

Reconsidering Poverty and Its Alleviation Policies in Indonesia from the Viewpoint of the Capability Approach

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論文題目 **Reconsidering Poverty and Its Alleviation Policies in Indonesia
from the Viewpoint of the Capability Approach**

（ケイパビリティ・アプローチから見たインドネシアにおける貧困とその削減政策の再検討）

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論 文 內 容 要 旨

Summary

Background

In the study of international development, poverty has been a key issue worldwide, especially after the United Nations (UN) launched its Millennium Development Goals (MDG). The first target of the UN is to halve, between 1990 and 2015, the proportion of people in the grip of extreme poverty, who suffer from hunger and whose income is less than \$1 a day¹. In discussing poverty, we need to clarify its definition. There are various definitions of poverty. Amartya Sen argues that a person gains well-being from the capability to function in society. Sen introduced the capability approach and defined poverty as capability deprivation. In his book *Development as Freedom*, Sen distinguished two types of poverty, capability poverty and income poverty. Even though he emphasizes the importance of removing income poverty, he also mentions that the perspective of capability poverty does not involve any denial on including the lack of income, which can be a principal reason for a person's capability deprivation. Sen's capability approach, which is closer to the idea of social justice, emphasizes that capabilities (that a person has) include the substantive freedoms that a person enjoys to lead the kind of life he or she has reason to value. Sen said, "In this perspective, poverty must be seen as the deprivation of basic capabilities rather than merely as lowness of incomes, which has been the standard criterion of identification of poverty."²

Indonesia is used as a case study in this dissertation. The country offers various opportunities to study the problems of poverty, including the government's different poverty alleviation programs, discontent on rapid economic growth, fall in economic crises, and experience in facing natural disasters. All these aspects are related to the study of poverty and are important parts of this dissertation.

Basically, there are two measurements of poverty, relative poverty and absolute poverty. The Central Statistic Agency (BPS: *Badan Pusat Statistik*) of Indonesia also applies these two measurements of poverty. Relative poverty indicates the relative share of the population considered poor. Based on income/expenditure, for example, the lowest 20 or 40 percent of the total population can be considered relatively poor. Thus, using the relative poverty concept, the poor are definitely part of the population. Relative poverty is affected by economic development in each area. Absolute poverty is defined by a poverty line, with people under the poverty line considered poor. The World Bank makes use of two poverty lines to compare the poverty of countries: a per capita income of US\$ 1 per day (1.2 billion persons estimated poor in the world), and a per capita income of US\$ 2 per day (2 billion persons estimated poor in the world)³.

Sen idea is the most important to rethink or reevaluate the poverty reduction programs. In the context of practical policy making (according to Sen), the impact of income on one's capabilities would depend on the time of occurrence and would vary among different individuals, families, and communities. Based on the concept or understanding of poverty according to the capability approach, in this dissertation, we carry out a case study on various poverty reduction programs in Indonesia.

Work Plan from Chapter I through Chapter VI

First, **Chapter I** introduces the various definitions of poverty, hypotheses, objectives, methodologies, and data used in this dissertation. Three hypotheses are considered in this dissertation: (1) Poverty ratio can be affected by capability variables, (2) improvement in capabilities related to variables can reduce poverty ratio and (3) the capability approach with different view on poverty can give us alternative policy implications. To prove these hypotheses, the following four objectives are examined: (1) Taking into account the capability approach, we first review a few poverty alleviation programs/policies in Indonesia, including the executing organizations, (2) to understand the situation of poverty, we map the poverty

¹ <http://www.un.org/millenniumgoals/poverty.shtml>.

² Sen, 1999, 87.

³ BPS, 2009, 8.

indices at the district level (*kabupaten*) in Indonesia on the basis of the prevalence of consumption poverty, (3) to reconsider/re-evaluate the capability of poor farmers, we analyze the changes in the upland crops farm economy in Indonesia, and (4) we analyze the causality and characteristics of poverty using both the consumption approach and the capability approach.

In **Chapter II**, we try to review the government's policies, mainly related to its development policies/programs and how and to what extent poverty alleviation programs were undertaken in Indonesia. The review includes the historical and political background related to poverty problems and the recent poverty alleviation programs undertaken from the capability approach point of view.

In order to examine whether a higher level of poverty exists in rural areas, we investigate the prevalence of poverty throughout the country. In recent years, these data have been rearranged to form a geographical mesh-like data, and in **Chapter III**, poverty mapping gives us a visual view of the incidence of poverty in Indonesia by region. We obtained the necessary data from different census reports, such as the population census, the agricultural census, and the socio-economic census. In this dissertation, Indonesia is divided, geographically, into several major islands: Sumatra, Java, Kalimantan, Sulawesi, and Other Islands (this covers islands in eastern Indonesia: West Papua, Maluku, and West and East Nusa Tenggara). The group geographically forming the Other Islands exhibits severe problems of poverty.

