59	4.25	3.6	3.83
Mining and Excavation	2017	2018	2.22	2.65	4.22	6.54	8.5	6.44
Industry	2017	2018	2.95	3.12	14.8	1.73	5.8	6.31
Electricity, Gas, Clean water	2017	2018	3.95	4.24	6.71	7.20	7.3	7.08
Construction	2017	2018	42.3	45.7	3.20	7.55	8.0	6.26
Trade, Hotel, Restaurant	2017	2018	190.61	208.81	8.49	8.21	9.5	8.75
Transportation and communication	2017	2018	49.1	53.0	8.17	8.02	8.1	8.10
Finance and Real Estate	2017	2018	33.8	36.8	7.86	8.33	8.7	8.32
Service	2017	2018	165.47	179.07	8.22	7.87	8.2	8.10
<b>Total</b>	2017	2018	1.06	1.13	5.47	5.92	5.9	5.79

Sumber: BPS, 2018 (diolah)

In Table 1, it can be seen that in 2012, the agriculture/petroleum sector contributed 52.79% to Rokan Hulu GRDP, with an average growth rate of 3.83% from 2009 to 2012. The average growth rate of this sector was smaller compared to the other sectors; mining and quarrying 6.44%, industry 6.31%, electricity, gas, and clean water 7.08%, transportation and communication 8.10% and other sectors. More details can be seen in Table 1. Based on this background, this research was conducted to analyze, "The effect of physical and social factors on livestock planning to increase community income and regional development in Rokan Hulu District". Based on the background that has been stated, the problems in this study are:

1. How do physical factors, consisting of population and production, and social factors, consisting of unemployment

rate, number of poor people and HDI, affect the income of the duck farmer in Rokan Hulu Regency?

2. What is the influence of physical factors, consisting of population and production, and social factors, consisting of unemployment rate, population of poor people and HDI, on regional development in Rokan Hulu Regency.

**1.2. Research Purposes**

Based on the background and formulation of the problems described, the objectives of this study are:

1. To analyze the influence of physical factors, consisting of population and production, and social factors, consisting of unemployment rate, population of poor people and HDI, on the income of the duck farmer in Rokan Hulu Regency.

2. To analyze the influence of physical factors, consisting of population and production, and social factors, consisting of unemployment rate, population of poor people and HDI, on regional development in Rokan Hulu Regency.

**II. LITERATURE REVIEW**

**A. Physical And Social Factor**

Physical Factor is planning evolving from economic thinking. It is originating from the need to compute limited resources of a large and expanding need. Planning is a building process intended to create changes to improvement by utilizing available resources efficiently and effectively (Welerubun, 2016). According to...., planning comes from the word "plan" which means the design or the framework for doing an action. Planning is an action carried in the future by considering its potential, external factors and interested parties carefully in order to achieve a certain goal (Sumekar, 2013). Planning is used as a parameter to be able to carry out work effectively, successfully and excellently. The form of social factors of planning can be observed through attitudes and skills, but it does not mean that the form of behavior can only be seen from its attitude and justness. Behavior can also be potential, particularly in the form of knowledge (Zurmiati, 2018)

Development planning is series of procedures and stages of making development plans. According to....., there are two forms of development planning models. They are production and social factors. Social factors consist of unemployment rate, total of poor people and HDI (Janizweski, 2018). According to horizontal model, planning can be applied nationally, regionally, and locally. Horizontal planning is the making of plan by analyzing and integrating various aspects of planning at one level. Meanwhile, vertical model (often called sectoral planning) follows a sectoral approach, education, health, and so on. Vertical planning is conducted by analyzing and combining various relevant aspects from various levels (Basriwijaya, 2018).

**B. Human Development Index (Hdi)**

HDI explains how people can access the results of development to get income, health, education, and so on. HDI was introduced by the United Nations Development Program (UNDP) in 1990 and is published regularly in the annual Human Development Report (HDR). The HDI is



based on basic dimensions of life expectancy and healthy life knowledge. Decent living standards of HDI is an important indicator to measure successful effort to build quality of life for people (Abdurrahman, 2010). HDI can develop a regency. HDI is strategic data in Indonesia, because in addition to being a measure of Government performance, HDI is also used as one of the allocators for the determination of the General Allocation Fund (DAU). Some indicators are not appropriate to be used in calculating HDI. Literacy rates are irrelevant in measuring education as a whole because they cannot describe the quality of education. In addition, because literacy rates in most regions are high, they cannot distinguish between levels of education well (Nadra, 2018)

PNB replaces GDP because it better describes the income of duck farmers in a regency. By using geometric averages in composing HDI, it can be interpreted that the achievement of one dimension cannot be covered by the achievements of other dimensions. Therefore, to realize good human development, three dimensions must get the same attention because it is equally important (BPS, 2018).

