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Research Paper

Simulation of Government Policy In Order To Improve the Household Income of Cattle Farmers in Bolaang Mongondow Regency of North Sulawesi

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ABSTRACT:- This study aims to analyze government policies such as the use of technology, labour reduction, the subsidy of increasing the number of cattle ownership, the subsidy of production cost of cattle farming, the subsidy of feed consumption expenditure, the strategy of increasing the selling price of cattle, the education subsidy, and the health subsidy that are quite effective in improving the income of beef cattle farmer, improving the production and being able to reduce the cost factors required in the cattle farming. The study was conducted in the Sub district of North Damage of Bolaang Mongondow Regency. It was chosen as the study area on the basis that first; Bolaang Mongondow Regency is a beef cattle production centre and one of the development areas of beef cattle in North Sulawesi. The population in this study were all beef/ worker cattle farmers in the Sub district of North Dumoga of Bolaang Mongondow. This study involved the samples of 65 respondents from three selected villages namely Tumokang Baru, South Mop gad Selatan Induk, and South Mopuya. The analysis tool was the simulation results of simultaneous equation system. The research results show that the simulation impacts of government policies in the form of technology usage, labour reduction, the subsidy of increasing the number of cattle ownership, the subsidy of production cost of cattle farming, the subsidy of food consumption expenditure, the strategy of increasing the selling price of cattle, the education subsidy, and the health subsidy are quite effective to increase the income of beef cattle farmers, improve the production and can reduce production costs required in the cattle farming. The suggestions for the government are to adopt policies in order to increase the household income of beef farmers, it is expected that the government can implement one or more of the following policies (1) the usage of feed technology in the household economy of beef cattle farmers, (2) the subsidy of increasing the number of cattle ownership, (3) the subsidy of decreasing the production cost of cattle farming, (4) the subsidy of feed consumption expenditure, (5) the setting of the selling price of cattle, (6) the subsidy of education and health cost for farmers.

Keywords:- Cattle farmers, Policy Simulation, Subsidy

I. INTRODUCTION

Livestock development is one important aspect in the development of agriculture. The development activities are important to do especially in encountering the economic and monetary crisis. Thus, the increase in livestock development should be carried out continuously and sustainably that will ultimately improve the welfare of livestock farmers. Livestock development as part of agricultural development will be associated with the reorientation of agricultural development policy (Mayulu et al., 2010).

Livestock in Indonesia has a good potential to be developed because of the potential of considerable resources (Elly, 2008). Based on the existing potential, the livestock sub-sector has investment opportunities in its development. This provides opportunities for the development of other processing industries to increase further added value. Mayulu et al, (2010) states that the development of livestock has a new paradigm, that is in the macro level it is in favour of the people, the presence of responsibility delegation, structure changes and community empowerment. Therefore, it is necessary to formulate the strategy and policy which are comprehensive, systematic, integrated both vertically and horizontally, competitive, sustainable and decentralized.

Cattle farming have good future and encouraging market potential (Elly, 2008). In addition to providing additional income for livestock farmers, cattle are also becoming the source of local income through

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livestock trade among the islands. The characteristics of livestock farmer besides raising cattle are also carrying out agricultural activities such as plantation (coconut), planting rice, crops and other seasonal plants. Agricultural activities are managed by households; in this case father, mother and children are involved in the farming activities. Similarly, cattle farming activities are carried out by households and the family members are involved. In addition, the interesting fact is that the cattle farming in North Sulawesi is still traditionally managed. The main characters of households show that cattle farming is a hereditary family sideline and mostly carried out by family members.

The demand for beef in Indonesia is getting increased along with the increase in population and the higher public awareness upon the importance of food with high nutritional value, both plant protein and animal protein. The needs of animal protein from cattle have not been met. According Mayulu et al (2010) the development of beef cattle farming was conducted jointly by the government, society (small scale farmers) and private sector.

This study aims to analyze government policies such as the use of technology, labour reduction, the subsidy of increasing the number of cattle ownership, the subsidy of the production cost of cattle farming, the subsidy of feed consumption expenditure, the strategy of increasing the selling price of cattle, the education subsidy, and the health subsidy that are quite effective in improving the income of beef cattle farmer, improving the production and being able to reduce the cost factors required in the cattle farming

II. LITERATURE REVIEW

Livestock in Indonesia is generally dominated by small-scale farmers and performed as sideline business. Therefore, one of the resources to be relatively very rare for livestock farmers is capital resources. In developing the livestock fields and in order to help small livestock farmers, the government has rolled out various loan packages as the source of financing for livestock farmers, both from the formal financial sources (government and private) and non-formal (individual credit and profit sharing).