After introducing the various policies/programs undertaken in Indonesia toward poverty alleviation and reviewing the prevalence of poverty throughout the country, we examine the capabilities of the farmers of upland farming in **Chapter IV**. Upland farming is overlooked in Indonesia compared with rice farming. We expect to find the potential capabilities of these farmers who have been regarded as less capable. To do this, we will use time series and cross sectional data on national upland farming and the price model.

This dissertation aims to examine the poverty reduction programs/policies and find out to what extent and how and why the capability approach has been adopted. We will try to compare the characteristics of several major programs under the Poverty Reduction Strategic Paper (PRSP). With regard to the 2000s, we will examine the combination of capability-improving efforts, mainly the coupling or conversion of nutrition (food access), education, and health to functioning and also the target group of beneficiaries (individual, family, and community). The combination of these items is crucial to improve effectiveness and efficiency. In **Chapter V**, we analyze the relation between the capability approach and consumption approach. Examining the relation and causality between these two approaches has become necessary, since the Indonesian government has adopted both these concepts in their poverty reduction policies. The level of poverty is fixed according to some standard criterion of poverty, which is highly dependent on the consumption/expenditure level related to income. On the other hand, in distributing social assistance, the government has adopted the capability approach. We analyze the causality of some variables of capability and the poverty ratio in Chapter V using the panel data method. Since data availability strictly constrains our options of analytical means, in Chapter VI we use principal component regression to continue our discussion. We obtain additional data by using five regions (mentioned in Chapter IV) and the employment sector variables. We also apply the autoregressive model to properly describe the phenomenon of consumption poverty as an impact of basic needs provision and the employment sector. In Chapter VI, we study the coupling between income deprivation and capability variables and how it affects poverty alleviation policies.

Poverty Alleviation Programs in Indonesia

In Chapter II, we observe that poverty alleviation programs before the 1997–1998 Asian economic crisis were embedded in development plans, and especially in the early 1990s, the programs focused on addressing poverty in remote and isolated communities. Consumption poverty was the basis of government poverty alleviation programs and policies; capability poverty was still a new idea and therefore less recognized. After experiencing the impact of the economic crisis, the government started to pay attention to capability poverty, especially in the health and education sectors. The Asian economic crisis was the trigger of Social Safety Net programs in Indonesia. These programs aimed to ease the impact of the economic crisis on income. The poor were badly affected by the high inflation rates, and

their purchasing power decreased sharply; the worst affected were the poor families who had to allocate a higher share of their expenditure for food. The government took steps to provide staple food to them (with a program to provide subsidized rice to poor households—OPK: *Operasi Pasar Khusus*). The government also tried to stabilize the school enrolment rate by offering scholarships to children from poor households. Since then, the recognition of capability poverty began to gain more attention than in the “New Order” era under the presidency of Soeharto. Poverty alleviation efforts have also been more focused and targeted in recent years, and in 2003 the BPS started to collect data including various variables that indicate capability poverty.

Based on the experience gained in fighting the impact of the Asian economic crisis on poverty, various steps related to capability improvement were taken, which have become an important part of all recent poverty alleviation programs. The OPK was transformed into a Raskin program, and the government continued to spend on social expenditure to help the poor reduce the share of their food expenditure in their family income. From the capability point of view, in a short time the Raskin program was able to increase the capability of the poor to access food, although the rice subsidy program was not a permanent cure for all poverty problems. It was just a temporary remedy, and the program needed to be carefully designed to avoid long-term dependency.

With regard to the health sector, the government provided health insurance for the poor up to the household level (*Jamkesmas: Jaminan Kesehatan Masyarakat*). This program is expected to increase the poor’s access to health services. On September 28, 2011, the parliament decided to commence implementation of the universal health system by 2014 and health insurance for workers by 2015. By then, the capability to access health services is expected to increase for all citizens of Indonesia.

In the education sector, the government has a provision for conditional cash transfer in the form of a school operational fund program (BOS: *Bantuan Operasional Sekolah*). This program is meant to increase the access of poor children to education. From a capability poverty perspective, any improvement in capability variables (education is one such capability variable) is expected to improve one’s earning power in the long run. We will analyze the relation and causality of this hypothesis in later chapters of this dissertation.

Through an ideal family program (PKH: *Program Keluarga Harapan*), conditional cash transfers are provided to poor households targeted by the program, which combines both the health and education sectors. This program aims to invest in human capital, while also giving temporary relief against consumption poverty. PKH can be understood as a combination of the consumption approach and capability approach.

At the community level, two programs, a community empowerment program (PNPM Mandiri: *Program Nasional Pemberdayaan Masyarakat Mandiri*) and a credit program (KUR: *Kredit Usaha Rakyat*), have put more emphasis on the capability approach. In PNPM Mandiri, the government provides the necessary tools and facilities to communities, who have the option to use the opportunities to improve their conditions in their area, while in the KUR program, funds are given to debtors in the form of micro and medium loans. Both programs have opened the road for the community to ensure that their capability improves by providing support in many ways (capital, consultation, training, etc). A community is expected to be able to use the support given to solve its poverty problems in its area.

