Analysis of Economic Welfare of Village Community Using Systems Thinking Approach (A Study of Kucur Village, District of Dau, Malang Regency)

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ABSTRACT

There is partial mindset among the planners and scientist about village economic welfare problems. Development programs have not achieved the goal and many studies have not been able to analyze the welfare structure of the village community comprehensively. This research using system thinking approach to seek the complexity of village community welfare problem comprehensively and completely. This research was conducted in Kucur village. A village directly adjacent to the city of Malang. The welfare system of the Kucur community consists of four subsystems, namely: skill, education level, business turnover and health level. The sensitivity test shows that the elements that most influence the welfare system of village community of Kucur in sequence are: loan, transportation access, savings, communications access, spacious house, pets and business turnover.

Keywords: *economic welfare, dynamic system thinking,*

INTISARI

Terdapat pola pikir parsial diantara para perencana dan ilmuwan tentang masalah kesejahteraan ekonomi desa. Program pembangunan desa belum mencapai tujuan dan banyak penelitian belum mampu menganalisa struktur kesejahteraan masyarakat desa secara komprehensif. Penelitian ini menggunakan pendekatan berpikir sistem untuk mencari kompleksitas masalah kesejahteraan masyarakat desa secara komprehensif dan menyeluruh. Penelitian ini dilakukan di Desa Kucur, sebuah desa yang berbatasan langsung dengan Kota Malang. Sistem kesejahteraan masyarakat Kucur terdiri dari empat subsistem, yaitu: keterampilan, tingkat pendidikan, omzet bisnis, dan tingkat kesehatan. Uji kepekaan menunjukkan bahwa unsur-unsur yang paling mempengaruhi sistem kesejahteraan masyarakat Desa Kucur secara berurutan adalah: pinjaman, akses transportasi, tabungan, akses komunikasi, keluasaan rumah, hewan peliharaan dan omset bisnis.

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1. Introduction

Indonesian government has attempted to reduce poverty in rural area through various development policies. Almost all policies for the villages have

disregarded the sociological root, socio-cultural mapping and local wisdom of the village community. Therefore, failure in poverty alleviation is always repeated. On the other hand, Scientists try to analyze the village community welfare issues in various approaches.

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Chambers (1988) classifies it into two major poles: the political economy approach and the physical environmental approach. In the view of political economy approach, poverty is analyzed in terms of economic power, social relations, property rights and power. While the physical environmental group assesses that poverty is caused by factors such as increasing population, environmental degradation and resource limitation. Both groups are always criticizing each other. Criticism has long been expressed by the perspective of Chambers (1988) on the disintegration between two poverty analyzes in the villages. Thus, the low welfare of rural communities always go on because of the lack of a solid and comprehensive analysis of this.

Moreover, the separateness in analyzing the low welfare of village community also occurs in the realm of development planning. Following the notion of Chambers (1988), Li (2012) states that "a planner is required to be able to filter uncontrolled variables and then create an intervention arena in which calculations can be made." For this reason, the planner deliberately raises a number of specific problems and ignores the others in determining the steps to lift the welfare of society.

Some factors causing the low welfare of the village community described by two major approaches above shows how the complexity problem of the low welfare in village community is. Undoubtedly, complexity is manifested into several factors causing the poverty, which is clearly understood partially (separately) by two poles of approaches on village poverty studies. These partial studies finally induced partial recommendation, which tends to simplify the problems and cannot accommodate the complexity.

From aforementioned, it can be ultimately concluded that there is partial mindset among the planners of the village development and scientist who study about village problems. The solid evidences of this undeniable assumption are that village development programs have not achieved the goal and many studies have not able to analyze the welfare structure of the village community comprehensively. Therefore, a study with new approach can portray a system of village community welfare comprehensively.

Consequently, both of academicians and village development planners should change the way of thinking in understanding the village community welfare. System thinking can be used to understand the complexity of village community welfare problem comprehensively and completely. The model resulted from the study which uses this way of thinking shall be used as a core model for the village development planner to encourage the improvement of village community welfare condition.

This research will try to describe the phenomenon of low welfare of village community before the Law No. 6 Year 2014 on Villages by using the system thinking approach. To foresee the future of village community welfare after the enactment of the Law on Village, the research also tries to simulate the model of poverty system with the inclusion of policy intervention and the other possibilities after the enactment of Law No. 6 Year 2014 on Villages.