In supporting the development of livestock, the government has made a variety of ways to reduce the imports dependence and fulfil the domestic needs. The efforts being conducted are opening the investment opportunities and market opportunities of livestock sector through the development of national investment by enhancing the role of private sectors farms in developing the livestock for optimum utilization of local resources (Directorate of Livestock Development, 2008).

The people's beef cattle farming, seen from their maintenance system is divided into two patterns, namely land base and non land base. Furthermore, it is stated that the land base raising pattern has the following characteristics: (i) Cattle raising is carried out in extensive grazing pastures and cannot be used as agricultural land. In this case, the feed is relied on grass only available in the pasture, (ii) this pattern is generally found in areas that are not fertile, hard water, having high temperatures and sparse population. This raising patterns are common in West Nusa Tenggara, East Nusa Tenggara, Kalimantan and parts of Sulawesi (iii) the raising technique is performed traditionally with less technological touch, and (iv) the cattle raising is non-commercial, but it tends to be a symbol of social status. While the non land base raising pattern has the following characteristics: (i) the cattle raising is frequently performed using cage by feeding the cattle inside the cage, (ii) related to the fields farming as the source of forage, (iii) this pattern is generally carried out in densely populated areas such as Java, Sumatra, partly in West Nusa Tenggara, Kalimantan and Sulawesi, and (iv) non landbase farming is more intensive than the landbase patterns with the purposes for savings and partly for commercial purposes. In general, Cattle Ownership Scale for the landbase pattern is larger than the pattern of non landbase. Ilham et al, (2001) in Rahmanto (2004) reports that from the farmers in Sumbawa-West Nusa Tenggara that raise cattle with landbase pattern, in general the scale of cattle ownership is above 5 head (51.6 percent), while the farmers that raise cattle under 3 heads only reach 12.0 percent. In contrast, farmers in Lombok-NTB and in East Java implementing a non landbase pattern generally raise cattle with ownership scale under 5 heads, even more than 50 percent of farmers only have raising scale under 3 heads.

The development of traditional farming can switch to semi-intensive considering that these household is managed by household utilizing the members of family. Then to lead to the intensive one, there are many things that must be improved, including venture capital. Households have not been able to provide venture capital for intensive livestock. Professional labours should be no longer the labour of family members. The example of intensive farming system is the beef cattle company in Sukabumi. The company is engaged in importing seeds, using a professional staff, providing concentrate feed (Nefri, 2000). Livestock company development in the direction of the semi-commercial can be carried out with the support from the government. According to Purnomo (2010) the potential of local beef cattle as meat producers have not been optimally utilized through the improvement of raising management. The local cattle have several advantages, namely high adaptability to the local environment, able to take advantage of low-quality feed and having good reproduction.

Some research results show that cattle farming managed by household can be improved into a better condition. The things that need attention is the establishment of a farming group. Livestock in groups, according to Fagi, et al. (2004) has some advantages such as (a) strengthening the bargaining position of farmers in marketing, (b) procuring facilities together, and (c) fostering the capital. In addition, through the group, it facilitates the government to sets aggressive and diversified strategies. Both strategies are to increase the knowledge for livestock farmers and their family members. Increased knowledge can occur when counselling is administered continuously for the households and family members.

According to Elly (2008), farming is a process of combining the factors of production such as land, livestock, labour and capital to produce livestock products. Cattle farming success depends on three elements, namely breeding, feeding and management. In traditional cattle farming of which the raising has not noticed these three elements extensively, the management element includes the management of breeding, feeding, housing, and cattle health. The management also includes the handling of cattle product, marketing and labour arrangements. The selection of good breeding has not been a concern for cattle farmers. This indicates that the population growth rate is slow due to adult cattle are used as labours. According to Santoso and Tuherkih (2003), the slow development of beef cattle is caused by two other factors which are contradictory; there is only a little cattle population, but on the other hand there are many cattle slaughtered.

