How to Cite
Damanik, S. E., Situmeang, R., & Ginting, M. (2021). Opportunities affecting the transfer of agricultural land functions food in Simalungun Regency. *International Journal of Business, Economics & Management*, *4*(2), 350-356. https://doi.org/10.31295/ijbem.v4n2.1668

Opportunities Affecting the Transfer of Agricultural Land Functions Food in Simalungun Regency

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Abstract---*Economic factors, social factors and government policy factors in Simalungun Regency have a significant and positive effect on opportunities for agricultural land conversion. This is the driving force behind the conversion of agricultural land into non-agricultural land. On the other hand, the increasing demand for food has forced the government to establish a policy to protect food agricultural land so that it is not converted. Efforts to control the conversion of food land use need to look at the factors that affect land conversion in each region. Thus, the established program is more effective because it is able to answer the problems faced by the community, especially land owners. Efforts to suppress the conversion of food land use require the commitment of the government and the community as policy actors. The establishment of rural area institutions based on local community businesses is one solution in preventing the conversion of agricultural land to food.*
Keywords---*institutions, land conversion, opportunities, protection of agricultural land for food, rice fields*

Introduction

With the increase in population and the development of the structure of the economy, the need for land for non-agricultural activities tends to increase. This tendency causes the conversion of agricultural land to be difficult to avoid. Several cases show that if a location changes land use, then in a short time the surrounding land will also change function progressively.Based on the results of the 2020 population census, during 2010-2020 the average rate of population growth in Indonesia was 1.25 percent, a sharp decline compared to the period 1971-1980 which was 2.31 percent (Saragih et al., 2020; Rahmawati et al., 2021). Although the rate of population growth continues to decline, Indonesia's population continues to increase. As of September 2020, based on the results of the 2020 Population Census, Indonesia's population reached 270.2 million (Saragih et al., 2020). With the growth of the population in an area, it is closely related to the increase in land use change. The rate of population growth will encourage the emergence of population activities, where these activities will be the background for the emergence of the needs of the population. One of the needs of the population is the need for housing, so that it will lead to a greater need for land. The increasing need for land causes the transfer of agricultural land use to non-agriculture, this is a serious problem for the Indonesian people (Mujiyo et al., 2018).

Utilization of land that should be used for agricultural land, is converted into residential areas, offices and so on. However, the increasing demand is not followed by the availability of a large area of land, while the land is fixed and cannot be changed or increased, the result is land shrinkage (Li & He, 2020). For this reason, the protection of food

ISSN 2632-9476
Submitted: 27 May 2021 |Revised: 18 June 2021 | Accepted: 5 July 2021

agricultural land needs to be carried out by determining food agricultural areas that need to be protected. Food agriculture area is part of the arrangement of rural areas in the district (Fawaizah et al., 2018). In connection with the above problems, Simalungun Regency is one of the regencies in North Sumatra which is included in the district which has a fairly large area of rice fields. Simalungun Regency is an area that has great potential in agriculture. Simalungun Regency's rice production was 366,877 tons during 2020. Simalungun Regency is a food barn for the province of North Sumatra and its surroundings (Saragih et al., 2020). Changes in land function in Simalungun Regency also occur, part or all of the land area from its original function to another function which has a negative impact on the environment and the potential of the land itself. The area of agricultural land owned by Simalungun Regency is around 31,200 hectares and the area of the agricultural area has decreased drastically, namely, currently the area of agricultural land is only 24,000 hectares (Saragih et al., 2020).

The rise of the phenomenon of the conversion of agricultural land functions should be the attention of all parties. If not anticipated seriously from now on. The implication is that uncontrolled conversion of agricultural land can threaten food supply capacity. Even with the reduction in available paddy fields, it can affect food production. (Fawaizah et al., 2018; Mujiyo et al., 2018). In Simalungun Regency, the agricultural sector is a sector that has an important role in the economy, most of the people live from the agricultural sector, especially in terms of providing jobs and providing food, especially at this time Simalungun Regency is one of the districts that support food needs in North Sumatra Province (Saragih et al., 2020). The phenomenon of land conversion that occurs for local governments will lead to the inability to achieve food security (Fawaizah et al., 2018; Mu'adi et al., 2020). With the problems described above, it is very necessary to study the influence of economic factors, social factors and government policy factors on the decision to convert agricultural land. The benefit of this research is to find solutions that are taken to overcome the problems that occur in the field (Lin & Nugent, 1995; Acemoglu et al., 2005).