2. Theory

2.1 Decentralization and Local Government

Decentralization is a process in distributing power from the higher level of government to the lower level in a territorial hierarchy both in a state government level and position level in a large scale organization (Smith, 1985:1). Furthermore, decentralization can also mean the context and perspective of politics as the distribution of power based on the territory, related to how far the power and authority is submitted through geographic hierarchy in a state and related to the institution and process which makes the distribution possible.

Hoessein (2001) in Nurcholis (2005) explain that local government has three means. *First*, Local government as local government. Its mean a government institution or organization in the regional level. This organization is the media in managing the government activities in its regions. This definition frequently became synonymous with the local authority.

The second meaning of local government is refers to the function of activities conducted by the local government. Regional government is actor, which means all of activities are conducted by them. In Indonesia, most institution and function in the local government is entirely different than the central government. There is no decentralization of judiciary and legislative functions.

The third meaning of local government is the autonomous region that is the subdivision of national politics regulated by law and substantially control the local affairs, including the power to collect taxes or dismiss the employees for certain purposes. This government bodies in overall are selected or appointed locally (United Nation, 1961 in Nurcholis, 2005).

2.2 Village

Law No. 6 Year 2014 on Villages defines village as a legal community unit which has territorial boundaries that vested to regulate and manage the government, the interest of local community based on its initiatives, rights of origin, and/or traditional rights which are acknowledged and respected in the government system of Unitary State of Republic of Indonesia. Kartohadikoesoemo (1984:43) also affirmed that Village

in its meaning as the legal community unit, cannot be established but it was born naturally.

a) Relationship of Village and State

In the framework of decentralization, state laws must ensure the legal standing of the village to guarantee the development and its excellence and to participate in encouraging the development of nation and state. On the other sides, if the law is too constraining, the village will be unable to develop its excellence to reach the common goal, which is to develop the state.

b) Village and Decentralization Concept

Hoessein (2001) in Muluk (2009) described that local government and local autonomy basically does not mean region or regional government but it is a local community.

"Any affairs to be concerned are locality because the political basis is the locality not the nation. The meaning of local government as a community is also reflected in various terms in various countries such as Commune in France, *Gemeinde* in Germany, *Getnente* in Netherland, and *Municipio* in Spain, and Municipality in the United States" (Norton, 1997 in Muluk, 2009).

Referring to the above definition, in Indonesian context, Village can undoubtedly be parallel with the definition of local government in various countries. Eko et al. (2014) called village as a self-governing community. Village has institutions and local wisdom (which is unique compared to other local government level), which prioritize the order and balance: social order, ecological order and spiritual order.

Law No. 6 Year 2014 on Villages, in article 1, defines that village as a legal community unit which has territorial boundaries is authorized to regulate and manage the government, the interest of local community based on the its initiatives, rights of origin, and/or traditional rights which are acknowledged and respected in the government system of Unitary State of Republic of Indonesia. Therefore, village can be defined as a unit of community with territory, and not the otherwise. Implicitly, village as a unit of community has autonomous rights to regulate the government and its affairs independently.

c) Recognition and Subsidiarity Principles

Charles Taylor (1992) in Eko et. al. (2014:27) states that recognition has two meanings. *First*, it is the "politics of universalism" or autonomy protection of individuals, groups or communities by ensuring their rights. *Second*, it is the "politics of difference", namely the protection of the identity of individuals, groups or communities in a way to respect and allow them to protect their culture.

Principle of subsidiarity is contrary to the residual principle that has been applied in Law No. 32/2004. Residual principle that follows the principle of

decentralization confirms that all the authorities distributed among the central government, provincial government and the last in the hands of regency/ city governments. With the principle of decentralization and residue, the village placed in the system of regency/ city, who received the delegation (residue) of the regent/ mayor authority.

Principle of subsidiarity does not know a single sovereignty at the hands of the central government. Subsidiarity is often understood as a bargaining process between sovereign and independent organizations or communities with higher authority. The principle of subsidiarity also wants to reduce the risks for the sub-unit of government or under community from excessive regulation (overruled) by a central authority. Departing from the fear of tyranny, subsidiarity asserts limitation of central authority power (higher level government) and to provide more space in the subordinate organization to take a decision and use the authority independently (Føllesdal, 1999).

2.3 Economic Welfare Concept

Economic welfare is the level of prosperity and standard of living of either an individual or a group of persons. In the economics field, Samuelson (2004) define it as utility gained through the achievement of material goods and services. In other words, it refers to part of social welfare that can be fulfilled through economic activity.

Economic welfare is measured in different ways, depending on the preferences of those measuring it. According to Hueting (2011), welfare depend on factors like employment, income distribution, labor conditions, leisure time, production and the scarce possible uses of the environmental functions.