### III. METHODOLOGY

#### A. Location, Research Samples

The location and sample of this study were determined intentionally (probability sampling) using convenience sampling technique by deliberately selecting samples in accordance with the wishes of the researcher (Baswijaya, 2018). This research was conducted in Rokan Hulu District, an area which is very potentially agricultural to be developed in the context of regional development.

#### B. Source And Data Collection

The data needed in this study are Primary data collected by interviews and secondary data sourced from the Central Statistics Agency (BPS) publications and other official publications.

##### 1) Data Analysis Technique

Data analysis in this study is path analysis as follows:

- Physical factors consisting of population and production and social factors consisting of unemployment rate, the number of people living in poverty and HDI affect the income of Rokan Hulu farmers, with the formula as follows:

$$Y1 = PY1X1.1 + PY1X1.2 + PY1X2.1 + PY1X2.2 + P1X2.3 \quad 1)$$

- Physical factors consisting of population, production and social factors consisting of unemployment rate, population of poor people and HDI affect the development of the area in Rokan Hulu Regency, with a formula as follows;

$$Y2 = PY1X1.1 + PY1X1.2 + PY1X2.1 + PY1X2.2 + PY1X2.3 + PY2Y1 \quad 2)$$

key :

Y2 = Regional development (absorption rate of labors).

- Y1 = Community income.
- X1.1 = total population.
- X1.2 = production.
- X2.1 = unemployment rate.

7. X2.2 = population of people living in poverty

8. X2.3 = HDI

9. □ 1, □ 2 = residue

### IV. RESULTS AND FINDINGS

The Influence of Physical and Social Factors of Livestock Planning on Farmers Income and Regional Development in Rokan Hulu District. Based on the results of the study, it is known that physical factors and economic factors of livestock planning affect the increase of community income and regional development in Rokan Hulu District, as shown in Table 2.

**Table 2.** Physical Factors of Planning Livestock Sector in Rokan Hulu District

Year	Total Population	% Population	+/- Production	% Production	+/- Production
2009	21.657	-	15.427	-	
2010	22.172	2.38%	17.446	13.09 %	
2011	22.698	2.37%	18.465	6.87%	
2012	26.531	16.89%	24.858	33.32%	
2013	26.667	0.51%	24.994	0.55%	
2014	22.791	-14.53%	15.396	-38.40%	
2015	21.686	-4.85%	16.243	5.50%	
2016	23.432	8.05%	17.311	6.57%	
2017	25.435	8.55%	18.345	5.97%	
2018	26.251	3.21%	21.379	16.54%	

Based on: BPS Rokan Hulu, 2018, Dinas Peternakan Rokan Hulu, 2018 diolah (2019)

In table 2, it can be seen that population and production as physical factors planning for livestock sector in Rokan Hulu district fluctuated from 2010 to 2018. Furthermore, social factors as variables in planning livestock sector in Rokan Hulu Regency are presented in Table 3.

**Table 3.** Social planning factors of livestock sector in Rokan Hulu District

Year	unemp loymnt level	% +/- unemplo yment	provert y level	% +/- prover ty	HDI	% +/- HDI
2009	5.92	-	28.9	-	70.75	-
2010	6.75	14.02 %	26.7	-7.61%	72.98	3.15%
2011	8.39	24.30 %	24.6	-7.87%	71.87	-1.52%
2012	9.27	10.49 %	23.5	-4.47%	72.34	0.65%
2013	6.94	-25.13%	20.4	-13.19 %	71.24	-1.52%
2014	1.66	-76.08%	17.7	-13.24 %	71.64	0.56%
2015	0.69	-58.43%	18.2	2.82%	71.94	0.42%
2016	3.56	415.94%	17.5	-3.85%	72.43	0.68%
2017	0.35	-90.17%	17.2	-1.71%	72.80	0.51%
2108	2.15	514.29%	18.6	8.14%	72.45	-0.48%

Based on: BPS Rokan Hulu, 2018, Dinas Pertanian Rokan Hulu, 2018 processed (2019)

