

## International Journal of Control Theory and Applications

ISSN : 0974-5572

© International Science Press

Volume 10 • Number 4 • 2017

### The Efficiency of Prediction Model in Poverty Rate (Case Study: Poverty Rate in Keerom Regency, Papua, Indonesia)

**Abd. Rahman Razak**

*Department of Economic, Faculty of Economic and Business, University of Hasanuddin, Makassar, Indonesia*

**Abstract:** In the National Medium Term Development Plan (RPJMN), the Government has set the agenda for improving the welfare of the community as one of the key development priorities for the period 2010-2015. Where the reduction of poverty and unemployment is one of the principal targets. Agenda is also used as a reference in the national poverty reduction strategy set targets in line with the Millennium Development Goals (MDGs). Papua government outlines agenda increased prosperity in this RPJMN into RPJMD Papua agenda “Building a Peaceful Papua Yang And Prosperity” where the target is also substantially reduce poverty. Based on the framework that has been mentioned, the purpose of this research is to examine more deeply about the influence of Human Capital, Natural Capital, Financial Capital, Physical Capital, and Social Capital to Decrease Poverty Keerom, Papua. This study uses techniques Partial Least Square. Human capital, natural capital, social capital, physical capital, and financial capital significantly effect to poverty rate reduction in Keerom Regency. Human Capital is the most efficient factor to reduce the level of poverty in Papua, which is efficient at 145% compared to the four other factors.

**Keyword:** PLS, Capital, Poverty Rate, Purposive Sampling

#### 1. INTRODUCTION

In the Medium-Term National Development Plan (RPJMN), government has set a community welfare improvement agenda as one of the development main priorities for year of 2015-2020, where reduction of the unemployment and poverty rate is one of its main targets. The referred agenda of the poverty reduction national strategy is in line with achievement of the millenium development goals.(MDGs). connections among these development agendas are expected to be focused to poverty reduction efforts, so the poverty reduction target can be accelerated.

Community welfare improvement agenda that have set the unemployment and poverty reduction as one of their main target, as have been set in the Medium-Term National Development Plan (RPJMN) is also applied by regional governments in Medium – term regional development Plan (RPJMD) which is a continuation of the RPJMN that set by the central government as well as Papua provincial government. Papua provincial government has elaborated the community welfare improvement agenda in the RPJMN into the papua RPJMD that set “ The building of the peaceful and welfare papua land” where its main objective is the poverty rate reduction. In this

agenda, there are many objectives that set by the Papua provincial government that related with poverty reduction, such as improving the income of the rural and urban communities, improvement in quality of education in all of its level. Quality of the health service improvement that reach and serve the community, and the establishment of the new developing areas in order to utilize the natural resources (SDA). All of the objectives are made in order to reduce the poverty in the Papua province.

Keerom is regency in Papua where poverty percentage is quite high, although this regency is rich with natural resources, data from BPS (Central bureau of statistic) shows that all data are inversely proportional with level of welfare in the region.

A basic question to be revealed is why the poverty rate is still high? Is it because most of the Papuan live in rural areas, isolated and purilious, so these people are seldomly covered in government service from district to rural level, so their fundamental rights are ignored, sidelined or forgotten? In fact, many poverty reduction programs has been implemented by government, name it PAM DKP, Raskin (rice for the poor), BOS (school operational assistance), social-economy safety net, Askeskin (health insurance for the poor), etc. And also IDT (President's instruction for Backward regions) program that completed with P3DT (infrastructure development of the rural areas) PPK (district development program), P2KP (Urban poverty overcoming program) PDMDKE (empowerment program to regions impacted by economic crisis) and PARUL (Poverty Alleviation through Rural Urban Linkage). Those programs are supported with enormous financial assistance. But, why are those programs failed to empower the poor rural community to overcome the poverty out from themselves and their village?

Result of empiric studies showed that there are, at least four weaknesses of the empowerment programs that implemented so far.

*First*, those programs are fault and miss the target. Several facts related to this conclusion are, most of the programs benefits are enjoyed by the Haves. In addition, program implementations were carried out in a top down model, by government or related authority, so the programs were not suitable with community's necessities and community's participation in those programs were low. The community is also low in awareness to discover potentials in themselves and their environment, to be able to escape from the net of poverty that surrounding them. The result is, those programs were not run effectively and sustainably.