3. Research Method

Dynamic system thinking method is used in this research. The method will help to search invisible crucial factors, which actually has significant effect on the achievement of welfare.

Step analysis of dynamic systems in this study is described by Coyle (1996), as illustrated in the following schemes. The first stage is useful to recognize the problem and to know the actors or stakeholders who pay careful attention on it. Secondly, there should be clarification system using influence diagram, or also commonly called a 'causal loop diagram'. This diagram illustrating the various forces which works in the observed system.

After developing influence diagram, the attention moves to Stage 3. This stage is qualitative analysis which observes influential diagram with a hope to understand the problem better.

At this 4th stage, influence diagram used as reference to conduct simulation modeling. Simulation modeling is prepared based on influence diagram, but presented in a different language. Both of these diagrams in principle are two different versions of the same model. Causal loop diagrams need to be converted in simulation modeling which can be operationalized in a computer language.

Figure 1 Approach of System Dynamics Analysis
Source: Coyle (1996)

On further stage, the simulation is continued until model validation (model testing) though the model is constructed accordance with the purpose and properly constructed outright. Validation of the structure needs to achieve the validity of the causal loop diagram. In addition, there are a validation of performance to achieve validity stock diagram or flow simulation model.

Fifth, testing and design policies. After validation of the model began to show the results, the sensitivity analysis performed as the beginning of the testing and the design policies. This analysis was conducted to determine the most sensitive parameter affecting overall system performance. The next step is design policies and testing the system by simulating potential changes to see the impacts. This step is also useful to understand

the impact of policies by thinking of loop system. It is a manifestation of the efforts to explore the behavior of the system and not pretend to predict.

After understanding the system behavior, the next step is policy design. The policy design was done consistently on the goals to be achieved by the system. This step could lead to the most appropriate policy design. Policy design creating this does not automatically resolve the problems being faced. This policy design often leads to further understanding on the issue and help to understand how a system running. Thus, the end of this process demands to create various alternative policy design repeatedly until finding better policy design.

4. Results and Discussion

Village is a main foundation for development of a country especially emerging market countries like Indonesia. Village can provide plenitude natural resources such as agricultural products, animal husbandry, and other basic needs. These resources can be processed to enhance its value added to increase its economic value and fulfil community needs. Even business cycle centralized in cities, products flow are traded from villages.

Welfare, as a socio-economic condition, is a main purpose of life. Welfare depicts prosperity, happiness, and peacefulness for mankind in a community. Welfare conventionally sees the ability to fulfill life necessities such as per capita income, Gross Domestic Product, assets ownership, and other material indicators.

Sen (1992) in Swasono (2005:22) states that economic welfare is delineation and rational process to release community from distraction for gaining development by which widest criteria and expected to give meaningful sense of proper well-being with level of living criteria, fulfilment of basic needs, quality of life, and human development.

In fact, welfare is not only material aspect such as people who have sufficient or even better-than-subsistence in their material necessary, but also their life feel more peaceful and happy. This reality shows that welfare is not determined by material factors. Realizing village community welfare is much important. This research tries to examine elements which shape welfare system for village community especially economic welfare in Kucur Village, district of Dau, Malang Regency.

In line with increasing prosperity, the number of poor people in Kucur continues to decline. In 2008 the poor as much as 500 families. Now the number of poor people are 336 families. The study also found distinctiveness of Kucur society's perspective on poverty. According to them, poverty is divided into two pole, factual poverty and invisible poverty.

Factual poverty is a condition of families who have no income and productive assets to meet their daily needs. The second type of poverty is invisible poverty. In this type, people resigned with their economic conditions. In this condition, actually that person has a strong power to work, has a productive asset, but does not try to work harder. They are never think to work, saves or invests their treasure.

Conditions of the poor people can be known based on the ability of income to meet the standards of living (Nugroho, 1995). Basically, the standard of living in a society not just to meet food needs, but also meet the needs of health and education. Under these circumstances, a society called poor if it has a much lower income than the average income, so they do not have a chance to prosper themselves (Suryawati, 2004).

Understanding of Kucur Community actually can be drawn on the theoretical realm of poverty theory. These are natural and cultural poverty. Poverty is perceived by the Kucur community as factual poverty, in the theoretical language is referred to natural poverty. Natural poverty is a state of poor because a family does not have adequate resources, both natural resources, human resources and development resources. If they participate in the development, they are only rewarded a very low income.

According to Baswir (1997:21), natural poverty is poverty caused by natural factors such as disability, illness, old aging or natural disasters. This poverty situation according to Kartasasmita (1996:235) referred to "Persistent Poverty," that poverty has a chronic or hereditary.