In table3, it can be seen that unemployment as a social variable in the planning of the livestock sector in Rokan Hulu fluctuated from 2010 to 2018, as well as other variables. Furthermore, based on the results of data processing or analysis performed by using the





path analysis technique (path analysis) with the help of SPSS ver. 19, the following results were obtained:

a. Results of data analysis on the empirical causal effect of population number variables (X1) on production (X2) are illustrated by sub-structural equations;  $X_2 = p_{X1X2} + e$ . Based on the results of the regression output, the path coefficient ( $p_{X2X1}$ ) = 0.883, with t count = 5.323, and t table = 1.648. This shows that t count > t table meaning that the path coefficient is significant. In accordance to the results of the data processing, it can be interpreted that the population (X1) affects on production (X2), meaning that the improvement of the population (good management) can increase livestock production. The path coefficient value is 0.883. This explains that the population contribution to production is 77.97% while the remaining 22.03% is influenced by other factors not included in the estimation model.

b. Results of data analysis on the empirical causal effect of population number variables (X1), production (X2), on the unemployment rate (X3) are illustrated by sub-structural equations;  $X_3 = p_{X3X1} + p_{X3X2} + e$ . Based on the results of the regression output, the path coefficient is  $p_{X3X2} = 1.73$  with t count = 3.789, while t table is 1.648. This indicates that t count > t table means that the path coefficient is significant. Path coefficient is  $p_{X3X1} = -1.41$ , with t count = -3.07, while t table is 1.648. This shows that t count < t table means that the path coefficient is not significant. In accordance to the results of the data processing, it can be interpreted simultaneously that livestock production (X2) and population number (X1) affects the unemployment rate (X3). The magnitude of the simultaneous influence is 0.33, meaning that the variables of livestock production (X2) and population (X1) contribute 33% to the unemployment rate in Rokan Hulu.

The results of data processing show that  $p_{X3X2}$  path coefficient value is 1.73. This indicates that livestock production contributes to unemployment by 29.99% and while the remaining 69.99% is influenced by other factors not included in the estimation model. Furthermore, the  $p_{X3X1}$  path coefficient value is 1.45. Thus, this indicates that land area contributes to the unemployment rate of 19.07% and the remaining 81.03% is influenced by other factors not included in the estimation model, meaning that if the population is managed by farmers experiencing a reduction, the number of unemployed has increased. This certainly explains that population and production can affect the unemployment rate in Rokan Hulu district.

c. Results of data analysis on empirical causal influence among livestock population (X1), production (X2) and unemployment rate (X3) on poverty level (X4) are described by sub-structural equation;  $X_4 = p_{X4X1} + p_{X4X2} + p_{X4X3} + e$ . Based on the results of the regression output, path coefficient  $p_{X4X1}$  is -0.009 with t count -0.13 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant. In addition, path coefficient  $p_{X4X2}$  is -0.517 with t count -0.683 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant. Moreover, path coefficient  $p_{X4X3}$  is 0.992 with t count 2.771 and t table 1.648. This fact reveals that t count > t table means that the path coefficient is significant. Based on the results of data analysis, it can be interpreted that unemployment rate (X3), livestock production (X2) and

population (X1) affect poverty (X4) simultaneously. The magnitude of the simultaneous influence is 0.446, which means that unemployment variable (X3), duck production (X2) and population (X1) contribute 44.6% to poverty in Rokan Hulu.

Variable  $p_{X4X1}$  path coefficient value is obtained = -0.517, meaning that it can be explained that the population contributes to community poverty by 26.7% and the remaining 73.3% is influenced by other factors not included in the estimation model, meaning if the population will managed by farmers experiencing a reduction, population of poor people will increase. Then the  $p_{X4X2}$  path coefficient value was obtained = -0.009, explained that livestock production contributed 0.001% to the community poverty level and dominantly influenced by other factors not included in the estimation model.

Variable  $p_{X4X3}$  path coefficient value is 0.992. This shows that the rate of unemployment contributes to the poverty rate by 98.41% while the remaining 1.6% is influenced by other factors not included in the estimation model. This indicates that if the number of unemployed people increases, the number of people living in poverty will increase as well. This certainly explains that land area, production and unemployment rates can affect poverty in a region.

d. Results of data analysis on empirical causal influence among population (X1), production (X2), unemployment rate (X3), poverty rate (X4), unemployment rate (X4) on HDI (X5) are described by sub-structural equations;  $X_5 = p_{X5X1} + p_{X5X2} + p_{X5X3} + p_{X5X4} + e$ .

