

Profile of Poverty and Probability of Being Poor in Rural Indonesia

Susumu Hondai
Research Professor,
International Centre for Study of East Asian Development,
Kitakyushu

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Abstract

When characteristics of the poor are examined with respect to several important variables, a relative incidence of poverty varies greatly with respect to education and the sector of work of a household head. It is greater than one when educational level is less than junior high school in rural areas. When a household head finished junior high school or higher, his relative incidence of poverty is far smaller than one. It may imply that providing higher education is essential to reduce rural poverty in Indonesia in the long run. However, a rate of increase in household expenditure to an additional year of education is almost zero in the agricultural and manufacturing sectors in rural areas. This fact indicates that although a household head finishes education higher than junior high school, he may not be able to raise his household expenditure as long as he stays in the agricultural and rural manufacturing sectors. This implies that education alone will not solve a poverty problem in rural areas.

1. Introduction

Indonesia has done remarkably well in the areas of both economic growth and poverty reduction. For two decades before the Asian financial crises in the late 1990s, economy grew at 6 to 8 percent per annum, which were substantially higher than the average growth rate of other developing countries. At the same time, Indonesia's share of population below poverty lines fell from 17.4 percent in the 1987 to about 15.7 percent in 1996, as compared with a still high level of 28.6 percent in 2000 in India and of 36.8 percent in 1997 in the Philippines.¹ Indonesia's record is also comparable to that of Thailand, whose economy grew at an even faster rate.

Although the Asian financial crisis hit the Indonesian economy hard because her domestic political struggle aggravated the situation, it recovered very quickly. GDP per capita contracted by 13 percent in 1998, and eventually went down to the 1994 level. Poverty rose sharply, as indicated by both official and independent estimates.²

The figures issued by Indonesia's Central Statistics Agency show the proportion of people deemed poor increasing from 17.7 percent in 1996 to 24.2 percent in 1998 (see Table 1). But just as the economic contraction caused a sharp increase in the poverty rate, the economic rebound in 1999 and 2000 brought this rate back to its pre-crisis level. Based on independent estimates (Suryahadi et al. 2003), poverty rate in the later half of 1999 had fallen to 19 percent, almost similar level as in the early 1997, after

shooting up to 28.7 percent in August 1998. These estimates suggest that poverty in Indonesia responds strongly and the people on the poverty line are very vulnerable to large economic shocks.

In year 2000, the share of people below the poverty line was 22.4 percent in rural areas, while it was 14.6 percent in urban areas (Table 1).³ In that year, the entire population in Indonesia was 201 million and 57.6 percent of that was living in rural areas. These figures indicate that population below poverty line in rural areas was around 26.0 million, while that in urban areas was 12.5 million. Population below poverty line was approximately two times larger in rural areas than in urban areas, and poverty is a major problem in Indonesian rural areas. But profile of the rural poor is not well understood. In this paper, we will firstly investigate what are characteristics of poverty in Indonesia.

So far, many researchers show that education is very important to alleviate poverty in Indonesia (Cameron [2000], Lanjouw et al. [2001], Feder [2003], Daly and Fane [2002], Jones [2001]). Education is generally important to alleviate poverty: however, we are not sure if education is an essential measure to improve poverty in rural Indonesia, because people are suffering from insufficient employment opportunities. As a second question, we will investigate if education alone is sufficient to alleviate rural poverty.

In this paper, we will look into the following questions: what are the characteristics of population below the poverty line; and why a large share of population falls below the poverty line in rural areas. Our analysis will answer to questions such as: who are the poor; where they are located; in which sectors they work; what levels of education they finished and what are the characteristic of the poor that are different from those of the non-poor. In addition, our analysis also strives to answer the question if education is essential to alleviate poverty in rural areas. To answer these two questions, we will investigate the profile of poverty by identifying the poor in terms of socio-economic variables such as location of household, employment status, and sector of employment. After identifying the economic variables, we will also investigate if education alone may reduce poverty in rural areas.

This paper is organized as follows: The next section describes statistical data to measure Indonesian poverty situations, poverty line, population below poverty line, and geographical areas to be studied. It also surveys recent changes in the poverty situation in rural and urban areas. In the third section, we describe the data used for our analysis and will define geographical areas to be investigated. The poverty profiles

are then discussed with respect to socio-economic variables such as education, age, gender, sector of employment, status of employment, land holding, family size, etc. In section 4, probability of being poor will be investigated in relation to socio-economic variables separately for rural and urban areas using a probit model. In section 5, the rate of increase in household expenditure with an additional year of schooling will be investigated and then effects of education on poverty alleviation in rural area will be discussed. In the last section, results of our analysis will be summarized and policy implication will be discussed.

2. Data and the Areas of Analysis

In Indonesia, there are not household income statistics to estimate the income levels of population, but there are household consumption statistics. They are surveyed in the *National Socio Economic Survey* (“*Survei Sosial Ekonomi Nasional*” in Indonesian; hereafter abbreviated as “*Susenas*”) which is sampled and compiled by the Bureau of Central Statistic (“*Badan Pusat Statistik*” in Indonesian; hereafter abbreviated as “*BPS*”). The survey comes in two sets, the consumption module data and core data, hereafter referred to as the *Susenas* module and the *Susenas* core, respectively. The *Susenas* module provides detailed household consumption data which is undertaken every three years, and allows disaggregation only at the provincial level. In the 1990s, such data are available for 1993, 1996 and 1999. The *Susenas* core, on the other hand, covers both household consumption and other socio-economic indicators on an annual basis, with the specific indicators varying from year to year. The consumption data in *Susenas* core are not as detailed as those in the *Susenas* module and, indeed, give a different picture of the consumption level: the consumption figures for 1993-99 from the *Susenas* core are about 11% lower, on average, than those from the *Susenas* module (Balisacan and Pernia [2003], p. 332). The advantage of the *Susenas* core is that the data allow disaggregation at the district level. Official government poverty figures calculated by BPS are based on the *Susenas* module. We use the *Susenas* core because it yields a far greater number of observations for each survey year.⁴ Although its main part consists of household consumption statistics, *Susenas* core collects health and social characteristics including educational level and employment status of individual household members.