While the conditions of poverty that is called by Kucur Community as invisible poverty, in the theoretical is referred to cultural poverty. This kind of poverty refers to the attitude of a person's life or community groups who are caused by lifestyle, habits and culture. Generally, they do not feel deprived. This community groups are not easy to be invited in the development. They do not want to improve and change the level of life. As a result, their income levels are low according to the average income. This is in line with Baswir (1997:21), a person is poor due to cultural factors such as lazy, undisciplined and wasteful.

4.1 Subsystem of Skill

Kucur village community have left the agricultural sector. The risk of crop failure and low prices of agricultural commodities are the main factors driving the Kucur community to leave the agricultural sector. The close proximity of Kucur village to Malang City provides a more profitable alternative for them. The alternatives job are the construction sector and industrial workers.

The community thinks that the agricultural sector is not profitable to fulfill the ever-increasing basic needs. This condition becomes much worse with the level of education, most people graduate from elementary school. Considering this problem, Kucur community then tries to find alternative jobs such as traders, carpenters, and construction workers.

In the context of the effect of income on land ownership, this study shows that increased incomes lead to increased land tenure. Although the agricultural sector cannot provide more income, and people still think that land is the best investment.

Since 2008 until now, the economic condition of society is increase. The two main cause that affect welfare increasing are: First, the change of profession from farmers to traders, laborers and workers in building construction. Second, the development of village infrastructure, especially roads that facilitate the mobility of the community. The skill subsystem structure can be seen in the following figure:

Figure 2 Causal Loop Diagram of Skill Subsystem
Source: Analytical result, 2017

Many farmers in the Kucur Village sell their land then switch their professions into construction workers or factory workers. In addition, agricultural land also declined due to the increase in population. Then the function of the land changed from the moor into housing land. There is also a division of inheritance from one parent to several children. Due to these factors, the ownership of land by the family decreased.

Reduction of land ownership ultimately affects the intensity of agricultural activities. A decrease in the intensity of agricultural activity means an increase in productive activities in other sectors such as the construction sector. Since 2010, there has been an increase in community skills in construction. This increase in skills then affects the increase in income.

4.2 Subsystems of Education Level

Todaro and Smith (2012:225) state that high levels of education is a reflection of the increase in income

levels. This is in accordance with the results of research in Kucur village. Education levels have a positive impact on income growth. The higher level of education leads to increase incomes of the population. This only happens mainly for population with undergraduate degrees with professions other than farmers and construction workers. Increased incomes as educational levels have risen to professionals such as teachers, health workers and middle-class employees.

Figure 3 Causal Loop Diagram of Education Subsystem
Source: Analytical result, 2017

The financial ethos of Kucur community is quite good in relation to savings and education. It appears in above diagram, that income positively affects savings. Furthermore, savings also have a positive effect on the level of education.

4.3 Subsystem of Business Turnover

The study found that there is no correlation between poverty and loan. Loan is actually taken by high-income people. The following diagram illustrates that the increase in income actually affects the increase in loan. On the other hand, low-income people do not dare to risk accessing credit. This phenomenon occurs for two reasons. *First*, higher incomes people use loan to build and expand houses (as described in Health Levels Sub-System). *Second*, high income people use loan funds for business development.

Figure 4 Causal Loop Diagram of Business Turnover Subsystem
Source: Analytical result, 2017

The findings, as illustrated in the above diagram, show that the amount of electric energy consumption has a positive effect on business turnover. The higher the level of electric energy consumption impact on the greater business turnover. Furthermore, business turnover leads to an increase in income. In turn, the increase in income also increases the consumption of electrical energy.

Transportation proved to improve economic welfare of Kucur people. Transportation can create and improve the accessibility level of the potency of natural resources and human resources.

In the Kucur Village, there is a phenomenon called digital divide. This phenomenon occurs between the rich and the poor. Rich people have access to digital technology that allows them to access a wide range of information. Because they have access to wide range of information so they become a group of superior people compared to those who do not have access information.

Information gap, not only between the poor and the rich. The gap also occurs between Kucur in general with the city of Malang. Although this area is quite close, it is much different in terms of access to information. Kucur Village is located in the mountain area, so it has problems in telecommunication signals. Cell phone signals can only be obtained in certain hamlets.

The negative impact of this digital divide makes the Kucur community difficult to access connectivity with the outside world of the village. At the end, there is a barrier to increasing income because of difficulties in communicating with business partner.