Based on the results of the regression output, path coefficient  $p_{X5X1}$  is -0.382 with t count -0.325 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant. Furthermore, path coefficient  $p_{X5X2}$  is -3.96 with t count -0.284 and t table 1.648. This shows that t count < t table means that the path coefficient is not significant. Moreover, path coefficient  $p_{X5X3}$  is 0.971 with t count 1.12 and t table 1.648. This fact shows that t count < t table means that the path coefficient is significant. Meanwhile, path coefficient  $p_{X5X4}$  is -0.643 with t count 0.887 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant.

Based on the results of data processing, it can be interpreted that the number of people living in poverty (X4), unemployment rate (X3), livestock production (X2) and population (X1) have an effect on HDI (X5) simultaneously. The magnitude of the simultaneous influence is 0.455 or 45.5%, meaning that the poor population (X4), unemployment rate (X3), livestock production (X2) and land area (X1) contribute 45.5% to the development of HDI in Rokan Hulu District.

$p_{X5X1}$  path coefficient value is -0.382. This means that land area contributes to HDI by 14.59% and the other 84.5% is influenced by other factors not included in the estimation model. In addition,  $p_{X5X2}$  path coefficient value is -0.396. This indicates that livestock production contributes to HDI by 0.06%, which means that the



dominant factors influencing are not included in the estimation model.

Furthermore, the value of  $pX5X3$  path coefficient is 0.971. This indicates that the number of unemployed people contributes to HDI level by 84.3% while the remaining 15.7% is influenced by other factors not included in the estimation model. This means that the increase of unemployment rate affects HDI of Rokan Hulu District.  $pX5X4$  path coefficient is 0.643. This means that poverty rate contributes to HDI level by 41.34% and the remaining 58.66% is influenced by other factors not included in the estimation model. This indicates that if the unemployment rate increases, HDI will decrease and vice versa.

e. The results of data analysis on empirical causal influence among livestock population (X1), production (X2), unemployment rate (X3), poverty rate (X4), unemployment rate (X4) and HDI (X5) on farmers' income are illustrated by sub-structural equations;  $Y1 = pY1X1 + pY1X2 + pY1X3 + pY1X4 + pY1X5 + e$ .

Based on the results of the regression output, path coefficient  $pY1X1$  is -0.91 with with t count -2.67 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant. In addition, path coefficient  $pY1X2$  is 0.329 with t count 0.821 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant. Meanwhile, path coefficient  $pY1X3$  is -0.46 with t count -0.168 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant.

Path coefficient  $pY1X4$  is -0.662, with t count -3.167 and t table 1.648. This fact reveals that t count > t table means that the path coefficient is significant. In addition, path coefficient  $pY1X5$  is 0.492, with t arithmetic 4.499 and t table 1.648. This fact reveals that t count > t table means that the path coefficient is significant.

Based on the results of data processing, it can be interpreted that HDI (X5), the number of people living in poverty (X4), unemployment rate (X3), production (X2) and population (X1) affect the income of the community (Y1) simultaneously. The magnitude of simultaneous influence is 0.609 or 60.9%, meaning that HDI variable (X5), the number of people living in poverty (X4), unemployment rate (X3), livestock production (X2) and population (X1) contribute 60.9% to farmers' income in Rokan Hulu.

Variable  $pY1X1$  path coefficient value is 0.91. This means that the number of population contributes to the level of community income by 82.8%, and the remaining 17.2% is influenced by other factors not included in the estimation model.  $pY1X2$  path coefficient value is -0,329. This indicates that livestock production contributes 10.82% to farmers' income and dominantly influenced by other factors not included in the estimation model.

Furthermore,  $pY1X3$  path coefficient value -0.46 means that the unemployment rate contributes negatively to farmers' income by 21.16% while the other 78.84% is influenced by other factors not included in the estimation model. This indicates that if the unemployment rate increases, it will have an effect on the income of duck farmers in Rokan Hulu.  $pY1X4$  path coefficient value -0.662 means that the poverty rate contributes to farmers' income by 43.82% while the other

56.18% is influenced by other factors that are not included in the estimation model. This indicates that if poverty increases, farmers' income will decline.