Consumption statistics is preferable to income statistics as a measure of household welfare for the following two reasons. The first is a theoretical one. Microeconomic theory suggests that because welfare level is determined by life-cycle or permanent

income and because current consumption is a good approximation of this income, current consumption is an appropriate measure of both present and long-term well-being. Indeed, measured consumption is typically less variable than measured income (Deaton 2001). The other is a practical one. It is less difficult to acquire accurate information on consumption than income, because the latter is often underreported especially in developing countries where governance infrastructure is weak.

Susenas core contains a large number of samples which total to approximately 205,000 household samples and 800,000 household member samples.⁵ From entire *Susenas* samples, we extracted household samples only from Jakarta and Central Java provinces, numbering to 31,309 household samples, for the following reasons: (1) Jakarta is the biggest city in the country and can be a representative of rapidly growing industrialized urban areas; (2) About 57 percent of people below poverty line were living on Java Island in 2002 (Table 2) and the poverty is primarily a Java's problem. Central Java alone contained around 15 percent of 212 million people and 19 percent of 38.4 million people below the poverty line in 2002 (see Table 2); (3) Although Central Java was one of the largest provinces in terms of population size (31.8 million people in 2002 as shown on Table 2), it does not have any major industrial city, and 60 percent of its population is living in rural areas. So, Jakarta city and Central Java can serve as representatives of urban and rural areas of the country, respectively.

Since a household is the basic income sharing unit, it appears more appropriate for policy purposes to describe population in poverty in terms of household, rather than individuals. Accordingly, poor households were those with per capita household incomes below the defined income level per month. Based on *Susenas* statistics, BPS publishes poverty lines, population below poverty line, and percentages of population below poverty line in urban and rural areas in each province as partly shown in Table 3. As indicated, poor households are those with per capita household incomes below Rp72,210 in rural Central Java, Rp88,384 in urban Central Java, and Rp109,164 in Jakarta, per month (Table 3). Approximately four and twenty nine percent of population were below poverty line in Jakarta and urban Central Java, respectively, and around 28.8 percent of population was below poverty line in rural Central Java in 1999. The two provinces together accounted for around 20 percent of population below poverty line (see Table 2) and they cover areas ranging from the most dynamic part of Indonesia which represents quickly developing Indonesia to remote rural parts. So we will use a smaller set of data taken from the two provinces.

Income-poverty measures are designed to count the poor and to diagnose the extent and distribution of poverty. The measures proposed by BPS are used throughout the paper. A characterization of poverty requires answers to questions such as: Who are the poor? Where are they located? In which sectors do they work? What are the characteristics of the poor that are different from those of the non-poor? The profile of poverty in next section identifies the poor in terms of household heads' education, family size, gender of household head, age of household head and other separate variables.

After extracting Jakarta and Central Java data from entire 1999 *Susenas* core data, we sorted them with respect to education levels and brought up information shown as Figures 1 and 2. A distribution of household heads' education in the study areas is shown in Figure 1. In rural Central Java, the primary level has the largest share and the household heads who finished senior high school or higher levels account for only 7.6 in 1999. The primary level has also the largest share in urban Central Java, but it is about 9 percentage points less than in rural Central Java. The household heads with senior high or higher education account for 28.4 percent of the sample in urban Central Java. In Jakarta, senior high level has the largest share and, if vocational high is added to this level, it accounts for 34.7 percent of the sample. Household heads with senior high or higher education in Jakarta account for 48.5 percent, and its distribution is characterized by large percentages for higher education in comparison with Central Java's distribution pattern. In all three areas, shares of diploma I/II and master/PhD are very small compared with shares of other educational levels.

The educational level of household heads also has a close relation to their work sector, as shown in Figure 2-1, 2-2 and 2-3. In rural Central Java, only the service sector accommodates household heads with senior high or higher education, while other sectors employ mainly those with junior high or lower education. Among them, the agricultural sector has slightly smaller shares for junior high, senior high and vocational high compared to other sectors. Urban Central Java has an almost similar pattern as rural Central Java. On the other hand, all sectors have an almost similar employment shares with respect to educational level in Jakarta and especially three sectors, manufacturing, transportation and service sectors, employ household heads with higher education.

The equity issue is explained by calculating the amounts of income accruing to various income brackets of the population and the corresponding Gini Index. The World Bank often uses its own criterion which is worked out by first dividing the

population into three classes, i.e. 40 percent of the lowest income population, 40 percent of the middle income population, and 20 percent of the highest income population.⁶ If the percentage of income accruing to the 40 percent of the lowest income population is less than 12 percent, the level of inequality is categorized as high. If that group receives between 12-17 percent of total income, the level of inequality is categorized as moderate. If that group has command over 17 percent or more, the level of inequality is categorized as low.

Table 4 shows the percentage of expenditure of the lowest 40 percent income group based on the World Bank criteria and Gini Index. It can be observed from the table that the share of the poorest 40 percent is in excess of 20 percent except in several provinces during the four years (1993, 1996, 1999 and 2002) examined. These cases of exception are Irian Jaya in 1993; Jakarta, West Java, North Sulawesi, and Irian Jaya in 1996; and Jakarta and Jogjakarta in 2002. In general, the level of inequality among Indonesian population can therefore be categorized as low if the World Bank criteria are used. However, from 2002 expenditure distribution tended to worsen.⁷ As shown in the same table, the portion of expenditure spent by the 40 percent of the lowest income group increased from 20.27 percent in 1996 to 21.66 percent in 1999, but decreased to 20.92 in 2002. A rising inequality was also shown by the value of the Gini Index. The index decreased from 0.36 in 1996 to 0.31 in 1999, but increased to 0.33 in 2002. In that year, Gini index increased both in rural and urban areas. However, income inequality is generally higher in urban than in rural areas.

3. Profile of Poverty

Having selected the data for Jakarta and Central Java out from the entire 1999 *Susenas* core, we sort them with respect to the following seven variables: education, sector of employment, working status, land holding, gender, family size, and age. We then calculate the incidence of poverty for various characteristics of each variable and indicate it as shown in Table 5.⁸ For instance, Table 5-1 shows two distinct aspects of poverty. Columns 1, 2, and 3 show numbers of entire households, poor households, and non-poor households, respectively, by selected characteristic. Columns 4, 5, and 6 present the same information in terms of percentage. Thus, column 5 indicates concentration of poverty, while column 6 indicates concentration of non-poverty. The figures in column 7 show the ratios of column 2 to column 1 and are called as "incidence of poverty," whereas those in column 8 show the ratios of column 5 to column 4 which are called as "relative incidence of poverty." Both of them indicate

which groups suffer from high incidence of poverty. The groups whose figures are larger than 1.0 in column 8 are so called high-risk poor groups which may, in fact, account for only a small proportion of overall poverty. Clearly, both types of information are important in the design of policies to redress poverty. The following picture of the poor emerges from an examination of the characteristics of households and their heads.