4.4 Subsystem of Health Level

This study found that the increase in income positively affected the increase in nutritional adequacy and the fulfilment of clothing needs. Furthermore, an increase in nutritional adequacy affects the improvement of the health level. Finally, an increased level of health leads to an increase in income.

On the other hand, income has a positive effect on loan. In this village, the activity of borrowing money is not done by the poor. On the contrary, lending activity is done by high-income people. This makes sense, with evidence of the below influence diagram. The loan does not meet daily needs. Loans are actually done by the higher and middle class to build and expand their homes.

Research findings on Kucur Village stated that the loan of the rich is more than the poor. This is motivated by socio-economic factors, where they have a loan not to fulfil food needs, but rather to complement the basic needs are actually being met, such as repairing the house and buy a new car.

Figure 5 Causal Loop Diagram of Health Level Subsystem

Source: Analytical result, 2017

4.5 Model of Village Community Economic Welfare System

A comprehensive understanding of the system needs to be obtained in this research. Therefore, a full description of the system is required. The complete picture of this system is obtained through the integration of various subsystems that have previously been described separately. Basically, each subsystem forms the entire economic welfare system of the village community, as shown below:

Figure 6 Causal Loop Diagram of Whole Economic Welfare System

Source: Analytical result, 2017

The following table shows a sensitivity test against the elements forming Kucur village welfare. The

elements displayed sequentially starting with the most sensitive affecting the welfare of the community.

Table 1 Sensitivity Test

Priority	Increasing 25%	Increase of Income
1	Loan	0.441
2	Transportation Access	0.439
4	Savings	0.243
5	Communications Access	0.153
6	Spacious House	0.066
7	Pets	0.066
8	Business Turnover	0.059

Sumber: Analytical result, 2017

Above table illustrates that loan has the greatest sensitivity among other elements. An increase of 25% on loans followed by an increase in income of 0.441. In second place, an increase in access to transportation leads to an increase in income. The increase of transportation access by 25% has an effect on income increase of 0,439. Savings also affect the income level by 0.243. To improve welfare more quickly, effectively and efficiently, the Government of Kucur Village needs to take steps based on the priority of this sensitivity test.

4.6 Policy interventions on the Leverage Elements of Economic Welfare

4.6.1 Saving and Loan

Loan in the context of Kucur community tend to use to increase business capital which will ultimately increase business turnover and incomes of the population.

Kucur village government should facilitate the community to getting easier for accessing credit in order to increase their business capital. Referring to the village government authority in the field of community development, the village government could be plan a coaching program for institutions that manage savings and loan in the village.

4.6.2 Transportation Access

Regional growth factors as capital, labor, equipment, natural resources and markets are interrelated unity and will generate interaction and create economic, social or political activity. Improved access to public transportation will increase on human mobility, the mobility of factors of production and mobility of goods and services. The higher mobility affects the faster movement of distribution as well as shorter time required in processing the material and move it from the place where the original material is less helpful to the location where the benefits are great.

4.6.3 Communications Access

Proximity of the area to the city did not make Kucur village abundant access to information. There are only a few areas in this village that can be reached by cell phone service provider signal. Although there is no special authority to resolve the problem of communication networks, the village government should have advocate for improvements access to public information in order to accelerate development.

4.6.4 Spacious House

Based on the sensitivity analysis, the next sequence is the Spacious House element. Improvements in housing conditions show a positive effect on the increase in incomes of the population. For that, village government could make development aid policy or repair house for the poor. With the repair of the house, will also automatically increase incomes.

4.6.5 Pets

Pets positively affect family income. Increase in the number of pet means also increase in the family income. At the same time, pet ownership affects the savings rate which is owned by the family. To improve economic welfare, village government needs to formulate policies to improve the productivity of the raising the livestock business.

5. Conclusion

Kucur is a village adjacent to the city area. The village is undergoing a massive transition of community jobs. Within 6 years, many people changed their jobs from farmers to the construction workers. This happens for several reasons including: (1) uncertainty of crop yields and prices of agricultural commodities. (2) There are several job alternative that more profitable. (3) Reduced land ownership.

Based on systems thinking approach, finally can be seen and understood that the system of economic welfare of village communities is a fairly complex system. Complexity can occur because the system is composed of several subsystems with the characteristics of each other form event, pattern, until systemic structure.

Several subsystems that have been analyzed include: skills, education levels, business turnover and health levels. The use of dynamic systems thinking approach developed by Coyle, in this study, resulted that the leverage in the system of economic welfare of village communities is loan. As the leverage means, loan is a variable that is most sensitive to the economic welfare of the village community system. Therefore loan is the basis for the preparation of strategy for improving the economic welfare of village communities.

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