Currently the Indonesian government has to be turned on agribusiness and agricultural sector to increase the national income in addition to the export of petroleum and gas. Quantitatively, the natural resources of agribusiness sector are very abundant. Besides, culturally the economic base of Indonesian people is agriculture especially in rural areas. Based on this phenomenon, the direction of future national development should be oriented on the development of agricultural sector which is more self-sufficient and conducive. These conditions are expected to create a dynamic and comprehensive climate towards the development of agriculture and agribusiness sector in the future. Efforts to strengthen the agriculture and agribusiness sector base definitely influence the people economy of which has been marginalized so far. Eventually, these efforts have implications for strengthening the national economy.

The development of livestock area is aimed at improving community's incomes and welfare. The welfare improvement can occur through accelerated development and improvement of the rural areas and cities by encouraging the development of competitive systems and agribusiness (Muhammad, 2003).

The policies of farming area development is oriented to market driven, through the empowerment of people who are not only directed towards the on-farm development but also including the development of upstream agribusiness (supplying agricultural facilities) and downstream agribusiness (processing and marketing) and the supporting services. It can be also facilitated by the provision of infrastructure and facilities to support the development of agribusiness in a complete and thorough system, ranging from farming subsystem (on-farm), upstream agribusiness subsystem, downstream, and the supporting services. The problem is whether the livestock farmers have developed the beef cattle farming with agribusiness orientation or not. By the farming development, it is expected that the farming pattern of beef cattle farming will lead to agribusiness, so the cattle population can be increased. Beef cattle population increase is expected to be faster than the demand for cattle. Elly's research results (2008) show that the populations of beef cattle in North Sulawesi have been decreased each year. This is caused by the sales transaction of productive female and cattle slaughter constantly increasing. The increase in cattle slaughter is caused by the trend of increasing beef demand in North Sulawesi.

III. RESEARCH METHOD

The study was conducted in the Sub district of North Dumoga, Bolaang Mongondow Regency. It was selected as the research area on the basis that first, Bolaang Mongondow Regency was a beef cattle production centre and was one of the development areas of beef cattle in North Sulawesi.

The research was conducted by survey, a study that systematically and factually describes the phenomena that exists now and also describes the relationship between phenomena, tests the hypotheses and makes interpretations and obtaining meaning of the phenomenon under the study (Natzir, 1988). Survey method is to take a sample of a population using a questionnaire. Primary data are taken from the respondents, while secondary data are collected from research institutions associated with the study (Singarimbun and Effendi, 1995).

The population in this study were all beef/worker cattle farmers in the District of North Dumoga, Bolaang Mongondow. This study involved the samples of 65 respondents from three selected villages namely Tumokang Baru, Mopugad Selatan Induk, and South Mopuya.

To analyze the economic model of beef cattle farming households, it will be used simultaneous equations model, and to test the results of policy implementation, it is carried out the simulation of the results of simultaneous equations system. The simulations are as follows:

a. The impacts of technology usage by 25% on the economy of beef cattle farmer household result in increased revenues of beef cattle farmers
b. The impacts of reduced use of labour in non-cattle farming by 25% on the economy of beef cattle farmer household result in increased revenues of beef cattle farmers
c. The impacts of 25% increase in the number of cattle ownership result in increased revenue of beef cattle farmers
d. The impacts of the government subsidy on the reduction of cattle farming production cost by 25% result in increased revenues of beef cattle farmers
e. The impacts of the subsidy of expenditure reduction of feed consumption by 25% result in increased revenue of beef cattle farmers
f. The impacts of increased selling price of cattle by 25% on the economy of beef cattle farmer household result in increased revenue of beef cattle farmers
g. The impacts of the education subsidy by 50% on the economy of beef cattle farmer household result in increased revenue of beef cattle farmers
h. The impacts of the health care subsidy by 50% on the economy of beef cattle farmer household result in increased revenue of beef cattle farmers

IV. RESULTS AND DISCUSSION

4.1. Description of Research Variables

Here is presented the description of ten endogenous variables in this study:

Table 1: Description of Research Variables

Variable	Area	Mean
	TB	**893.259**
PS	MG	**886.800**
	MY	**902.278**
	TB	**5,608,630**
PUST	MG	**4,901,525**
	MY	**5,025,333**
	TB	**4,125,969**
TKRT	MG	**4,797,775**
	MY	**3,925,306**

In Table 1, the values of Beef Cattle Production (*PS*) in New Tumokang village range from the values of 806 to 996 kg/AU, with the mean of 893,259 kg/AU. In the village of Mopugad Selatan Induk, the values of Beef Cattle Production (PS) range from the values of 812 to 975 kg/AU, with the mean of 886,800 kg/AU. While in South Mopuya Village, the values range from 804 to 992 kg/AU, with the mean of Beef Cattle Production (PS) of 902.278 kg/AU which is the highest compared to the other two villages.