(1) Poverty is overwhelmingly a phenomenon of household heads with lower levels of education as shown in Table 5-1. In rural Central Java, 75.6 percent of poor households are with the heads whose final education is incomplete, or primary, or junior high levels as indicated in column 4. In urban Central Java, 75.5 percent of poor households are with heads of these educational levels, whereas 81.2 percent of poor households are with heads of those educational levels in Jakarta. These households also show high incidence of poverty and high relative incidence of poverty as indicated in columns 7 and 8. In addition, the households which did not report educational levels of their heads (indicated as NA) are mainly poor and their incidence of poverty and relative incidence of poverty are high. There is a strong negative correlation between education and incidence of poverty, and the decline in incidence is particularly marked for households whose heads have received diploma III and higher education.

(2) Poverty is a phenomenon of households whose heads work mainly in agricultural, mining, construction and transportation sectors, as shown in Table 5-2. In rural Central Java, 72.1 percent of poor households are with the heads working in the agricultural, mining and construction sectors as indicated in column 5. Also households in those sectors show high incidence of poverty and relative incidence of poverty as can be seen in columns 7 and 8, respectively. In urban Central Java, 84.6 percent of poor households are with heads working in the agricultural, manufacturing, trade, transportation and service sectors. But incidence of poverty and relative incidence of poverty are high only in the agricultural, manufacturing, and transportation sectors. Although the percentages of poor households are high in the trade and service sectors, the incidence of poverty and relative incidence of poverty in these sectors are rather lower. It implies that, in comparison to their shares of households, the shares of poor households in these sectors are not very large. In Jakarta area, 61.3 percent of poor households are in the trade and service sectors and their relative incidence of poverty is also high as shown in the last column. In addition, relative incidence of poverty is high in the agricultural, construction and transportation sectors.

(3) Poverty is a phenomenon of households whose heads work as self employed,

temporary employed and employees. As shown in column 5 of Table 5-3, 91.7 percent of poor households are with heads whose employment status is self employed, temporary employed and employees in rural Central Java, but relative incidence of poverty is high only with heads whose employment status is temporary employed as shown in column 8. In urban Central Java, 84.2 percent of poor households are with the heads working as self employed, temporary employed and employees, but relative incidence of poverty is greater than one only in self employed and temporary employed. In Jakarta area, 75.6 percent of poor households are with the heads whose employment status is self employed and employees, but relative incidence of poverty is high only with heads whose employment status is self employed. In addition, the percentage of poor households is high with heads whose employment status is not available and their relative incidence of poverty is high. The relative incidence of poverty is very small for households with heads working as employers.

(4) Households with owning land have high relative incidence of poverty as shown in Table 5-4. This implies that household heads in this group are mainly working in the agricultural sector. On the other hand, households with owning land have low relative incidence of poverty in Jakarta.

(5) Households with male head have high relative incidence of poverty in all three areas as shown in Table 5-5

(6) Households with 4 or more family members have high relative incidence of poverty in rural Central Java. But, in urban Central Java and Jakarta areas, those with 5 or more family members have high relative incidence of poverty as shown in Table 5-6.

(7) Households whose heads are 30 to 59 years of age have high relative incidence of poverty in rural Central Java, whereas those whose heads are 30 to 49 years of age have high relative incidence of poverty in urban Central Java and urban areas, as shown in Table 5-7.

In addition, Table 5-8 reveals a relationship between education and employment status of household heads in rural Central Java. The household heads whose schooling does not extend beyond primary school work mainly as self employed and temporary employed. Although many household heads with primary and incomplete education are working as employees, those with higher education also work as employees and majority of those with schooling beyond junior high education work especially as employees. In urban Central Java, many household heads were working as employees at every educational level, but there were also quite few household

heads with primary or lower education who were working as self employed and temporary employed. In urban area, the majority of household head who received beyond primary education works mainly as an employee. Although 41.5 percent of household heads work as employees, as shown in the last column in urban Central Java, many of those whose schooling does not extend beyond primary school level work mainly as self employed and temporary employed.

When several characteristics associated with poverty are taken together, the chances of being poor become very high. For example, a farmer with primary education may have an extremely high probability of being poor. However, share of poor households in the agricultural sector looks too high and so does its relative incidence of poverty. In rural Central Java, most of the poor are concentrated in the agricultural sector and relative incidence of poverty in the sector is very high (column 8 in Table 5-2), although its educational distribution of household heads is almost same as the other sectors except the service sector as shown in Table 2-1. If education has the same effect in the agricultural sector as in other sectors, poverty may not be concentrated mainly in this sector. As a next step, we will investigate if an education level of household head has the same effect in the agricultural sector as in other sectors. To do that, we will estimate rate of increase in expenditure to an additional year of formal education by sector and compare them in the next section.

4. Probability of being poor

After analyzing the poverty profile, this section turns to the factors associated with poverty in both rural and urban Central Java and in Jakarta. Many individual characteristics such as labor market association and human capital are important correlates of poverty and the dynamics thereof. This section investigates the marginal impact of each individual variable on the likelihood that a household falls below the poverty line. The analysis is undertaken applying *probit* regression techniques.

$$pv_i = c + X_i\beta + u_i \quad (1)$$

where pv is probability of being poor, X the vector of independent variables, u random error, and i individual household. pv takes the following value depending on per capita household expenditure (C), and poverty line (μ_1).

$$pv_i = 1 \quad \text{if } C < \mu_1 \quad \text{and} \quad pv_i = 0 \quad \text{if } C \geq \mu_1$$

The status of the household, poor or non-poor, is regressed on relevant individual and household characteristics. The dependent variable takes the value of 1 if the average per-capita income is below the poverty line and 0 otherwise. The vector of independent variables consists of four sets of variables. They include: (1) family variables: size, children in primary and junior high schools, children below 5 years old, land holding, livestock holding; (2) attributes of household head: gender, age, education, and labor market connection; and (3) spouse characteristics: education and labor market connection. Because analyses will be done for rural Central Java, urban Central Java and Jakarta separately, geographical characteristics will not be included as variables.