Consumption Poverty by Mapping and Capability Poverty

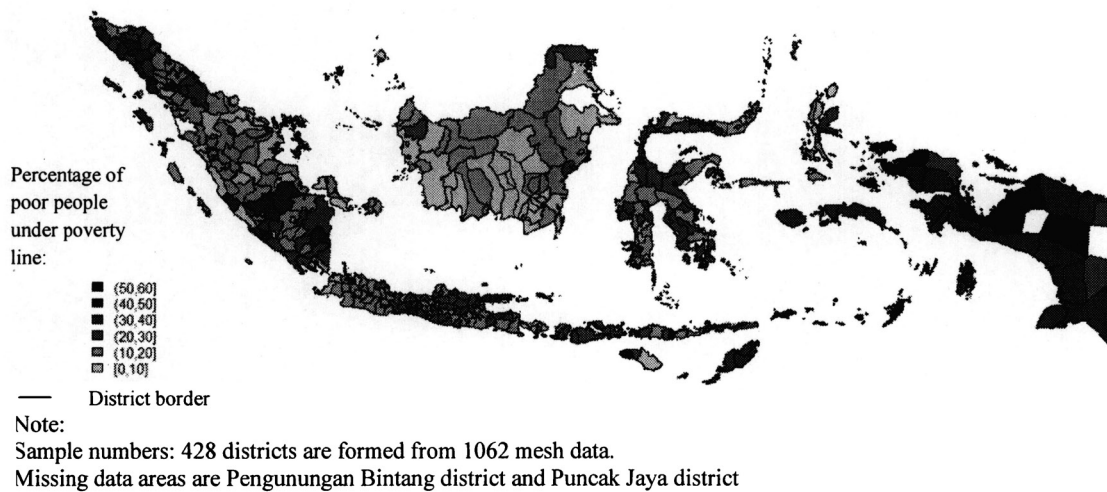
Chapter III explains in detail how the Indonesian government measures the poverty line and defines the poor. The poverty indices and poverty lines employed by the Indonesian government are also explained. The whole portrait of poverty is presented in poverty mapping, which is made by mesh data regarding poverty indices. The data are available by district; the district-level data plotted onto the map indicate poverty by urban and rural areas and help to identify the poverty pockets throughout the country. In this chapter, we divide Indonesia into five regions, as mentioned before.

The maps provide visual descriptions based on different profiles of poverty and different indices. The poverty indices maps were made so that the difference among the three indices could be made observable. All the poverty indices (Poverty Ratio [P_0], Poverty Gap [P_1], and Poverty Severity [P_2]) are used in the

mapping by region. Three indices uniformly show a tendency to be highest in the Other Islands group and lowest in Kalimantan. Disparity is also observed within each region.

Figure 1 shows an example of the maps presented in this dissertation. It gives the P_0 throughout the country, with no poverty indices higher than 60%. In the maps, classification of legends is made from 0% to 60%. There is no district or city with 0% poverty indices, white color in the legend shows district or city without data (no data available). Data on P_0 is scattered relate to all islands of Indonesia and over both sides of the equator.

Figure 1. Poverty ratio (P_0) for the year 2007



Source: Authors' calculation using data from BPS⁴ with R2.7.1, Maptools⁵

From the capability approach viewpoint, we note that consumption poverty is not always in line with the provision of basic needs. Although all the three poverty indices show the lowest level of poverty in Kalimantan, most of the facilities providing basic needs are most advanced in the Java region. In this analysis, basic needs mean safe water access, and health and education facilities. This means that people in the Java region have a higher capability in realizing their well-being with regard to safe water access, health, and education, although they are not as wealthy as people in Kalimantan from the consumption approach. Here, the capability approach gives us a different understanding of poverty not covered by the consumption approach.

However, poverty mapping (which gives a visual description) also does not show this relation (causality). An in-depth analytical study regarding causality between consumption poverty and the availability of basic needs (which could represent capability poverty) is needed. First of all, it is important to confirm whether or not the poor in Indonesia (rural poor farmers) have the capability to improve their well-being before we proceed further in the study of causality between consumption poverty and capability poverty.

The Changes of Upland Crops Farm Economy in Indonesia (Case Study under Climatic Shock and Price Changes)

Most of the poor households are in rural areas, where people depend on the agricultural sector. Chapter IV includes a case study on how price changes could affect farmers and the farm economy in

⁴ BPS, 2008

⁵ R Development Core Team, 2008

Indonesia. The attitude of farmers to changing their farming system in order to maintain or increase their income is largely constrained by their capability. Our case study shows how farmers who are on the edge of poverty improve their income. The study first analyzes how farmers change the amount of area harvested in response to the El Nino. Second, the effects of price fluctuations on the area harvested are analyzed using the Area Response Model. The presence of “own price effect” (positive correlation between area harvested and price) indicates that price information is transmitted effectively to the farmers and affects their decisions. This own price effect is considered a necessary incentive for farmers to develop secondary crop production. The farmers are capable to respond to such price incentives.