Literature Review

Factors affecting agricultural land transfer

The process of conversion of agricultural land to non-agricultural uses is caused by economic factors, social factors, and government policy factors towards the decision to convert agricultural land.

Economic factors

From a macroeconomic perspective, it really needs input from land, one of which is community rice fields. With the need for funds and the availability of funds, it is something that encourages greater opportunities and the desire to convert land, seen from a macro perspective, the funds for printing paddy fields are very positively correlated. Likewise with the current existence of the competitiveness of all agricultural products, especially rice and the price of agricultural land is increasing which makes farmers increasingly compelled to sell their agricultural land and switch to other businesses. Economically, the conversion of land functions carried out by farmers, whether in sales transactions with other parties or replacing other or non-agricultural businesses, is one of the decisions that is considered rational (Briassoulis & Verhey, 2000; Wei et al., 2007).

Social factor

With the increasing transportation system in the countryside which causes the mindset and insight of the rural population to the outside world. Even the younger generation wants to leave their village because they think that working as a farmer is very difficult, has no dignity, is dirty, does not guarantee a future and is miserable. With a perspective that has resulted in the image as a farmer decreases (Briassoulis & Verhey, 2000). Currently, agricultural land is not only an economic asset for farmers, but also as a capital to switch professions outside of agriculture. Even the younger generation does not feel guilty in changing the function of land by receiving money in return, by buying motorbikes or cars for transportation, this is what makes the situation in land conversion worse (Fawaizah et al., 2018). There are also many farmers who do not dare to take the risk of uncertainty in farming, especially for farmers who have an old age. In addition, the social status of the community is also very closely related to land ownership and usually farmers who have large lands will employ their neighbors to work and able to accommodate a large number of workers. In addition, other social factors are agricultural land owned by farmers is the inheritance system. With the inheritance system of agricultural papers that are owned increasingly narrow and the management is inefficient so that the contribution of land is small in the household, so they cannot rely on their household income and finally switch to looking for other sources of income by selling agricultural land Currently, many farmers are selling their agricultural land for the cost or capital of their children's marriage, and their children make the

agricultural land into settlements because of the development of the family through the institution of marriage (Briassoulis & Verhey, 2000).

Government policy factors

Policy factors are aspects of regulations issued by the central and local governments related to changes in the function of agricultural land. Weaknesses in the regulatory aspect or the regulation itself are mainly related to issues of legal force, sanctions for violations, and the accuracy of land objects that are prohibited from being converted. According to Liang et al. (2015), it is stated that land use change that occurs in Indonesia is not only due to ineffective laws and regulations, both in terms of the substance of the provisions which are not clear and unequivocal, as well as enforcers who are not supported by the government itself as a competent official. Authorized to issue a land use permit. But also not supported by the unattractiveness of the agricultural sector itself. The scarcity and high cost of fertilizers, other means of production, less and less agricultural labor, and strengthened by fluctuating prices for agricultural products, even tend to continue to decline drastically resulting in the population's interest (or even just maintaining its function) in the agricultural sector to decline (Veldkamp & Fresco, 1996; Firman, 2000).

Land function transfer

The transfer of land function or commonly referred to as land conversion is a change in the function of part or all of the land area from its original function (as planned) to another function which has a negative impact on the environment and the potential of the land itself. Land conversion can also be interpreted as a change for other uses caused by factors which broadly include the need to meet the needs of an increasing population and increasing demands for a better quality of life (Xue & Zhen, 2018). The process of conversion of agricultural land functions can be carried out by the farmers themselves or by other parties. Land conversion carried out by other parties has a greater impact on the decline in food production capacity because the process of land conversion usually covers a fairly large expanse of land, mainly intended for housing development (Wei et al., 2007). The land use change that occurs has direct and indirect impacts. The direct impacts caused by land conversion are in the form of loss of fertile agricultural land, loss of investment in irrigation infrastructure, damage to natural landscapes, and environmental problems (Wei et al., 2007). Then the indirect impact is in the form of population inflation from urban areas to suburban areas. Agricultural land conversion activities also affect the environment. Changes in agricultural land to non-agricultural land will affect the balance of the agricultural land ecosystem (Yin et al., 2008).