Probit coefficients are not easy to interpret, since they do not represent the standard marginal effects represented by linear regression coefficients. Therefore, rather than *probit* coefficients we chose to present marginal effects that have a straightforward interpretation.⁹ The poverty profile of *probit* regression can be interpreted as descriptive and do not infer anything in terms of causation. In the following, mainly statistically significant differences are discussed. Table 6 presents *probit* models linking the probability of being poor to a range of explanatory variables for rural, semi-urban, and urban Indonesia in 1999.

Education and skills: One of the most important factors contributing to the expenditure is educational level. Findings in Table 5 reveal that completed levels of education by the household head and spouse are very important to increased household expenditure. All educational variables of household head in rural and urban Central Java are statistically significant, and negatively correlated with probability of being poor. Moreover, effect of education on probability of not being poor is increasing with the level of education a household head completed. Put differently, the higher a household heads completed education, the lower his probability of being poor. Also the effect is stronger in urban Central Java than in rural Central Java at the highest two educational levels, as shown by the larger magnitude of the coefficient in urban Central Java than in rural Central Java. In Jakarta, the significantly positive coefficients for junior high and lower educational levels indicate that if a household head finished these levels of education, his probability of being poor is very high. Coefficients for diploma I/II and higher educational levels cannot be estimated, because there is no poor household

among household heads with those educational levels.

As for spouse, most of the educational variables are also statistically significant, and negatively correlated with probability of being poor in rural and urban Central Java. But the coefficients of junior high school and lower educational levels are not statistically significant in urban Central Java. Although the coefficient of incomplete primary is statistically significant in Jakarta, it has a very small positive effect on probability of being poor. On the contrary, in the household head case, the educational effect is the stronger in rural Central Java than urban Central Java up to diploma III education, whereas it is the strongest in Jakarta beyond Diploma I/II level.¹⁰

Human capital is composed of many components and one of important components is skill apart from formal education. In the labor market literature, skills and experience are often represented by the age of a worker. We include the age and age squared in the regression, and let the latter to capture possible nonlinearity in data. In rural and urban Central Java, age is negatively associated with the probability of being poor. But the coefficient is positive in Jakarta, although it is not statistically significant. For the age squared variable, results are mixed. There is a turning point at an older age where income starts declining because the coefficient of age-squared variable is statistically significant positive in rural and urban Central Java. But there is no turning point at an older age in Jakarta since the coefficient is statistically different from zero.

Labor status and sector of work: In rural Central Java, household heads working in the agricultural and “other” sectors have higher probability of being poor, whereas those working in the remaining two sectors have lower probability of being poor. Although the coefficient is not statistically significant, the household heads working in the public utility sector has the lowest probability of being poor. In urban Central Java, household heads working in the trade and finance sector have lower probability of being poor, whereas those working in the mining sector have high probability of being poor. Other variables being equal, household heads working in the finance sector attain the highest income followed by those working in the trade sector. But, in Jakarta, household heads working only in the agricultural sector have high probability of being poor, whereas those working in the finance, utility, and manufacturing sectors have lower probability of being poor.

In all three areas, probability of being poor is significantly lower for households whose heads are working as employer and employee than those working as other employment status. Probability of being poor is significantly lower for the households

whose spouses are working as employer than those working in other employment status in urban Central Java. Households which have their own business have higher expenditure than those without their own business in urban Central Java as indicated in the last coefficient.

Gender: The gender coefficients of household heads are negative in rural and urban Central Java, whereas it is positive in Jakarta. But all of them are not statistically different from zero. The findings indicate that the gender of household head does not make any difference to probability of being poor in three areas.

Household structure: The coefficients of this category imply that the household structure seems to be very important, because most of the characteristics are strongly significant in explaining probability of being poor. The coefficient of family size is statistically significant positive in all three areas and it indicates that a large family has high probability of being poor. The presence of young children below the age of 5 makes a household more likely to be poor in all three areas, because its coefficients are statistically significant positive. The likely explanation is that young children prevent some family members from engaging in income earning activities. On the other hand, the presence of school age children has a negative impact on probability of being poor in rural and urban Central Java, but a positive impact in Jakarta. The possible explanation is that school age children often work as labor force in rural and urban areas and help to raise household income.

The effect of owning land on income is mixed. In Central Java, the land owning has a negative impact on probability of being poor, whereas it has a positive impact on the probability in Jakarta. This result may be partly related to work sector of the household head. The household head who holds land is mainly working in the agricultural sector in Central Java and his income is likely to be higher in the sector. But the household head with land holding in Jakarta is not necessarily working in the agricultural sector. In this case, we cannot expect a sign of its coefficient and it can be either positive or negative. The sign of animal holding is positive in all three areas, but statistically significant only in rural and urban Central Java. The results indicate that owning livestock does not have a positive effect on the probability of not being poor.

5. Effect of Education in the Agricultural Sector

In the previous sections, we found two important points. One of them is that years of

education and relative incidence of poverty have a negative correlation. The relative incidence of poverty is lower than average for a household whose head has junior high school or higher education. As the educational level of household head gets higher, his/her relative incidence of poverty declines drastically as shown in column 8, Table 4-1. The other point is that the relative incidence of poverty is larger for a household head in the agricultural sector, as shown in column 8, Table 4-2. Both facts imply that if a household head with primary education is working in the agricultural sector, he has high probability of being poor. Then, as a next step, we have to ask the following question: When a household head finished senior high or higher level of education, is his probability of being poor very low even if he works in the agricultural sector? We will investigate whether or not a household head with higher education has low probability of being poor in the agricultural sector in the rest of this section.

In deriving a relationship between the educational level of a household head and household consumption expenditure, we use the earning function method which involves fitting of a function specified as follows (Mincer 1974):

$$\ln C_i = rS_i + X_i\beta + u_i \quad (2)$$

where $\ln C$ is the natural logarithm of monthly household expenditures, S years of formal schooling of household head in the formal education, X the vector of independent variables which are the same as in the previous section except education of household head, u random error, and i individual household. The rate of increase in expenditure with associated an additional year of education (r) can be identified as follows:

$$r = \partial(\ln C) / \partial S$$

In Indonesia, the four levels of the formal education system consist of six years of primary school, three years each of lower and upper secondary schools, and tertiary education (Jones and Hull [1997], 136-138). Tertiary education varies greatly from one-to-four-years non-degree programs, which are called as diploma programs, to a four-year undergraduate program. Thereafter, one can attend S2 program that is equivalent to masters programs and then S3 program that is equivalent to doctorate programs. Besides, there are professional specialist programs known as SP1 and SP2. We count years of education completed at each level as follows: primary education as 6 years;

lower secondary education as 3 years; upper secondary education as 3 years; D1 program as 1 year; D2 program as 2 years; D3 as 3 years; D4 program as 4 years; S1 or undergraduate program as 4 years; S2 or master programs as 2 years; and S3 or doctorate programs as 3 years. For the professional specialist programs, SP1 is counted as 2 years and SP2 as 3 years.