The values of Beef Cattle Farming Receipts (PUST) in the village of New Tumokang range from the values of 1,125,000 to 15,807,000 Rp/yr/resp, with the mean of 5,608,630 Rp/year/resp. In the village of Mopugad Selatan Induk, The values of Beef Cattle Farming Receipts (PUST) range from the values of 1,657,000 to 12,061,000 Rp/yr/resp, with the mean of 4,901,525 Rp/yr/resp. While in the village of South Mopuya, the values range from 1,209,000 to 14,080,000 Rp/yr/resp, with the mean values of Beef Cattle Farming Receipts (PUST) of Rp 5,025,333 Rp/yr/resp with the highest value from New Tumokang village.

The Total Values of Household Consumption (*TKRT*) in the village of New Tumokang range from the values of 2,302,000 to 8,152,500 Rp/yr/resp, with the mean of 4,125,969 RP/year/resp. In the village of Mopugad Selatan Induk, the Total Values of Household Consumption (*TKRT*) range from 2,137,500 to 11,854,000 Rp /yr/resp, with the mean of around 4,797,775 Rp/yr/resp. While in the village of South Mopuya, the values range from 1,598,000 to 10,245,500 Rp/yr/resp, with the mean values of Total Household Consumption (TKRT) of Rp 3,925,306 Rp/yr/resp with the highest value from Mopugad Selatan Induk village.

4.2. Policy simulation

From the results of testing of simultaneous equations system in Appendix 1, it is conducted the policy simulation testing as presented in Table 2-9:

Table 2: Simulation of Technology Usage Policy

Endogenous Variables	Actual	Simulation Impacts	Changes
PS	**893.1**	**899.5**	**0.717**
CTK	**184.7**	**233.5**	**26.421**
TKKUNS	**2.8462**	**2.8454**	**-0.028**
KPT	**57538.5**	**61858.8**	**7.509**
KPTRP	**57461.5**	**61141.8**	**6.405**
BPROS	**998954**	**1031139**	**3.222**
PDRT	**11134711**	**11411818**	**2.489**
PUS	**1542554**	**1542554**	**0.000**
PUSN	**3789195**	**3844576**	**1.462**
PDLT	**1097308**	**1319034**	**20.206**
PUST	**5154477**	**6332458**	**22.854**
KPS	**2211031**	**2537853**	**14.781**
KNP	**1819425**	**1828386**	**0.493**
TKRT	**4030456**	**4366239**	**8.331**

Table 2 of the simulation of technology usage policy (simulation 1) show the impacts of technology usage by 25% of the economy of beef cattle farmer household, resulting in the highest increase at 26.421% of Expended Labour on Cattle Farming (CTK). Beef Cattle Farming Receipts (PUST) is also increased by 22.854%, there is also 20.206% increase in Revenues from Outside Farming (PDLT). These impacts do not result in a change of Revenues from Beef Cattle (PUS). However, the impacts of this simulation decrease the values of Family Labour (TKKUNS) by 0.028%.

Table 3: Simulation of Labour Reduction Policy

Endogenous Variables	Actual	Simulation Impacts	Changes
PS	**893.1**	**867.8**	**-2.833**
CTK	**184.7**	**137.2**	**-25.717**
TKKUNS	**2.8462**	**2.7859**	**-2.119**
KPT	**57538.5**	**57956.3**	**0.726**
KPTRP	**57461.5**	**58303.9**	**1.466**
BPROS	**998954**	**1083442**	**8.458**
PDRT	**11134711**	**11564238**	**3.858**
PUS	**1542554**	**1583538**	**2.657**
PUSN	**3789195**	**3845394**	**1.483**
PDLT	**1097308**	**1004473**	**-8.460**
PUST	**5154477**	**5229531**	**1.456**
KPS	**2211031**	**2124594**	**-3.909**
KNP	**1819425**	**1877185**	**3.175**
TKRT	**4030456**	**4001779**	**-0.712**

Table 3 of the simulation of labour reduction policy (simulation 2) indicates 25% reduction of the expended labour (CTK). The impacts of this simulation can be seen clearly at 8.46% reduction of the revenues from outside farming (PDLT), 3.90% reduction of the household food consumption, despite there is 8.45% increase in the production costs (BPROS), 3.85% of the revenues from farmer household (PDRT), 2.657% increase in the revenues from beef cattle farming (PUS).