The land use change that occurs changes the status of land ownership and land tenure. Changes in land tenure in rural areas have implications for changes in community income and employment opportunities which are indicators of village community welfare. Limited access to land control causes limited community access to land benefits which are the main capital for livelihoods, resulting in a shift in employment opportunities to the non-agricultural sector (Mujiyo et al., 2018). Economic development that has an impact on increasing the income of the population tends to increase demand for non-agricultural commodities at a higher rate than demand for agricultural commodities. A further consequence is that, because the need for land to produce each commodity is a derivative of the demand for the commodity in question, economic development that leads to an increase in income will lead to an increase in the demand for land for non-agricultural activities at a faster rate than the increase in demand for land for agricultural activities (Mu'adi et al., 2020).

Agricultural land

Land as one of the factors of production is a source of agricultural products where the production process and production results are obtained. Factors of land production have a very important position. This is evident from the amount of remuneration received from the land compared to other production factors (Xue & Zhen, 2018). Agricultural land is a land that includes soil, climatic, hydrological and air conditions used to produce agricultural crops that are used for agricultural business which apart from being rice fields and dry fields, also all plantation land, ponds for fisheries, land for cattle grazing, scrub land, former fields and forest which is a place of livelihood for those who are entitled (Govindaprasad & Manikandan, 2014). Agricultural land has several criteria, it is intended that the results of agricultural business can be achieved optimally (Mujiyo et al., 2018). The characteristics of good agricultural land are easy to dry, do not harden when planted, wet when it rains with little runoff, remain moist even during the dry season, there are few lumps of soil and topsoil, can withstand erosion due to loads and do not

experience erosion. Lose nutrients. Agricultural land has elements that can be measured such as soil structure, soil texture, distribution of rainfall, temperature, drainage, types of vegetation and so on (Liang et al., 2015). Agricultural land has several characteristics, namely land characteristics, land quality, land boundaries, land use requirements and land improvement. Agricultural land has two types of land, namely wet land and dry land. Wetlands are areas of agricultural land that are saturated with water, either seasonally or permanently. Wetlands are usually inundated by a shallow layer of water called paddy fields. Rice fields are a type of land use that requires waterlogging for its management. Therefore, paddy fields always have a flat or leveled surface and are limited by bunds to hold inundation (Wei et al., 2007).

Food security

Food is the main basic need for humans that must be met at all times. Food Security is the condition of fulfilling food for the state to individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, equitable and affordable and does not conflict with religion, belief, and culture of the community, in order to be able to live. Healthy, active, and productive in a sustainable manner. As a basic need and one of human rights, food has a very important meaning and role for the life of a nation (Wei et al., 2007). The availability of food that is smaller than the need can create economic instability. Various social and political upheavals can also occur if food security is disturbed. This critical food condition can even jeopardize economic stability and national stability (Mu'adi et al., 2020).

Our food security cannot be separated from the nature of the production of food commodities, which are seasonal and fluctuate because they are very easily influenced by climate or weather. Production behavior, which is strongly influenced by the climate, greatly affects national food availability. If the production behavior that is vulnerable to climate change is not accompanied by a strong food policy, it will be very detrimental to both producers and consumers, especially small-scale producers and low-income consumers. Characteristics of food commodities that are easily damaged, farmers' limited production land, inadequate agricultural support facilities and infrastructure and weak handling of harvest and post-harvest encourage the Government to intervene by realizing food security policies (Mu'adi et al., 2020; Megerssa & Bekere, 2019; Surya et al., 2020).

Research Method

The sampling method in this study is a deliberate sampling method, namely sampling carried out with several considerations and certain goals (Phillippi & Lauderdale, 2018; Holliday, 2010; Marshall et al., 2013). The population in this study is the household owner of food agricultural land in Simalungun Regency. Respondents from this study were 104 households owning food agricultural land which had been converted into other uses in their respective villages. Informants from this study were village officials at the research site, Department of Agriculture and Livestock and also Bappeda of Simalungun Regency as policy makers (Rounsevell et al., 2005; Li et al., 2019).