However, *Susenas* data do not provide as specific information as described above. It classifies educational levels as shown in columns 1 and 2 in Table 7, but does not specify years of education explicitly. So, applying years of education corresponding to each level as shown in the previous paragraph, we counted total years of formal schooling completed for each level as indicated in column 3 in Table 7. They are defined as follows: primary as 6 years; junior high and vocational junior high as 9 years; senior high as 12 years; vocational senior high as 13 years; diploma I/II as 14 years; diploma III as 15 years; diploma IV and university as 16 years; and master and Ph.D. as 18 years. The household heads who did not finish primary are excluded from observations because there is no way to estimate years of schooling for them. Also because the survey does not collect data of informal education, we use only years of completed in the formal education.¹¹

When Indonesia started its modern economic development after an aborted coup in 1965, numbers of children attending school continued to grow rapidly. When New Order government took over in 1966, the primary concern was to bring order and stability in the society. For the first year of Indonesia's First Five-year Development Period (1969-74), already some 12.8 million children were attending primary schools. Two decades later, the number more than doubled to 26.2 million. Similarly, the growth in the number of students at higher levels has also been phenomenal. The number of lower secondary school students increased fivefold from 1.1 million to 5.7 million and upper secondary students increased eightfold from 0.46 to 3.72 million during the same period. A steep rise in the number of primary school students can be observed starting in 1974 (Figure 3). This was the first year when the primary school special program, known as *Inpres SD* was implemented.¹² The goal was to achieve universal enrollment during *Repelita IV* of 1984-89. For that purpose, the policy is mainly focused on rural areas because more than 80 percent of the population was still living in rural areas at that time. Every village was to have at least one primary school. In 1977, tuition fees at public schools were abolished for grades 1-3 and the following year for grades 4-6 (Jones and Hull [1997], 140).

The estimation of the rate of increase in expenditure associated with an additional year of schooling will be done separately by area and by sector. As for the sectors to be

estimated, five same sectors will be selected in each area. Their selection is based on the number of households and general importance of the sectors in the survey areas. The chosen sectors out of ten are: agriculture, manufacturing, trade, service, and finance sectors. Except years of schooling, other variables used for estimation are the same as in the previous section. The results are shown in Tables 8-1, 8-2, and 8-3 and let us concentrate our analysis mainly on the effects of education.

In rural areas as shown in Table 8-1, the coefficients of years of schooling are significantly positive in the trade and service sectors. Their marginal magnitude proves to be 2.89 and 3.45 percent, respectively. The coefficient is positive at 10 percent significant level in the financial sector. In the manufacturing sector, it is positive, but not statistically significant. In the agricultural sector, it is statistically significant and negative, but extremely small in magnitude. These results imply that the rate of increase in expenditure associated with an additional year of education is almost zero in the agricultural and manufacturing sectors in rural areas.

In urban Central Java as shown in Table 8-2, the coefficients of years of schooling are significantly positive at a 1 percent level, except in the agricultural sector. The magnitude of the coefficient is 3.7 percent for the manufacturing sector, 3.0 percent for the trade sector, 4.7 percent for the service sector, and 7.5 percent for the finance sector. In the agricultural sector, it is a very small positive figure, but statistically significant only at 6 percent level.

In urban areas, as shown in Table 8-3, the coefficients of years of schooling are significantly positive at 1 percent level in all sectors. The marginal magnitude of the coefficient proves to be 8.8, 4.3, 4.7, 6.3, and 7.8 percent in the agricultural, manufacturing, trade, service and finance sector, respectively. The rate of increase in expenditure associated with an additional year of schooling in the agricultural sector is even higher than in any other sectors.

The marginal magnitude of coefficients of years of schooling increase and their statistical significance improves from rural to urban area in all sectors except trade, as can be seen in Table 7. As far as the agricultural sector is concerned, the coefficient changes from almost zero in rural Central Java to 0.088, the largest figure among all sectors in Jakarta, and from statistically insignificant to significant as we move from rural to urban area. In all sectors, the coefficients of years of schooling are smaller in rural area. In short, the rate of increase in expenditure associated with an additional year of schooling is lower in rural areas than in urban areas. To find out why the rate of increase in expenditure is smaller in rural areas is beyond the scope of this paper.

However, we can offer the followings. The results may imply that there are fewer opportunities to increase productivity through increased years of schooling, especially in the agricultural sector. In other words, a highly educated worker cannot find highly paying working opportunity in the agricultural sector. One of the reasons for this situation is that there are redundant workers in rural labor markets, as described by Shintani described (Shintani 2003). In such a case, education alone is not sufficient to improve income levels of rural area people, and the poverty problem has to be solved through other measures in addition to improving education.

6. Conclusion

Characteristics of the poor are examined in this paper with respect to several important variables. The analysis shows that there is not significant difference in relative incidence of poverty between rural and urban households. However, relative incidence of poverty varies greatly with respect to educational level, gender, age, family size, and land holding condition of the household head. It also varies depending on the sector in which the household head works. Take an educational level of a household head, for instance, relative incidence of poverty is greater than one when educational level is less than junior high school in rural areas. When a household head finished junior high school or higher, his relative incidence of poverty is far smaller than one. It implies that providing higher education is essential to reduce rural poverty in Indonesia in the long run.

Based on the above results, we may say that education is essential to remove poverty in rural areas. To find out effects of education on expenditure, the rate of increase in household expenditure associated with an additional year of education is estimated by area and by sector. Our estimation results show that the rates of increase are almost zero in the agricultural and manufacturing sectors in rural areas. It indicates that although a household head finishes education higher than junior high school, he may not be able to raise his household expenditure as long as he stays in the agricultural and manufacturing sectors in rural areas. To attain higher expenditure from a higher educational level, he has to find work opportunity somewhere other than these two sectors. This implies that education alone will not solve the poverty problem in rural areas, and the share of population below the poverty line cannot be reduced significantly in the future through expansion of education only.