Table 4: Simulation of Subsidy of Increased Number of Cattle Ownership

Endogenous Variables	Actual	Simulation Impacts	Changes
PS	**893.1**	**889.4**	**-0.414**
CTK	**184.7**	**202.9**	**9.854**
TKKUNS	**2.8462**	**2.7859**	**-2.119**
KPT	**57538.5**	**62381**	**8.416**
KPTRP	**57461.5**	**62074.9**	**8.029**
BPROS	**998954**	**1109557**	**11.072**
PDRT	**11134711**	**11791326**	**5.897**
PUS	**1542554**	**1583538**	**2.657**
PUSN	**3789195**	**3845394**	**1.483**
PDLT	**1097308**	**1231560**	**12.235**
PUST	**5154477**	**5229531**	**1.456**
KPS	**2211031**	**2149120**	**-2.800**
KNP	**1819425**	**1885133**	**3.611**
TKRT	**4030456**	**4034253**	**0.094**

Table 4 of the simulation of increased number of cattle ownership (simulation 3) indicates 25% increase in the number of cattle ownership (JKSP). The impacts of this simulation can be seen clearly at 9.854% increase in the expended labour (CT), 11.072% increase in the production costs (BPROS), and 12.235% increase in the revenues from outside farming (PDLT). The increase is at 8.416% of the consumption of forage feed (KPT), and 8.029% of concentrate feed consumption (KPTRP). The increase is also seen at 5.897% of the farmer household revenues (PDRT), 2,657% of the revenues from beef cattle farming (PUS), 1.483% of the operating revenue of non beef cattle, and 1,456% of receipt of beef cattle farming (PUST).

Table 5: Simulation of Production Costs Subsidy

Endogenous Variables	Actual	Simulation Impacts	Changes
PS	**893.1**	**883.4**	**-1.086**
CTK	**184.7**	**184.7**	**0.000**
TKKUNS	**2.8462**	**2.8454**	**-0.028**
KPT	**57538.5**	**57538.5**	**0.000**
KPTRP	**57461.5**	**57459.9**	**-0.003**
BPROS	**998954**	**55798.5**	**-94.414**
PDRT	**11134711**	**11190091**	**0.497**
PUS	**1542554**	**1542554**	**0.000**
PUSN	**3789195**	**3844576**	**1.462**
PDLT	**1097308**	**1097307**	**0.000**
PUST	**5154477**	**5154477**	**0.000**
KPS	**2211031**	**2221712**	**0.483**
KNP	**1819425**	**1820625**	**0.066**
TKRT	**4030456**	**4042338**	**0.295**

Table 5 of the simulation of production cost subsidy (simulation 4) indicates 25% reduction of the production costs that include the cost of the cage, the cost of forage feed, concentrate costs, and the cost of medicines. These subsidies decrease by 94.41% of the previous production costs. This subsidy will increase by 1.46% of the revenue from beef cattle farming.

Table 6: The results of Feed Consumption Expenditure Subsidy

Endogenous Variables	Actual	Simulation Impacts	Changes
PS	**893.1**	**893.1**	**0.000**
CTK	**184.7**	**214**	**15.864**
TKKUNS	**2.8462**	**3.2826**	**15.333**
KPT	**57538.5**	**57538.5**	**0.000**
KPTRP	**57461.5**	**57459.9**	**-0.003**
BPROS	**998954**	**1541036**	**54.265**
PDRT	**11134711**	**12676560**	**13.847**
PUS	**1542554**	**1542554**	**0.000**
PUSN	**3789195**	**4554425**	**20.195**
PDLT	**1097308**	**1873927**	**70.775**
PUST	**5154477**	**5154477**	**0.000**
KPS	**2211031**	**3239889**	**46.533**
KNP	**1819425**	**1983572**	**9.022**
TKRT	**4030456**	**5223461**	**29.600**

Table 6 of the simulation of feed consumption expenditure subsidies (simulation 5) is seen clearly at 70.775% increase in the operating revenues outside farming (PDLT), although it is balanced with 54% increase in the production costs. The increase can be also seen from the Expended Labour of cattle farming (CTK) by 15.86%, and 15.33% increase in the family labour (TKKUNS).