Variable  $pY1X5$  path coefficient value 0.492 means that HDI contributes to farmers' income by 24.21% while the other 75.79% is influenced by other factors not included in the estimation model. This indicates that if HDI increases, farmers' income will increase as well. This certainly explains that population, production, unemployment rate, poverty level, and HDI affect the income of Rokan Hulu duck farmers.

f. Results of empirical causal analysis data influence population (X1), production (X2), unemployment rate (X3), poverty rate (X4), unemployment rate (X4), HDI (X5) and farmers' income (Y1) in regional development (Y2), illustrated by sub-structural equations;  $Y2 = pY2X1 + pY2X2 + pY2X3 + pY2X4 + pY2X5 + pY2Y1 + e$ .

Based on the results of the regression output, path coefficient  $pY2X1$  is 0.057 with t count 0.218 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant. Meanwhile, path coefficient  $pY2X2$  is 0.207, with t count 0.623 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant. Furthermore, path coefficient  $pY2X3$  is -0.336) with t count -1.592 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant.

Path coefficient  $pY2X4$  is -0.531, with t count -1.759 and t table 1.648. This fact reveals that t count > t table means that path coefficient is significant. Moreover, path coefficients  $pY2X5$  is -0.170, with t count -0.822 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant. Path coefficient  $pY2Y1$  is 0.257, with t count 0.670 and t table 1.648. This fact reveals that t count < t table means that the path coefficient is not significant.

Based on the results of the data processing, it can be interpreted that farmers' income (Y1), HDI (X5), population of people living in poverty (X4), unemployment rate (X3), production (X2) and population (X1) influence labor absorption simultaneously. This becomes an indicator of regional development (Y2). The magnitude of the simultaneous influence is -0.30 or -30.0%, meaning that the income of society variable (Y1), HDI variable (X5), population of people living in poverty (X4), unemployment rate (X3), livestock production (X2) and the number of population (X1) contributes 30.0% to regional development. This is illustrated by the level of employment in Rokan Hulu.

Variable  $pY2X1$  path coefficient value is 0.57, thus it indicates that the land area contributes to the employment absorption rate of 32.49% and the remaining 67.51% is influenced by other factors not included in the estimation model.  $pY2X2$  path coefficient value is 0.207. This means that the population contributes to employment absorption of 0.428%. This indicates that there are other dominant factors that are not included in the estimation model.

Furthermore, variable  $pY2X3$  path coefficient value is -0.336, meaning that the unemployment rate contributes negatively to regional development which is illustrated by the employment

absorption rate of 11.29% and the remaining 88.71% is influenced by other factors not included in the estimation model. This means that if the number of unemployed people increases, the absorption of labor will be very low.

Variable  $pY2X4$  path coefficient value is -0.531. Thus, it can be explained that poverty contributes to the employment absorption rate by 18.2%. The other 81.8% is influenced by other factors not included in the estimation model. This means that if poverty increases, the absorption of work will decline. In addition,  $pY2X5$  path coefficient is -0.170. This indicates that HDI contributes to the employment absorption rate by 2.9%. The other 97.1% is influenced by other factors not included in the estimation model. This means that if there is a  $pY2Y1$  variable, path coefficient value is 0.257 so that it indicates that duck farmers' income contributes to the development of the district, seen from the absorption of labors by 6.6% while the other 93.4% is influenced by other factors not included in the estimation model. This means that if the income of the farmers shows an increase, the absorption of labor as an illustration of regional development will also increase. This certainly indicates that the number of population, livestock production, rates of unemployment, poverty levels, HDI and farmers' income affect regional development as seen from the level of employment in Rokan Hulu District.

If HDI and the absorption of labors increase, regional development will improve as well.

## V. CONCLUSION

Based on the results of the study, it can be concluded:

1. HDI, total of poor people, unemployment rate, livestock production and population influenced duck farmers' income simultaneously by 60.9% in Rokan Hulu District.
2. The income level of duck farmers, HDI, the number of people living in poverty, unemployment rate, livestock production and population influenced regional development simultaneously by 30.0% in Rokan Hulu District, seen from the level of employment.

## VI. SUGGESTION

Based on the results of research studies obtained, the suggestions that can be submitted are:

1. Rokan Hulu government should make efforts to improve public opinion.
2. Rokan Hulu government should make efforts to improve HDI, reduce the number of people living in poverty and unemployed people.
3. Rokan Hulu government should make efforts to increase the productivity of livestock commodities, especially food commodities through a program because it will influence the absorption of labors, and this can be an indicator of regional development in Rokan Hulu.
4. Rokan Hulu government should make efforts to provide employment because the unemployment rate there is still high.

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