For poverty alleviation, other measures are also needed especially in rural areas in addition to improving educational situation. Such measures should include: (1) Improvement in employment opportunities in rural areas, (2) growth of rural non-farm

sector, and (3) encouragement to migration out of rural areas.

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¹ According to the World Bank's internationally comparable estimates based on a poverty line of approximately \$1 a day in 1993 purchasing power parity. The World Bank, *World Development Indicator*, 2004.

² See BPS(2001, tables 12-1-A and 12-1-B), ADB(2000), Skoufias(2000) and Suryahad *et al.*(2000).

³ BPS. Statistik Indonesia, 2001.

⁴ *Susenas* core surveys samples at the district level and covers all districts in Indonesia which amount to 285 districts in 1999, whereas *Susenas* module surveys them at the province level and covers 26 provinces.

⁵ *Susenas* core contains 205,747 household data in 1999. *Susenas* individual data is around 4 times larger than the household data size.

⁶ The World Bank, *Indonesia: Poverty Reduction in Indonesia: Constructing a New Strategy*, Report no. 23028-IND, 2001.

⁷ BPS [2002], p. 29.

⁸ The incidence of poverty is defined as the ratio of poor households to all households in a specific group, whereas the relative incidence of poverty is defined as the percentage of poor households to the percentage of all households in the same group.

⁹ The marginal effects for a household head i in the probit model are simply given by:

$$m_i = \frac{d \Pr(y_i = 1)}{dx_i} = \phi(x_i \beta) \beta$$

¹⁰ This indicates that no household is poor if its head educational level is diploma III and higher.

¹¹ More detail, see Jones and Hull [1997].

¹² SD is abbreviation of sekola dasar which is equivalent to primary school in Indonesia. In 1974, President Soeharto implemented the primary school special program, Inpres SD (President instruction of primary school program, as direct translation to English) to increase primary school enrollment especially in rural areas.

Table 1. Poverty line (Rp.)

	Poverty line (Rp)		Population below poverty line (%)		
	Urban	Rural	Urban	Rural	Total
1996	42,032	31,366 ⁽¹⁾	13.60	19.90	17.70
1998	96,959	72,780 ⁽²⁾	21.90	25.70	24.20
1999	92,409	74,272 ⁽³⁾	19.50	26.10	23.60
1999	89,845	69,420 ⁽⁴⁾	15.10	20.20	18.20
2000	91,632	73,648 ⁽⁵⁾	14.60	22.38	19.14
2001	100,011	80,382 ⁽⁶⁾	9.79	24.84	18.41
2002	130,499	96,512 ⁽⁷⁾	14.46	21.10	18.20

Source: BPS, Statistik Indonesia, Table 12-1-B.

Notes: (1) Based on the regular Susenas of February w/o East Timor.

(2) Based on the December 1998 Susenas.

(3) Based on the regular Susenas of February w/o East Timor.

(4) Based on the August 1999 Susenas w/o East Timor.

(5) Estimated result based on 2000 Susenas-Core including Ache and Maluku.

(6) Estimated result based on 2001 Susenas-Core including Ache.

(7) Based on the February 2002 Susenas including Ache, Maluku, Maluku Utara, and Papua which excluding sample Consumption Modul 2002 Susenas.

Table 2 Population by island and population below the poverty line

		1990	2000	2002
Population by islands (million)	Sumatra	36.5	43.3	44.8
	Java	107.6	124.4	127.6
	Jakarta	8.2	8.4	8.4
	Central Java	28.5	31.2	31.8
	Bali	2.8	3.2	3.2
	Kalimantan	9.1	11.3	11.8
	Sulawesi	12.5	14.0	14.6
	Other islands	10.7	9.6	10.0
	Total	179.2	205.8	212.0
Population share (%)	Java	60.0	60.4	60.2
	Jakarta	4.6	4.1	4.0
	Central Java	15.9	15.2	15.0
Population below poverty line (million)	Sumatra	5.1	6.6	8.3
	Java	14.8	22.5	21.7
	Jakarta	0.5	0.4	0.3
	Central Java	4.6	6.5	7.3
	Bali	0.2	0.2	0.2
	Kalimantan	2.0	2.1	1.5
	Sulawesi	1.3	2.5	2.8
	Other islands	2.5	3.4	3.9
Total	25.9	37.3	38.4	
Population below poverty line (%)	Java	57.1	60.3	56.5
	Jakarta	1.9	1.1	0.7
	Central Java	17.8	17.5	19.0

Note: 1) Poverty figures for 1990 are actually the 1993 figures.

Source: BPS, Statistik Indonesia, 1997, pp. 45-49, 581.

BPS, Statistik Indonesia, 2001, 46, 593.

BPS, Statistik Indonesia, 2002, 46, 579, 583.

Table 3. Poverty line and population below poverty line, 1999

Province	Poverty line (Rp)		Population below Poverty Line (1,000)		Population below poverty line (%)	
	Urban	Rural	Urban	Rural	Urban	Rural
Aceh	83683	70610	104.7	497.5	10.2	16.3
North Sumatera	92,321	70,869	968.4	1,004.3	18.3	15.5
West Sumatera	101,168	79,898	237.4	364.1	18.2	11.2
Riau	94,948	91,028	142.7	447.0	9.1	17.0
Jambi	96,682	79,466	176.9	500.1	22.4	28.6
South Sumatera	96,133	76,839	566.3	1,247.4	23.1	23.3
Bengkulu	105,816	71,966	97.7	204.6	22.0	18.9
Lampung	94,541	70,378	307.2	1,730.0	24.0	30.2
Kepulauan Bangka Belitung	-	-	-	-	-	-
Jakarta	109,164	-	379.6	-	4.0	-
West Jawa	94,217	73,855	4279.0	4,114.5	21.2	18.5
Central Jawa	88,384	72,210	3032.2	5,723.2	27.8	28.8
Yogyakarta	93,921	76,773	482.7	306.4	23.8	30.8
East Jawa	90,204	96,962	3047.5	7,238.9	24.7	32.1
Banten	-	-	-	-	-	-
Bali	94,714	81,456	114.5	143.3	9.4	7.9
West Nusa Tenggara	89,846	74,677	249.3	1,027.6	31.9	33.2
East Nusa Tenggara	84,170	66,143	146.3	1,632.7	29.2	49.4
West Kalimantan	103,471	81,142	95.7	920.6	10.8	30.7
Central Kalimantan	100,228	91,974	26.5	235.3	5.6	28.5
South Kalimantan	93,650	71,911	99.5	340.7	10.4	16.2
East Kalimantan	99,286	89,689	127.9	381.3	10.0	30.7
North Sulawesi	90,979	75,903	102.9	401.8	12.9	20.3
Central Sulawesi	89,509	75,273	125.0	473.7	23.1	30.7
South Sulawesi	85,357	69,017	447.2	1,014.8	18.3	18.4
Southeast Sulawesi	90,455	73,509	68.7	436.2	15.7	34.2
Maluku	106,610	93,831	166.6	847.3	27.2	53.5
North Maluku	-	-	-	-	-	-
Papua	94869	95053	49.6	1,099.1	9.0	71.0
Indonesia			15,642.0	32,332.4	14.5	21.1