Table 7: Simulation of Strategies to Increase Cattle Selling Price

Endogenous Variables	Actual	Simulation Impacts	Changes
PS	**893.1**	**883.4**	**-1.086**
CTK	**184.7**	**184.7**	**0.000**
TKKUNS	**2.8462**	**2.8454**	**-0.028**
KPT	**57538.5**	**57538.5**	**0.000**
KPTRP	**57461.5**	**57459.9**	**-0.003**
BPROS	**998954**	**1005641**	**0.669**
PDRT	**11134711**	**11190091**	**0.497**
PUS	**1542554**	**1542554**	**0.000**
PUSN	**3789195**	**3844576**	**1.462**
PDLT	**1097308**	**1097307**	**0.000**
PUST	**5154477**	**6332458**	**22.854**
KPS	**2211031**	**2221712**	**0.483**
KNP	**1819425**	**1820625**	**0.066**
TKRT	**4030456**	**4042338**	**0.295**

Table 7 of the simulation of strategy to increase the selling price of cattle (simulation 6) is seen at 22.854% increase in the beef cattle farming receipt (PUST), 1.46% increase in the operating revenues of non beef cattle (PUSN). However, the negative impacts of simulation 6 are 1.086% reduction of the beef cattle production.

Table 8: Education Subsidy

Endogenous Variables	Actual	Simulation Impacts	Changes
PS	**893.1**	**882.9**	**-1.142**
CTK	**184.7**	**182.9**	**-0.975**
TKKUNS	**2.8462**	**2.7859**	**-2.119**
KPT	**57538.5**	**57956.3**	**0.726**
KPTRP	**57461.5**	**58303.9**	**1.466**
BPROS	**998954**	**983442**	**-1.553**
PDRT	**11134711**	**11564238**	**3.858**
PUS	**1542554**	**1583538**	**2.657**
PUSN	**3789195**	**3845394**	**1.483**
PDLT	**1097308**	**1104473**	**0.653**
PUST	**5154477**	**5229531**	**1.456**
KPS	**2211031**	**2124594**	**-3.909**
KNP	**1819425**	**1947872**	**7.060**
TKRT	**4030456**	**4172466**	**3.523**

Table 8 of the simulation of education subsidy (simulation 7) is seen at 3.858% increase in the farmer household revenue (PDRT), 2.657% of the revenues from beef cattle farming (PUS), and 1.483% of the operating revenues of non beef cattle (PUSN). There is 7.06% increase in the non-food consumption of family (KNP), and 3.909% reduction of the family food consumption (KPS). The increase is seen at 3,523% of the total household consumption (TKRT).

Table 9: Health Subsidy

Endogenous Variables	Actual	Simulation Impacts	Changes
PS	**893.1**	**882.9**	**-1.142**
CTK	**184.7**	**182.9**	**-0.975**
TKKUNS	**2.8462**	**2.7859**	**-2.119**
KPT	**57538.5**	**57956.3**	**0.726**
KPTRP	**57461.5**	**58303.9**	**1.466**
BPROS	**998954**	**998642**	**-0.031**
PDRT	**11134711**	**11564238**	**3.858**
PUS	**1542554**	**1583538**	**2.657**
PUSN	**3789195**	**3845394**	**1.483**
PDLT	**1097308**	**1104473**	**0.653**
PUST	**5154477**	**5229531**	**1.456**
KPS	**2211031**	**2124594**	**-3.909**
KNP	**1819425**	**1865575**	**2.537**
TKRT	**4030456**	**4290169**	**6.444**

Table 9 of the simulation of health subsidy (simulation 8) is seen at 3,858% increase in the farmer household revenue (PDRT), 2,657% of the revenues from beef cattle farming (PUS), and 1.483% of the operating revenues of non beef cattle (PUSN). There is 2.537% increase in the non-food consumption of family (KNP), and 3.909% reduction of the family food consumption (KPS). The increase is seen at 6.444% of the total household consumption (TKRT).

V. CONCLUSIONS AND RECOMMENDATIONS

Here are presented the impacts of government policies simulation in the form of technology usage, labour reduction, the subsidy to increase the number of cattle ownership, the subsidy of cattle farming production cost, the subsidy of feed consumption expenditures, strategy of increasing the selling price of cattle, the subsidy of education, the subsidy of health care:

1. Simulation 1. The impacts of technology usage by 25% on the economy of beef cattle farmer household. The impacts of technology usage equal to 25% on the economy of beef cattle farmer household result in the highest increase at 26,421% of Expended Labour on Cattle Farming (CTK). Beef Cattle Farming Receipts

(PUST) is also increased by 22,854%, there is also 20,206% increase in Revenues from Outside Farming (PDLT). These impacts do not result in a change of Revenues from Beef Cattle (PUS). However, the impacts of this simulation decrease the values of Family Labour (TKKUNS) by 0.028%.