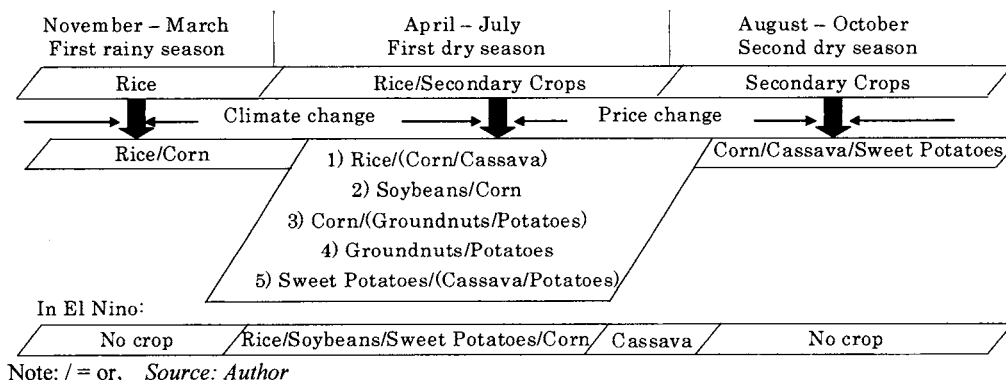
“Cross price impacts” can also be observed among different crops. This indicates that a change in the price of one commodity will affect the area harvested for other commodities. Cross price impacts can be either positive or negative. The capability of farmers would enable them to respond to price changes and change their cropping patterns and crop combinations. Farmers have thought up (contrived) several combinations such as double (or triple) cropping and intercropping patterns even under constraints of water availability and other inputs.

What are the variables that provide or improve a farmer’s capabilities? This must be investigated. However, owing to lack of data and time, it is hard to collect original field data. Instead, using the panel data by districts in Yogyakarta and Central Java, we analyze poverty and the capability variables in Chapters V to VII.

In Chapter IV, we find that farmers have the capability to reduce the negative impacts of climatic shocks by growing more resistant crops. In the case of El Nino, we judge the capability of farmers through their harvested area response as they turned to such crops as cassava, sweet potatoes, and soybeans. Cassava, with its high adaptability to drought conditions, can play a vital role as a complementary staple food in times of rice production failure. Growing sweet potatoes and soybeans improves the stability of food crop production in times of climatic shocks and can lead to strengthening the nation’s food security.

Farmers are also capable to cope with price changes. Their capability is seen in how they select crops based on pricing information and diversify production by changing their cropping patterns (see Figure 2). Despite some limitations hampering their development efforts (such as limited or deteriorating natural resources, infrastructure, or capital), the rural poor in Indonesia are able to avoid capability deprivation. Farmers in Indonesia have gained immense knowledge and skills through heritage from the experiences of their previous generations. However, other than the government efforts providing support in capital, knowledge, financial and technology transfer programs, the prioritized rice sector, and upland crops are overlooked. The capability approach represented by nutrition, health, and education seems to be more important when we study the upland farmers’ capabilities.

Figure 2. Farming system in Indonesia



How are the rural poor able to obtain their capabilities, and how does it affect capability improvement as a whole? We provide a deeper analysis of these issues in chapters V and VI.

Health, Education, and Poverty

The hypothesis in Chapter V is based on the capability approach; policies that do not improve income, such as improving health, nutrition, and education can reduce the poverty problem in the long run. The important variables in this case are education and health. In order to find the causality between these two variables and consumption poverty, we used a panel data analysis method. The benefit of using this method is that we can identify the causality among the result and cause variables.

Access to safe water is defined as a percentage of households who use water from clean natural water springs, water wells, water supply provided by government drinking water companies (*PAM: Perusahaan Air Minum*), or bottled water sold by private companies⁶. All sources of water mentioned above provide safe water to drink without causing any health hazards (note that except for bottled water sold by private companies, water from other sources should be boiled before consumption). Water from other sources such as rivers, rain, lakes, and unprotected natural water sources are considered unsafe water accesses and omitted from our calculation. Recently, the Indonesian government developed PAMs in their urban areas, and the bottled water industry has been developed very well.

The use of private/common toilets is defined as a percentage of households who use toilets, whether privately owned inside their houses or common toilets. Birth control participation indicates the percentage of women who use contraceptive devices. Birth control programs are promoted by the government to reduce the population growth rate. BCG vaccination for children under five years of age is available in local health facilities. District or sub district health facilities encourage households to participate in birth control and vaccination programs. Participation in these programs indicates access to health facilities.