*Second*, the programs implemented are still ego-sectoral and separately operated. There are no coordination and synergy among related authorities in planning an implementing those programs. The consequence, programs and its activities tend to be criss crossing either among the activities or programs implementation of the government authorities.

*Third*, a weak or even there is no continuation of the programs implemented. The operators of the programs is carrying out the programs in the sense of project-oriented, that limited by a certain period. When the project is finished, then the activities are over as well. There were no systematic and strategyc governmental policies in maintaining, caring, and developing further the programs, even the current programs are also abandoned. The result is, the poors are back to their habitat. Poor and stay poor.

*Fourth*, the weak of control from the related authorities, such as Bawasda (regional supervision body). It can be observed from the various programs budget deviation in the field which is not followed up immediately.

Of all the current developed models, a sustainable livelihood approach in this research is more referred to approach of Farrington *et al.* (1999). The approach is developed based on several local contextual embedded on the society. Farrington developed a sustainable livelihoods model strategy by adding five capitals variable as a sustainable determinant empowerment. Those five capitals are: social capital, natural capital, human capital, financial capital, and physical capital. These models have implicitly asserted that society transformation in a productive economic development should be based on the synergy of the five aspects in order to implement the

transformation in effective, efficient, on target and sustainable. This signalizes the productive economic development in the rural areas must involving all stakeholders, either in economic strategy, sosio cultural values, and local institutions. From the signals, it can be understood that a society may be empowered independently and sustainably by basing on local resources and values. Based on the mindset above, then the goal of this research is to test the effect of social capital, natural capital, human capital, financial capital, and physical capital to poverty rate in Keerom regency, Papua. This study aimed to examine the effects of Human Capital, Natural Capital, Financial Capital, Physical Capital and Social Capital on Poverty Decrease in Keerom Papua, also obtain the efficiency model for prediction the decreasing of poverty rate. Originality of this paper shown in the study: Never has there been previous studies that examined the effect of Human Capital, Natural Capital, Financial Capital, Physical Capital and Social Capital to Decrease Poverty, and there are no similar studies that examine the model which was appointed at the same location (in Keerom, Papua). It became the location of originality in this study.

## **2. REVIEW OF LITERATURE**

Baswir (1999) differentiate the poverty into relative poverty and absolute poverty. A relative poverty is a poverty that perceived from level of income between a group of society to other group of society. A person whom is regarded as rich in a society may be perceived as poor in the other society. The problem of the relative poverty is more properly referred as gap problem. While, an absolute poverty is a condition of poverty that was prior determined in a poverty line. What so called as poor community is people who live under the poverty line.

Eitzen and Zinn (1993) and Sarman (1997) defined the poverty as a condition where one's level of income is insufficient to fulfill a basic need, or fundamental need, such as food, shelter, clothing, health and education. Amartya Sen in Meier (1989) stated that a poverty is not merely a condition of poorer than other, (relative poverty) but the absent of capability to fulfill the material needs properly, or in the other words, a failure to reach a certain minimum necessity.

A development may be defined as success if it able to empower the peasant community and other rural communities to get rid of poverty. The aim can be achieved through promoting community's participation in real and not only in physical jargon only. A development should reflecting a total change of a community or social system adaptation in a whole, without ignoring basic needs diversity and individual desires or social groups that existed in it, to move forward into a better life condition materially or spiritually. (M.P Todaro).

Since 1970s to 1980s the experts of agricultures policy has focused on the development apportionment to give a positive contribution to poverty alleviation and food security along with agricultural growth. The apportionment has several elements, such as : (a) promotion of agricultural development that puts the small scale economic of the farmer household as a target (b) a market-oriented land reform is implemented carefully and accurately to the land that its products are more concentratrated on big scale agricultural economic (c) human resources investment through rural education program, clean water, health and family planning, to enhance the peasantry opportunity in acquiring a proper job and earning (d) women's role in agriculture through education in agricultural information along with credit/business assistance for the small and medium business that reach the farmes's women and rural areas (e) participation of the entire communities in taking a vote to determine government programs that has a direct linkage with them (f) improvement of non agricultural business sector as sources of incomes and job vacancies for the rural community if the agriculture sector are unable to grow higher.