The data analysis in this study is ordinal regression analysis to achieve the objective of identifying economic factors that influence land use change in Simalungun Regency. Social factors are measured through indicators of land tenure area and B/C ratio of rice farming. Policy factors will be measured through road condition indicators. The similarity of the factors that are thought to influence farmers to convert. Food agricultural land in Simalungun Regency is as follows:

$$F(X) = Y = a + ß_1X_1 + ß_2X_2 + ß_3X_3 + e$$

Where:
Y : Opportunity for land conversion
a : intercept
X1 : Economic factors
X2 : Social factors
X3 : Policy factor
ß : Regression coefficient
e : Error Term

Results and Discussion

Based on the results of calculations using the SPSS 22 program, the resulting Adjusted Square value is 0.485 or 48.5%. This means that economic factors, social factors and government policy factors have an effect of 48.5% on the opportunity for conversion of agricultural land functions.

Table 1
Calculations using the SPSS

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.831[a]	.598	.485	5173740283.157

Economic factor

The influence of economic factors on the decision to convert agricultural land obtained t value of 4.289 while t table of 1.656. The significance value of the income variable is 0.000 which indicates it is smaller than the 0.05 significance value and is positive. This means that economic factors have a positive and significant effect on the decision to convert land. The increasing demand for a better quality of life, land conversion begins with the demand for agricultural commodities, especially food commodities, which are less elastic to income than the demand for non-agricultural commodities. Therefore, economic development that has an impact on increasing incomes of the population tends to increase demand for non-agricultural commodities at a higher rate than demand for agricultural commodities. A further consequence is that, because the need for land to produce each commodity is a derivative of the demand for the commodity in question, economic development that leads to an increase in income will lead to an increase in the demand for land for non-agricultural activities at a faster rate than the increase in demand for land for agricultural activities. Conversion of agricultural land is inseparable from the overall economic situation (Towprayoon et al., 2005; Bagudu et al., 2016).

Along with economic growth requires more land. If agricultural land is located close to sources of economic growth such as urban areas, it will shift the use of agricultural land to other forms such as housing, factory locations, and others. Another thing that happens is the need to meet the needs associated with the increasing demands for a better quality of life. When there is a view that activities in the non-agricultural sector are better than agriculture, it indirectly encourages farmers to convert their land. The process of economic transformation further stimulates population migration to areas where business activity centers are located, so that agricultural land which is located close to the center of business activity is converted to housing complex construction. In general, a shift or transformation of the economic structure is a feature of a developing region or country. Based on this, the conversion of agricultural land can be said as a development phenomenon that must occur during the development process is still ongoing. Likewise, as long as the population continues to increase and population pressure on land continues to increase, the conversion of agricultural land is very difficult to avoid (Saxena & Bharti, 2015).

Social factor

The influence of social factors on the decision to convert agricultural land obtained a t value of 2.297. The significance value of the social factor variable is 0.000 which indicates it is smaller than 0.05 and has a positive sign. This means that social factors have a positive and significant effect on the decision to convert land. There are five social factors that influence land use change, namely: behavior change, owner-land relations, land splitting, decision making, and government appreciation of community aspirations. The last two factors relate to the system of government. Based on the assumption that the government as a protector and servant of the community, it should be able to act as a controller for the occurrence of land conversion (Costanza et al., 2007).

Government policy factors

The effect of government policy on the decision to convert agricultural land is obtained by the t-count value of 2,013. The significance value of the government policy factor variable is 0.047 which indicates it is smaller than the 0.05 significance value and is positive. This means that government regulations have a positive and significant effect on the decision to convert land. Land use, which is a demand for humans as a life support, explains that land use change is a common thing and must happen. This is supported by institutional failures, where the implementation of

regulations on agrarian resources is still weak, and the boundaries of land use are not clear. These factors also affect land conversion. As well as macro policy factors and institutional failures; Macro policies taken by the government will greatly affect the entire course of the community's life system and the environment.

Conclusion

From the variables analyzed, namely economic factors, social factors and government policy factors have a significant influence on the opportunity for land conversion which has a significant influence on changes in agricultural land area in Simalungun Regency. Where the higher economic factors, social factors and government policy factors, the opportunities for conversion of agricultural land will also tend to increase. The increasing needs and demands for a better quality of life for the community tend to encourage the expansion of land for housing, offices and other infrastructure. The expansion of the land should be expected to be converted from agricultural land.

Acknowledgments
Place any acknowledgment here. For example, this work was supported by the Research Fund provided by University of Simalungun

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