2. Simulation 2. The impacts of reduction of labour in non cattle farming by 25% on the economy of beef cattle farmer household. Simulation 2 indicates 25% reduction of the expended labour (CTK). The impacts of this simulation can be seen clearly at 8.46% reduction of the revenues from outside farming (PDLT), 3.90% reduction of the household food consumption, despite there is 8.45% increase in the production costs (BPROS), 3.85% of the revenues from farmer household (PDRT), 2,657% increase in the revenues from beef cattle farming (PUS).

3. Simulation 3. The impacts of 25% increase in the number of cattle ownership. The impacts of this simulation can be seen clearly at 9.854% increase in the expended labour (CT), 11.072% increase in the production costs (BPROS), and 12.235% increase in the revenues from outside farming (PDLT). The increase is at 8416% of the consumption of forage feed (KPT), and 8.029% of concentrate feed consumption (KPTRP). The increase is also seen at 5.897% of the farmer household revenues (PDRT), 2,657% of the revenues from beef cattle farming (PUS), 1.483% of the operating revenue of non beef cattle, and 1,456% of receipt of beef cattle farming (PUST).

4. Simulation 4. The impacts of subsidy by the government in the reduction of production cost of cattle farming by 25%. This simulation indicates 25% reduction of the production costs that include the cost of the cage, the cost of forage feed, concentrate costs, and the cost of medicines. These subsidies decrease by 94.41% of the previous production costs. This subsidy will increase by 1.46% of the revenues from beef cattle farming.

5. Simulation 5. The impacts of feed consumption expenditure subsidy by 25%. The impacts of simulation 5 are seen clearly at 70.775% increase in the operating revenues outside farming (PDLT), although it is balanced with 54% increase in the production costs. The increase can be also seen from the Expended Labour of cattle farming (CTK) by 15.86%, and 15.33% increase in the family labour (TKKUNS).

6. Simulation 6. The impacts of increasing the selling price of cattle by 25% on the economy of beef cattle farmer household. The impacts of simulation 6 are seen clearly at 22.854% increase in the beef cattle farming receipt (PUST), 1.46% increase in the operating revenues of non beef cattle (PUSN). However, the negative impacts of simulation 6 are 1.086% reduction of the beef cattle production.

7. Simulation 7. The impacts of education subsidy by 25% on the economy of beef cattle farmer household. The impacts of simulation 7 are clearly seen at 3.858% increase in the farmer household revenue (PDRT), 2.657% of the revenues from beef cattle farming (PUS), and 1.483% of the operating revenues of non beef cattle (PUSN). There is 7.06% increase in the non-food consumption of family (KNP), and 3.909% reduction of the family food consumption (KPS). The increase is seen at 3,523% of the total household consumption (TKRT).

8. Simulation 8. The impacts of health subsidy by 50% on the economy of beef cattle farmer household. Table 9 of the simulation of health subsidy (simulation 8) is seen at 3,858% increase in the farmer household revenue (PDRT), 2,657% of the revenues from beef cattle farming (PUS), and 1.483% of the operating revenues of non beef cattle (PUSN). There is 2.537% increase in the non-food consumption of family (KNP), and 3.909% reduction of the family food consumption (KPS). The increase is seen at 6.444% of the total household consumption (TKRT).

From the above testing results, there are some suggestions. For the government, it is suggested to take the policies to increase the revenues of beef cattle farmer. The government is expected to implement one or more of the following policies (1) the usage of feed technology in the economy of household beef cattle farmer household, (2) the subsidy of increasing the number of cattle ownership, (3) the subsidy of decreasing the production cost cattle farming, (4) the subsidy of feed consumption expenditure, (5) the setting on cattle selling price, (6) the subsidies of education and health cost for farmers.

REFERENCES

[1]. Directorate of Livestock Development. 2004. *Government Policies to Encourage Agro Industry Investment Opportunities of Livestock Subsector and Competition in the Age of Globalization*. Directorate General of Livestock. Department of Agriculture, Jakarta.