Agricultural development model in the future should be human development-oriented, as a direct determinat and operator. agricultural developments so far have not reached an optimum result, due to ignoring human aspect. As an operator of the development. According to Gilley (1991) human development is a consolidation of skill and competence, and improvement of human behavior in the organization for the personal and profesional usage.(individual development), commitment to profesional consolidation in the organization (career development)

and performance improvement in order to create the organization to be more profitable, more efficient, more effective, and to extent the profit. (organizational development).

An empowerment shall encourage self-existence because avoided from pressure, stress, fever and absence. The key is motivation by knowing what can satisfy people due to freedom of expression. The freedom is included the freedom to make mistakes and freedom to develop something new, taking own decision. Empowerment is often made similar to power attainment and access to livelihood resources. Dahl (1963) described that a power related to ability to influence, from the first person to the second person to do something that actually is against the will of the second person. Therefore, an empowerment shall empower to operate or to control.

### 3. METHODOLOGY

The research is conducted in Keerom regency, Papua province. The selection of the research location is based on the assumption that Papua province has abundant in natural resources that have not been explored optimally, so it needs a proper method and strategy approach in utilizing and developing a sustainable productive economic. This is caused by a different characteristic in coastal and mountain area, so if a sustainable livelihood approach is applied shall resulted in a different strategy. Respondents are poor households, determined in purposely or purposive sampling (a sample determination method, where samples are selected based on certain reviews or purposes) sampling are conducted in proportional random sampling that combined with snowball sampling (Patton 1984 in Sutopo 2002). This research is using partial least square.

### 4. RESULTS

#### 4.1. Goodness of Fit dalam PLS

Goodness of fit test is using predictive-relevance value ( $Q^2$ ) Endogen variable  $R^2$  value in this research is 0.751 or 75.1%, so the model is fit to be determined as having a relevant predictive value. Predictive relevance value is 75.1% indicating that data diversity that explained by the model is 75.1% or in the other words, informations that included in the data, 75.1% can be explained by the model. While, the rest 24.9 % is explained by other variables (which is not included in the model) and errors.

#### 4.2. Hypothesis testing

Hypothesis testing is performed on each path direct effect partially. Detailed results of the analysis, contained in the PLS analysis results, can be seen in the table. The following table presents the results of hypothesis testing using Partial Least Square (PLS).

**Table 1**  
**Hypothesis Testing Model PLS**

<i>Connection</i>	<i>Path coefficient</i>	<i>p-value</i>	<i>Explanation</i>
Human Capital → Decrease in Poverty Rate	0.407	< 0.001	Significant
Natural Capital → Decrease in Poverty Rate	0.339	< 0.001	Significant
Financial Capital → Decrease in Poverty Rate	0.342	< 0.001	Significant
Physical Capital → Decrease in Poverty Rate	0.254	< 0.001	Significant
Social Capital → Decrease in Poverty Rate	0.225	< 0.001	Significant

The test of the direct effect between human capital to poverty rate, inner weight coefficient value is obtained in 0.407, with p-value is <0.001 because of the p-value < 0.05 then, there is a significant direct effect between human capital to poverty rate. Considering that inner weight coefficient has a negative mark, indicating that

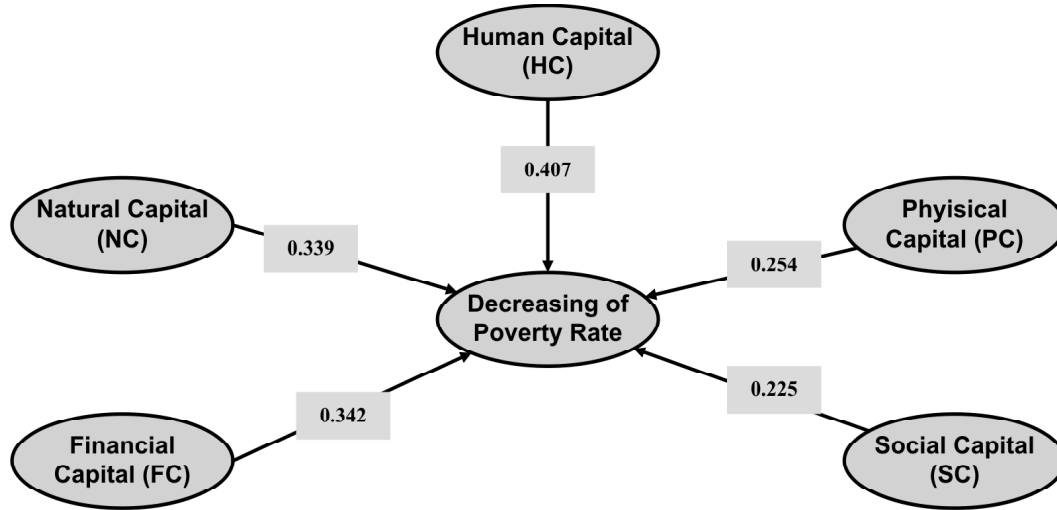


Figure 1 : PLS Effect Analysis of Human Capital, Natural Capital, Financial Capital, Physical Capital, and Social Capital to Decrease Poverty Rate