In the education category, elementary dropouts indicate the percentage of poor people unable to finish elementary school. High school completion gives the percentage of poor people who graduated from high school. The Central Bureau of Statistics, Indonesia, has categorized a poor person as someone whose average monthly expenditure is lower than the poverty line. The variable of food access gives the share of a poor household's expenditure for food.

The estimation results also show that the more capable people are to access housing facilities and education, the more likely they are to overcome poverty. These results support the basic fact that "reduction of consumption poverty alone cannot possibly be the ultimate motivation of antipoverty policy, and thus capability improvement helps both directly and indirectly in enriching human lives and in making human deprivations less acute."⁷ From the capability point of view, the capability to access safe water and sanitation is closely related to consumption poverty; the results show that exogenous variables (some capability variables) cause changes in endogenous variables (consumption poverty). The effect of seven variables to consumption poverty is explained in detail below.

Seven variables are supposed to seriously affect consumption poverty. However, our results could find that only three values were significant. Sanitation (safe water and toilet facilities) seems to have a direct impact on the level of poverty, but medical variables (BCG and birth control) do not.

This means that allocating/prioritizing budgets for providing sanitation facilities will not only improve the quality of lives of the poor but also increase their ability to earn an income and be free of consumption poverty as well. The same implication holds good for education too, for example, by providing scholarships to keep the school enrolment ratio high, so that children can finish their high schools, which could lead to making human deprivation less acute.

In a one-year time lag, the variables related to capability poverty, namely, the availability of access to safe water, availability of private or common toilets, and the high school completion ratio, are correlated to the level of poverty ratio. All are significant at the 5% level and show a **negative impact**. From the capability point of view, it means that poverty can be decreased by increasing the access of poor households to safe water and toilets. It also implies that for them, their capability can be improved by finishing high school education. Elementary school dropout, however, can reduce the burden of a household and relax its budget constraints in the short run.

⁶ BPS, 2009.

⁷ Sen, 1999.

The ratios of BCG vaccination and elementary dropouts also show a negative impact, but the estimation results show no significance. Improvement in the BCG vaccination ratio seems to decrease consumption poverty, and so does an increase in the elementary schools dropout ratio. When a child drops out of school, in the short run, it could relax the overall expenditure and consumption levels. However, the relation is not significant.

Positive impacts are found for participation in birth control programs and food expenditure for the poor, but the results are not significant. In a one-year time lag, we could not conclude a relation of these variables with consumption poverty.

Analyzing **by category**, in a one-year time lag, we found that health and education are two important categories (that affect the poverty ratio), rather than the food access category. Not all variables within these categories show a significant relation, but we could identify some individual variables that show a significant correlation with the poverty index; these are access to safe water, access to private or common toilets, and the high school completion ratio. This could be an important factor in coupling between income deprivation and adversity, comprising deficiencies in safe water, sanitation facilities, or access to education.

The variables such as participation in birth control programs, BCG vaccination, the elementary school dropout ratio, and poor-food expenditure would need a longer time to make a significant impact on consumption poverty—especially BCG vaccination, because this is provided under a government subsidy program. A longer time lag might be needed to improve the significance level, but this would require quite a larger data set in a longer time series.

In the education category, consumption poverty decreases when there is an increase in elementary dropouts, and consumption poverty decreases when more children graduate from high school. By graduating from high school, children would be able to earn better and reduce their consumption poverty in the long run. Causality between the poverty ratio and improvement in education shows that an increase in capabilities could bring about greater earning power.

In the food access category, as a tendency to incur a higher share of expenditure on food is observed among the poor, providing cheaper rice to them would be a proper way to help them increase their access to food. This effort would help the poor maintain their calorie intake and hopefully their nutrition level as well. However, from the capability approach, in the short run, providing cheap rice could increase the capability of the poor in accessing rice, but in the long run, the poor could become too much dependent on the government and, generally, lose their capability to provide themselves with rice.

Even though we could identify some important capability variables that affect consumption poverty in Chapter V, the result did not give us enough data to answer certain issues regarding coupling (e.g., the results are not convincing enough to determine the coupling between income deprivation and adversity). In Chapter VI, we will conduct more precise empirical studies on the coupling between income deprivation and adversity to access health, education, and food. In addition, we will provide the employment sector variables to study their impact on rural poverty (mostly related to the agriculture sector).

Using principal component regression in Chapter VI, we show that expenditure on both food and basic needs as well as the working sector are closely related to consumption-based poverty. The basic needs, such as toilet availability, access to safe water, and health services and education, often measured as a dimension of capability-based poverty, may play a pivotal role in determining the degree of consumption-based poverty. This reinforces the results of Chapter V; the estimation results suggest a strong correlation between capability poverty and consumption poverty.