Source: BPS, Statistik Indonesia, 2000, pp. 576-577.

Table 4. Changes in GINI coefficient

	GINI coefficient				Consumption share of the bottom 40 perce			
	1993	1996	1999	2002	1993	1996	1999	2002
Aceh	0.293	0.259	0.240		22.9	24.8	24.9	
North Sumatra	0.295	0.301	0.254	0.288	22.4	23.3	24.7	22.6
West Sumatra	0.305	0.278	0.256	0.268	21.8	23.4	25.2	23.7
Riau	0.266	0.300	0.224	0.292	23.5	22.6	27.0	22.5
Jambi	0.242	0.246	0.240	0.260	25.2	26.2	24.4	24.4
South Sumatra	0.296	0.300	0.260	0.291	22.5	23.0	24.2	24.0
Benkulu	0.281	0.273	0.254	0.253	24.0	24.3	24.2	25.5
Lampung	0.264	0.276	0.288	0.254	24.7	23.5	22.8	25.6
Bangka Belitung				0.247				25.5
Jakarta	0.326	0.363	0.317	0.322	21.1	19.4	21.2	19.5
West Jawa	0.299	0.356	0.286	0.289	22.3	19.8	22.9	22.3
Central Jawa	0.295	0.291	0.246	0.284	23.3	22.7	24.4	24.1
Jogjakarta	0.331	0.353	0.337	0.367	21.0	20.2	20.1	19.0
East Jawa	0.318	0.311	0.291	0.311	22.4	21.6	23.0	22.3
Banten				0.330				20.1
Bali	0.315	0.309	0.270	0.298	21.4	21.7	24.1	21.6
West Nusa Tenggara	0.274	0.286	0.261	0.266	24.5	23.4	24.2	25.0
East Nusa Tenggara	0.254	0.296	0.267	0.292	25.7	22.4	24.2	22.7
West Klimantan	0.302	0.300	0.271	0.301	22.1	22.5	23.5	23.1
Central Klimantan	0.259	0.271	0.237	0.245	24.4	24.6	26.4	24.6
South Klimantan	0.274	0.292	0.264	0.292	23.5	23.2	24.1	22.1
East Klimantan	0.313	0.318	0.277	0.304	21.7	21.0	23.6	21.5
North Sulawesi	0.291	0.344	0.272	0.270	22.0	19.8	23.3	23.2
Central Sulawesi	0.286	0.302	0.286	0.283	23.0	22.1	22.5	23.7
South Sulawesi	0.273	0.323	0.296	0.301	24.1	20.6	22.2	23.3
North Central.Sulawes	0.272	0.311	0.276	0.270	24.5	21.6	22.5	23.8
Gorontalo				0.241				24.5
Maluku	0.300	0.269	0.241		21.2	23.5	24.5	
Irian Jaya	0.370	0.386	0.360		17.4	18.7	18.2	
Indonesia	0.335	0.355	0.308	0.329	20.34	20.27	21.66	20.92

Susenias 1999 Buku 3, pp. 26-27; 2002 Buku 3, pp. 26-27.

Table 5-1 Profile of Poverty

Category	Area	Household head's education	Households (1)	Poor (2)	Non-poor (3)	% of all hhs (4)	% of poor hhs (5)	% of non-poor hhs (6)	Incidence of poverty (2)/(1) (7)	Relative incidence of (5)/(4) (8)
Education	Rural Central Java	Incomplete	4,912	1,907	3,005	28.7	33.4	26.4	38.8	1.16
		Primary	6,295	2,110	4,185	36.8	36.9	36.8	33.5	1.00
		Junior high	1,217	305	912	7.1	5.3	8.0	25.1	0.75
		Senior high	531	71	460	3.1	1.2	4.0	13.4	0.40
		Vocational high	506	67	439	3.0	1.2	3.9	13.2	0.40
		Diploma I/II	92	12	80	0.5	0.2	0.7	13.0	0.39
		Diploma III	80	4	76	0.5	0.1	0.7	5.0	0.15
		Diploma IV/univ	77	1	76	0.5	0.0	0.7	1.3	0.04
		Master/PhD	3	0	3	0.0	0.0	0.0	0.0	0.00
		NA	3,374	1,241	2,133	19.7	21.7	18.8	36.8	1.10
	Total	17,087	5,718	11,369	100.0	100.0	100.0			
	Urban Central Java	Incomplete	1,373	584	789	16.9	26.6	13.3	42.5	1.58
		Primary	2,381	788	1,593	29.2	35.9	26.8	33.1	1.23
		Junior high	1,227	284	943	15.1	13.0	15.9	23.1	0.86
		Senior high	1,168	114	1,054	14.3	5.2	17.7	9.8	0.36
		Vocational high	593	100	493	7.3	4.6	8.3	16.9	0.63
		Diploma I/II	85	10	75	1.0	0.5	1.3	11.8	0.44
		Diploma III	198	4	194	2.4	0.2	3.3	2.0	0.08
		Diploma IV/univ	258	7	251	3.2	0.3	4.2	2.7	0.10
		Master/PhD	14	0	14	0.2	0.0	0.2	0.0	0.00
		NA	845	302	543	10.4	13.8	9.1	35.7	1.33
	Total	8,142	2,193	5,949	100.0	100.0	100.0			
	Jakarta	Incomplete	507	86	421	8.3	19.8	7.5	17.0	2.37
		Primary	1,301	178	1,123	21.4	40.9	19.9	13.7	1.91
		Junior high	1,167	89	1,078	19.2	20.5	19.1	7.6	1.07
		Senior high	1,635	48	1,587	26.9	11.0	28.1	2.9	0.41
		Vocational high	476	15	461	7.8	3.4	8.2	3.2	0.44
		Diploma I/II	50	0	50	0.8	0.0	0.9	0.0	0.00
		Diploma III	299	6	293	4.9	1.4	5.2	2.0	0.28
		Diploma IV/univ	423	0	423	7.0	0.0	7.5	0.0	0.00
Master/PhD		65	0	65	1.1	0.0	1.2	0.0	0.00	
NA		157	13	144	2.6	3.0	2.6	8.3	1.16	
Total	6,080	435	5,645	100.0	100.0	100.0				