relationship between both of them is negative. It means, the higher of the human capital, shall result in the lower of the poverty rate.

Test of the direct effect between natural capital to poverty rate, inner weight coefficient value is obtained in 0.339, with p-value is  $<0.001$  because  $p\text{-value} < 0.05$ , then there is a significant direct effect between natural capital to poverty rate. Considering that inner weight coefficient has positive marked, indicating that relationship between both of them is negative. It means, the higher natural capital, shall result in lower of the poverty rate.

Test of the direct effect between financial capital to poverty rate, inner weight coefficient value is obtained in 0.342, with p-value is  $<0.001$ . Because of the  $p\text{-value} < 0.05$ , then, there is a significant direct effect between financial capital to poverty rate. Considering that inner weight coefficient has negative mark, it means, the higher financial capital, shall result in the lower of the poverty rate.

Test of the direct effect between physical capital to poverty rate, inner weight coefficient value is obtained in 0.254, with p-value is  $<0.001$ , because of the  $p\text{-value} < 0.05$ , then, there is a significant direct effect between physical capital to poverty rate. Considering that inner weight coefficient has a negative mark, it indicating that relationship between both of them is negative, it means the higher physical capital shall result in the lower poverty rate.

Test of the direct effect between social capital to poverty rate, inner weight coefficient value is obtained in 0.225, with p-value is  $<0.001$  because of the  $p\text{-value} < 0.05$ , then, there is a significant direct effect between

Table 2  
Efficiency Model of Prediction the Poverty Rate

	HC	NC	FC	PC	SC
HC		83.29	84.03	62.41	55.28
NC	120.06		100.88	74.93	66.37
FC	119.01	99.12		74.27	65.79
PC	160.24	133.46	134.65		88.58
SC	180.89	150.67	152.00	112.89	
Total Efficiency	145.05	116.64	117.89	81.12	69.01

social capital to poverty rate. Considering that inner weight coefficient has negative mark, it indicating that relationship between both of them is negative, it means that the higher social capital shall result in the lower of the poverty rate.

The efficiency model of prediction the poverty rate in Keerom Papua shown in Table 2. From the table above shows that Human Capital is the most efficient factor to reduce the level of poverty in Papua, which is efficient at 145% compared to the four other factors. The most striking looks of the efficiency of Human Capital and Social Capital, at 180% or nearly 2 times the human capital more efficiently in the lower levels of poverty than social capital. On the other hand, the second is the natural capital, with an efficiency of 116.64% can lower levels of poverty than financial capital, political capital, and social capital.

## **5. DISCUSSION**

Result of analysis on human capital effect to poverty rate reduction in Keerom Regency, Papua showed a significant effect between human capital to poverty rate reduction. Direction of the relationship is positive, that indicating the higher human capital shall result in the higher reduction of the poverty rate. In the other words, by the increasing of the access to education and training, access to health facilities and level of knowledge shall reduce the increasing of the poverty rate in Keerom Regency. From the coefficient value of the highest track (0.407) has shown that improvement in human capital sector shall have a huge impact on poverty rate reduction. In this case, improvement in accessing education and training is necessary. Access to health facilities and level of knowledge to increase the reduction of the poverty rate in Keerom Regency. People's health and ability to work, knowledge and skill that they had, inherited from generation to generation, and observation is human capital. Education may help human to increase its capacity to use the existing assets to be better and to create a new asset and new opportunity.

Analysis result on natural capital effect to reduction of poverty rate in Keerom regency Papua showed that there is a significant effect between natural resources to poverty rate reduction. Direction of the relationship is positive indicating that the higher natural capital, shall result in the higher the reduction of the poverty rate. In the other words, the more increasing of the water sources supplies in the research location, the more poverty rate in Keerom regency shall be decreased. For those who live in the rural areas, natural capital, along with its assets, such as land, water, forest resources, and animal husbandry, are really have important roles for their food production and incomes. The way they accessing those resources (in proprietary, leasing, collecting, etc) should be taken into consideration, just like the condition of the resources itself, their productivity, and how they changed from time to time.