[2]. Elly, F.H., 2008. Impacts of Transaction Costs on Household Economic Behavior of Cattle-Crops Farmer in North Sulawesi. School Dissertation. Postgraduate of IPB, Bogor.

[3]. Fagi, A.M. and S. Kartaatmadja., 2004. Institutional Dynamics o Livestock-Crop- Farming Systems and Technology Dissemination. **Proceedings of Seminar**. Livestock-Crop Institutional Farming System. Agency for Agricultural Research and Development. Department of Agriculture, South Jakarta.

[4]. Fagi, A.M., A. Djajanegara., K. Kariyasa and I.G. Ismail., 2004. Institutional Innovation Diversity and Livestock-Crop Farming Systems in Some Sentra. **Proceedings**. Seminar on Crop-Livestock Institutional Farming System. Agency for Agricultural Research and Development. Department of Agriculture, South Jakarta.

[5]. Mayulu, H., Sunarso, Sutrisno CI, and Sumarsono., 2010. Beef Cattle Farming Development Policy in Indonesia. **Journal of Agricultural Research 29 (1).**

[6]. Mohammed, S., 2002. Fisherman Household Economy and Fisheries Resource Utilization in East Java: A Policy Simulation Analysis. **Doctoral Dissertation**. Post Graduate School of Bogor Agricultural University, Bogor.
[7]. Nefri, J., 2000. Optimization and Competitiveness of Beef Cattle Farming. **Master of Science Thesis**. Graduate Program, Bogor Agricultural University, Bogor.
[8]. Purnomo, S., 2010. Policy Simulation Model of Development of Beef Cattle Farmer Houshold Economy (A Case Study in Damsol Subdistrict, Donggala). **Doctoral Dissertation**. Brawijaya University.
[9]. Santoso, D. and E. Tuherkih. 2003. Improving Land Cultivation to Spur the Development of Ruminant Cattle. **Proceedings**. National Seminar on Livestock Technology and Veterinary, Bogor.

APPENDIX 1. THE RESULTS OF SIMULTANEOUS EQUATION SYSTEM TESTING

Estimated Model of Beef Cattle Production (PS)

Variable	Estimation	Prob t
Intercept	822.682	
CTK	0.329	**0.0002**
KPT	**0.001**	**0.6075**

Estimated Model of Expended Labour in Cattle Farming (CTK)

Variable	Estimation	Prob t
Intercept	-10.646	
JKSP	14.838	**<.0001**
JAG	**33.772**	**0.003**

Estimated Model of Family Labour (TKKUNS)

Variable	Estimation	Prob t
Intercept	-0.131	
LHN	0.630	**0.0037**
JAG	**0.503**	**<.0001**

Estimated Model of Forage Feed Consumption (KPT)

Variable	Estimation	Prob t
Intercept	40257.080	
JKSP	**3291.692**	**0.0001**

Estimated Model of Concentrate Feed Consumption (KPTRP)

Variable	Estimation	Prob t
Intercept	4991.114	
JKSP	2805.275	**0.0002**
HRG	**5.287**	**0.0002**

Estimated Model of Production Cost (BPROS)

Variable	Estimation	Prob t
Intercept	-3240116	
BKD	14.120	**0.0019**
BPH	14.350	**0.001**
BKR	14.821	**0.0007**
BOT	12.330	**0.0033**
PDRT	**0.115**	**<.0001**

Estimated Model of Revenues from Farming of Non Beef Cattle (PUSN)

Variable	Estimation	Prob t
Intercept	-10350000	
LHN	2713640	**0.0138**
TKKUNS	**1623539**	**0.045**

Estimated Model of Revenues outside Farming (PDLT)

Variable	Estimation	Prob t
Intercept	-7054260	
LHN	2134082	**<.0001**
JKSP	168935	**0.0017**
JAG	**893457**	**<.0001**

Estimated Model of Family Food Consumption (KPS)

Variable	Estimation	Prob t
Intercept	-1048302	
JAG	336152	**0.0018**
PFO	113554	**0.0025**
PDRT	**0.108**	**<.0001**

Estimated Model o Non Food Consumption of Family (KNP)

Variable	Estimation	Prob t
Intercept	-12100000	
IPD	65.788	**<.0001**
IKS	42.095	**0.0002**
PDRT	0.035	**0.0216**
INV	49.137	**<.0001**
TAB	**0.142**	**0.0003**