Our estimation results indicate that access to safe water (WATER) is the most important among all the other public health variables, reducing the severity of poverty. This implies that the local government is requested to provide more access to safe water for people under severe poverty.

The severity of poverty also turns out to be correlated with both the education variables, the elementary dropout ratio (EDR) and high school completion ratio (HCR), indicating that elementary and higher education are more important than food expenditure in order to reduce the severity of poverty.

Policies that lower food prices might alleviate the incidence, deepness, and severity of poverty. However, the impact of lowering food prices for the people under the poverty line is limited because the magnitude of the coefficients is very small.

By category, coupling between income deprivation and difficulty to access health and education are the most influential factors on consumption poverty. The results show that these two categories affect not only the poverty ratio, but also the poverty gap and severity of poverty. Governments could prioritize budget allocations for coupling income deprivation and difficulty to access health (especially safe water access and education) to effectively tackle the severity of poverty.

Reviewing Government Policies based on Capability Approach

When food production is taken into consideration, increasing the capability of farmers to increase their production tends to decrease all poverty indices. We carry out quantitative analysis in Chapter VII using panel data, and the results are shown in Table 1. The results show that the city dummy unsurprisingly gives a significantly negative result, that city areas are less poor than rural areas.

Rice production and the area harvested are negatively related to all poverty indices (except P2 for rice production; it is negative, but not significant). This means that when rice farmers decrease their production and the area harvested, they become poorer. For farmers facing severe poverty, increasing their production has the tendency to improve their life condition, but we find no significant impact. Farmers facing severe poverty may have so little land that improving their rice production would cause no significant impacts. However, when they increase their area under harvest, the result becomes significant at 10%, meaning that improving the area under rice cultivation is important to alleviate the problems of farmers facing severe poverty.

Secondary crops production and the area harvested have positive results, but not all the results are significant. This explains why farmers in areas facing severe poverty depend on secondary crops farming more than those in areas facing less poverty. Secondary crops are still considered as “catch crops” that poor farmers use to improve their income.

Unsurprisingly, expenditure of the poor on food is positively correlated with poverty: their food expenditure increases when the rate of poverty increases. Households facing severe poverty use a bigger share of their expenditure on food compared to less poor households.

The education sector does not make a significant impact on poverty indices; it would require longer time for this sector to make an impact on poverty indices. In the health sector, only BCG vaccination is positive, and it impacts P₁ and P₂ significantly. To guarantee that all children under the age of five, including those from poor families, could receive BCG vaccination, it is made available free of charge in community-based health services (*Posyandu: Pos Pelayanan Terpadu*); it is also available in hospitals, but not for free. The BPS might record more data from community-based services than from hospitals. Participation in birth control programs, availability of private or common toilet facilities, and access to safe water have negative signs. People with many children tend to be poor, but this result is not significant. Improving the health-related basic facilities of households tend to decrease their poverty index. The result is significant for the variable of availability of private or common toilets.

Conclusion and Policy Implication

From the capability approach, poverty is defined as capability deprivation. Amartya Sen sees capability as the substantive freedom to functioning so as to enjoy leading the kind of life one has reason to value. Functioning is the subject of the capabilities referred to in the approach: what one is capable, wants to be capable, or should be capable of being/doing. Living may be seen as a set of interrelated functioning. Examples of functioning can be specific, such as being able to eat a specific brand of food or drink a specific brand of drink. It could also vary from elementary things such as being healthy and having a good job to more complex levels such as self-respect, participation in community life, and ability to be happy. Therefore, a person’s chosen combination of functioning, what one is and does, is part of one’s overall capability set, which is the functioning he or she is capable of doing.

The first objective, the combination of government policies/programs, which would ensure the effectiveness of improving an individual's capabilities, is an important issue that needs to be addressed. Yet, functioning can also be conceptualized in a way that signifies an individual's capabilities⁸. This may be hard to explain, but it is very important to consider this while discussing the government's poverty alleviation programs, even though CGPRT crop farmers are relatively overlooked compared to rice farmers, to whom the government is willing to provide various supports to increase their capabilities. Although the official poverty alleviation measurement gives heavy emphasis on one's *means* (income is usually given exclusive attention), various poverty programs also aim to increase the capabilities of farmers; for example, transmigration programs, mass instructions (Inmas: *Instruksi Massal*), mass guidance programs (Bimas: *Bimbingan Massal*), village cooperation units (KUD: *Koperasi Unit Desa*), and the PNPM program. The importance of this study is that it shows that capability improvement is not merely improving one's means (which is commonly thought) from the income or consumption point of view but actually the outcome of policies/programs, which should be given equal attention as that given to income improvement. This dissertation has studied the policies/programs of Indonesia from this point of view.