Analysis result on financial capital effect to poverty rate reduction in Keerom regency showed a significant effect between financial capital to poverty rate reduction. Direction of this relationship is positive, indicating that the higher financial capital, the higher the poverty rate reduction. In other words, the increasing in the income, saving, loan, credit, jewelry, physical asset, and market access shall increase the poverty rate reduction in Keerom regency. Financial capital that existed in rural areas household may be derived from a conversion or alteration of production in cash in order to cover a period of low production or for investment in the other activities. They may use formal or informal credit for reservation of the financial resources that they have.

Analysis result on physical capital effect to reduction of poverty rate in Keerom regency Papua showed a significant effect between physical capital to poverty rate reduction. Direction of this relationship is positive. It means, the higher the psysical capital, shall result in the higher poverty rate reduction. In the other words, the increasing of the facilities and transportation and access to information, shall increase the poverty rate reduction in Keerom regency. Physical capital may be in the form of equipment or supplies, or infrastructure like roads, port, airport, and market. To access them, just like other forms of infrastructures like water reservations or health care facilities shall affect people to have an adequate income and living.

Result of analysis on effect of the social capital to poverty rate reduction in Keerom regency showed a significant effect of the social capital to poverty rate reduction. Direction of the relationship is positive, indicating that the higher social capital, shall result in the higher poverty rate reduction. In the other words, the increasing of the networks, obligations and norms shall increase the poverty rate reduction in Keerom regency. The way people work together, either in the household or in the broader communities is important for family living. In several societies, a different household shall connect to each other by basing on social responsibilities, reciprocal exchanges, trust and mutually beneficial support. All can play the important roles, especially in time of crisis. It can be suggested as a social capital which is part of the household living ability. Given Keerom Papua can not be separated from the various tribes are there then to generalize the results need further research in different Keerom regency.

## **6. CONCLUSIONS AND RECOMMENDATIONS**

The conclusion of this study is the human capital, natural capital, social capital, physical capital, and financial capital significantly effect to poverty rate reduction in Keerom Regency. Human Capital is the most efficient factor to reduce the level of poverty in Papua, which is efficient at 145% compared to the four other factors. Based on the conclusion above, the recommendation for this study are: (1) Regency government or city government should promote poverty rate reduction in Keerom through the improvement in human capital, financial capital, natural capital, physical capital and social capital. (2) The government should pay more attention on human capital sector that derived from the improvement in education and training access, improvement in the health facilities, and improvement in level of knowledges of the people. This is because the human capital is a main factor in increasing the poverty rate reduction in Keerom regency.

## **REFERENCES**

- [1] Baswir, Revrison. (1999), *Indonesian Government Accounting* (in indonesia: Akuntansi Pemerintahan Indonesia). 3rd edition. Yogyakarta : BPFE.
- [2] Eitzen, D. Stanley dan Zinn, Maxine Baca. (1993), *Social Problems*. Fourth Edition. Allyn and Bacon.
- [3] Farrington, J. et. al. (1999). Sustainable Livelihoods in Practice : Early Applications of Concepts in Rural Areas'. *ODI Natural Resources Perspectives*. Number 42. June 1999. Overseas Development Institute. London.
- [4] Gilley, J.W. and Egglan S.A (1991), *Principle of Human Resources Development*. *Massachusetts*: Addison-Wesley Publication Company.
- [5] Meier, Gerald M. (1989), *Leading Issues in Economic Development*. Oxford University Press, Cambridge.
- [6] DAHL, A Robert. (1963), *Democracy and Its Cities*. New Haven Conn: Yale University Press.
- [7] Sarman, M., Sarjogyo. (1997), *Poverty alleviation issues, Reflections of the Eastern Region of Indonesian* (in Indonesia: *Masalah penanggulangan Kemiskinan, Refleksi dari Kawasan Timur Indonesia*). Jakarta:Puspa Swara.
- [8] Sutopo, L. (2002), *Seed technology* (in Indonesia: *Teknologi Benih*). PT. Raja Grafindo Persada. Jakarta.