Regarding the second objective, health and education, these are two categories that still need to be developed, especially in the Other Islands region. This does not mean that health and education would directly improve the living conditions of poor households, but it could lead to greater income and removal of consumption poverty in the long run. Coupling between income deficiency and capability deprivation needs to be made on a priority basis. The focus should be not only on the eligibility of program beneficiaries, but also on overall capability improvement (on household basis); this needs to be considered to avoid overlapping. Base household data (that list the benefits received per household) are required to guarantee that the government efficiently spends its social expenditure. To spend social expenditure efficiently on individuals, families, or the community, targets need to be arranged more precisely. For example, for the Raskin (rice for the poor) program, although it is an individual or household targeted program, rice is in fact distributed to villages or communities. Logistic agencies (Bulog: *Badan Urusan Logistik*) and the central government cannot identify the real poor at the field level. Since governance is at the village level, many problems of inclusion or exclusion may arise.

Regarding the third objective, the case of upland farmers, the capability approach can justify or explain their attitude while facing various challenges. They have reason to value their options with regard to growing specific crops, and they show their potential to enjoy their freedom. Their functioning in this case expresses their capability to change their cropping patterns. They have reason to value their decisions, for example, minimizing the negative effects of climatic shocks and maintaining or increasing their income. Any contribution to their functioning in the long run could improve their overall capability.

The last objective, the relation found between capability poverty improvement and decreasing consumption poverty, supports Sen's idea. It implies that any economic development meant to increase income or consumption is important, but this is not the aim of policies/programs. Poverty reduction policies/programs should directly target the various elements of poverty and allocate budgets to such fields. Combination or coupling could be used for budget allocation. Our analysis in Chapter VI provides evidence of how coupling could be made to find fields that need to be prioritized. Health and education turn out to be important sectors that can help reduce consumption poverty.

According to Table 1, rice production and harvested area show a negative sign; higher production of rice and extending the area harvested reduce consumption poverty. Even if the government uses higher price policies (that could give farmers incentives to expand their production), it will not worsen the poverty problem. The consumption approach implies that tariff barriers, which could lead to reducing the price of domestic rice, will benefit consumers, since it would improve their purchasing power. Under the assumption that price incentives are workable (proved in Chapter IV), rice producers can improve their functioning to produce much more rice (farmers produce more rice to increase their income—proved in Chapter VII). Table 1 shows the poverty indices by district, including consumers and producers of rice.

⁸ Sen, 1992. *Inequality Reexamined*. Cambridge, MA: Harvard University Press.

Table 1. Estimation Result of Poverty Indices and Food Production

	R-squared	Constant	city	d05	d06	d07	d08	water	toilet	birthc	bcg	edr	hcr	fep	rprod	scprod	rarea	scarea
P0	0.50	-9.10	-0.89	0.05	0.18	-0.68	0.01	-0.08	-0.10	-0.44	0.84	-0.09	-0.04	2.99	-0.09			
		*	***		**	***								***	**			
P1	0.40	-16.03	-0.91	0.25	0.18	-0.50	0.10	-0.09	-0.22	-0.46	2.05	-0.03	0.00	2.96	-0.10			
		**	***	***	*	**			**	*				***	*			
P2	0.30	-20.20	-0.85	0.32	0.17	-0.40	0.04	-0.16	-0.30	-0.52	2.92	-0.02	0.03	2.88	-0.10			
		**	***	***					**	**				***				
P0	0.49	-8.36	-0.48	0.04	0.20	-0.60	-0.03	-0.09	-0.16	-0.52	0.85	-0.19	-0.04	2.69	0.03			
			***		**	***			*					***				
P1	0.38	-15.09	-0.47	0.23	0.19	-0.41	0.06	-0.10	-0.27	-0.56	2.04	-0.14	-0.01	2.64	0.03			
		**	***	**	**	*			**	*				***				
P2	0.29	-18.59	-0.36	0.29	0.19	-0.30	-0.01	-0.17	-0.37	-0.65	2.84	-0.13	0.02	2.49	0.04			
		**	*	**					***	**				**				
P0	0.50	-9.17	-0.90	0.06	0.18	-0.68	0.01	-0.09	-0.10	-0.43	0.78	-0.08	-0.04	2.97	-0.10			
		*	***		**	***								***	**			
P1	0.40	-16.07	-0.94	0.25	0.18	-0.50	0.10	-0.09	-0.21	-0.46	1.98	-0.02	-0.001	2.96	-0.11			
		**	***	***	*	**			**	*				***	**			
P2	0.30	-20.24	-0.88	0.32	0.17	-0.41	0.04	-0.17	-0.29	-0.51	2.84	0.00	0.02	2.88	-0.11			
		**	***	***					**	**				***	*			
P0	0.49	-8.11	-0.47	0.04	0.20	-0.60	-0.03	-0.09	-0.16	-0.54	0.84	-0.19	-0.04	2.67	0.03			
			***		**	***			*					***				
P1	0.39	-14.87	-0.47	0.23	0.20	-0.40	0.06	-0.10	-0.28	-0.57	2.05	-0.14	-0.004	2.63	0.03			
		**	***	**	**	*			*	*				***				
P2	0.29	-18.39	-0.35	0.29	0.20	-0.29	-0.01	-0.16	-0.37	-0.67	2.85	-0.13	0.02	2.48	0.05			
		**	*	**					***	**				**				

Note: significant signs***(1%), **(10%), *(1%), n = 170, t = 2004 to 2008, i = 34 district, d city: city dummy (Kota Surakarta, Kota Salatiga and Kota Semarang), city means administratively

city (Kota), others are districts (Kabupaten) birthc: log form of participation in birth control program hcr: log form of highschool completion ratio rarea: log form of rice area harvested

d05-d08:year dummy bcg: log form of bcg vaccination fep: log form of food expenditure of a poor scarea: log form of secondary crops area harvested

toilet: log form of access to private/common toilet edr: log form of elementary dropout ratio rprod: log form of rice production water: log form of safe water access

Thus, higher prices can reduce poverty problems in areas that include both consumers and producers. The poverty ratio can be affected by capability variables. Improvement in capability-related variables can reduce the poverty ratio. Thus, the capability approach gives us a different viewpoint on poverty and alternative policy implications.

References

- Badan Pusat Statistik (BPS). 2008. *Data dan Informasi Kemiskinan Tahun 2007*. Jakarta: CV. Nario Sari.
- Badan Pusat Statistik (BPS). 2009. *Analisis dan Penghitungan Tingkat Kemiskinan 2009*. Jakarta: BPS.
- R Development Core Team. 2008. "R: A Language and Environment for Statistical Computing, R Foundation for Statistical Computing." ISBN 3-900051-07-0. Vienna, Austria: <http://www.R-project.org>.
- Sen, A.K. 1992. *Inequality Reexamined*. Cambridge, MA: Harvard University Press.
- Sen, A.K. 1999. *Development as Freedom*. New York: Alfred Knof.
- United Nations. 2010. <http://www.un.org/millenniumgoals/poverty.shtml>.

論文審査結果要旨

当論文は発展途上国における貧困問題解決の再検討を、アマルティア・センによる「ケイパビリティ・アプローチ」の観点から行った論文である。貧困概念を整理し、貧困の要因を実証的・計量的に検証し、それにもとづいてインドネシア(以下、イ国)を事例に貧困削減関連政策の再評価を行った。

内容は、まず第1に、貧困の概念とその計測方法に関する諸議論を整理している。権利や能力を奪われた状態にあることを貧困の要因・実態であるとする、90年代以降有力となったアマルティア・センの概念にもとづいた「ケイパビリティ・アプローチ」を紹介し、研究の課題と仮説の設定を行っている。第2に、2000年代以降の「改革(リフォルマシ)」の時代に、重視されるようになった食糧・栄養、保健衛生、教育を中心に、イ国における開発政策と貧困問題対策の歴史的推移を明らかにした。第3には、同国で用いられる貧困指標を紹介、それを用いたマッピング等により、同国の貧困状態を明らかにした。第4に、食糧増産政策では等閑視されてきた畑作農業に焦点を当て、貧困な農民たちが生産性を改善し、価格や気象などの条件変化に合理的に対応した営農システムを構築していることを明らかにした。第5に、貧困農民や貧困地域が貧困を緩和しないし削減する能力を備えていないとは言えないことを、県別のパネルデータ等を用いて計量的に解明した(第5から7の各章)。第5章は、ケイパビリティに関連する食糧、保健衛生、教育に関する変数が、消費支出ベースの貧困指標に対して有意に作用していることを確認した。6章では、主成分回帰分析など計量的厳密さを考慮して、貧困指数と貧困関連変数との有意な相関を検証した。第7章は、農民の多い最貧困地域のジャワに焦点をあて、ケイパビリティ関連変数上の改善が貧困地域でも一定程度進んだこと、コメ増産が貧困改善に有効である、畑作物増産は貧困を削減できないまでも貧困を悪化させない効果がある、などの結果を得た。その上で、特に貧困層向け低価格米供給政策の下で、高い市場米価政策が貧困削減に寄与しうることを明らかにした。

以上本研究は、概念的なレベルでは多々議論されたケイパビリティ・アプローチが貧困問題解決上有効であることを、実証的・計量的に明らかにした点が新しく大きな貢献である。その成果にもとづきイ国の貧困削減策を検討し、例えば米価問題に関して高米価政策が必ずしも貧困削減の障害にならないなど、従来の消費や所得に焦点をあてた貧困概念から得られるものとは正反対の政策含意を導いた。途上国の貧困問題を研究する上で、新しい視点に立った分析を行って政策含意を引き出した点、新しい研究領域を開いた点が高く評価され、6人の委員が一致して学位の授与に値すると判断した。