Note: NA indicates the samples that do not specify educational attainment.

Table 5-2 Profile of Poverty

Category	Area	Sector of working	Households	Poor	Non-poor	% of all hhs	% of poor hhs	% of non-poor hhs	Incidence of poverty (2)/(1)	Relative incidence of poverty (5)/(4)
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Work sector	Rural Central Java	Agriculture	9,552	3,795	5757	55.9	66.4	50.6	39.7	1.19
		Mining	95	35	60	0.6	0.6	0.5	36.8	1.10
		Manufacturing	1,358	403	955	7.9	7.0	8.4	29.7	0.89
		Utility	17	2	15	0.1	0.0	0.1	11.8	0.35
		Constriction	842	289	553	4.9	5.1	4.9	34.3	1.03
		Trade	2,104	536	1568	12.3	9.4	13.8	25.5	0.76
		Transportation	707	200	507	4.1	3.5	4.5	28.3	0.85
		Finance	57	10	47	0.3	0.2	0.4	17.5	0.52
		Service	1,483	309	1174	8.7	5.4	10.3	20.8	0.62
		Other	872	139	733	5.1	2.4	6.4	15.9	0.48
		Total	17,087	5,718	11369	100.0	100.0	100.0		
	Urban Central Java	Agriculture	840	351	489	10.3	16.0	8.2	41.8	1.55
		Mining	29	18	11	0.4	0.8	0.2	62.1	2.30
		Manufacturing	1,207	367	840	14.8	16.7	14.1	30.4	1.13
		Utility	30	4	26	0.4	0.2	0.4	13.3	0.50
		Constriction	472	172	300	5.8	7.8	5.0	36.4	1.35
		Trade	2,037	538	1499	25.0	24.5	25.2	26.4	0.98
		Transportation	630	224	406	7.7	10.2	6.8	35.6	1.32
		Finance	116	10	106	1.4	0.5	1.8	8.6	0.32
		Service	1,771	378	1393	21.8	17.2	23.4	21.3	0.79
		Other	1,010	131	879	12.4	6.0	14.8	13.0	0.48
		Total	8,142	2,193	5949	100.0	100.0	100.0		
	Jakarta	Agriculture	80	14	66	1.3	3.2	1.2	17.5	2.45
		Mining	29	0	29	0.5	0.0	0.5	0.0	0.00
		Manufacturing	817	41	776	13.4	9.4	13.7	5.0	0.70
		Utility	34	1	33	0.6	0.2	0.6	2.9	0.41
		Constriction	284	29	255	4.7	6.7	4.5	10.2	1.43
		Trade	1,884	145	1739	31.0	33.3	30.8	7.7	1.08
		Transportation	531	44	487	8.7	10.1	8.6	8.3	1.16
		Finance	362	13	349	6.0	3.0	6.2	3.6	0.50
		Service	1,538	122	1416	25.3	28.0	25.1	7.9	1.11
		Other	521	26	495	8.6	6.0	8.8	5.0	0.70
		Total	6,080	435	5645	100.0	100.0	100.0		

Table 5-3 Profile of Poverty

Category	Area	Household head working status	Households	Poor	Non-poor	% of all hhs	% of poor hhs	% of non-poor hhs	Incidence of poverty (2)/(1)	Relative incidence of poverty (5)/(4)	
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Working status	Rural Central Java	Self employed	3,808	1,196	2,612	22.3	20.9	23.0	31.4	0.94	
		Temporary employed	6,372	2,453	3,919	37.3	42.9	34.5	38.5	1.15	
		Employer	268	53	215	1.6	0.9	1.9	19.8	0.59	
		Employee	4,999	1,593	3,406	29.3	27.9	30.0	31.9	0.95	
		Unpaid workers	175	56	119	1.0	1.0	1.0	32.0	0.96	
		NA	1,465	367	1,098	8.6	6.4	9.7	25.1	0.75	
		Total	17,087	5,718	11,369	100.0	100.0	100.0			
		Urban Central Java	Self employed	1,827	615	1,212	22.4	28.0	20.4	33.7	1.25
	Temporary employed		1,073	334	739	13.2	15.2	12.4	31.1	1.16	
	Employer		315	34	281	3.9	1.6	4.7	10.8	0.40	
	Employee		3,377	900	2,477	41.5	41.0	41.6	26.7	0.99	
	Unpaid workers		89	27	62	1.1	1.2	1.0	30.3	1.13	
	NA		1,461	283	1,178	17.9	12.9	19.8	19.4	0.72	
		Total	8,142	2,193	5,949	100.0	100.0	100.0			
		Jakarta	Self employed	1,448	172	1,276	23.8	39.5	22.6	11.9	1.66
	Temporary employed		419	16	403	6.9	3.7	7.1	3.8	0.53	
	Employer		219	2	217	3.6	0.5	3.8	0.9	0.13	
	Employee		2,866	157	2,709	47.1	36.1	48.0	5.5	0.77	
Unpaid workers	14		0	14	0.2	0.0	0.2	0.0	0.00		
NA	1,114		88	1,026	18.3	20.2	18.2	7.9	1.10		
	Total	6,080	435	5,645	100.0	100.0	100.0				

Table 5-4 Profile of Poverty

Category	Area	Land owning	Households	Poor	Non-poor	% of all hhs	% of poor hhs	% of non-poor hhs	Incidence of poverty (2)/(1)	Relative incidence of poverty (5)/(4)
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Land owning	Rural Central Java	With land	16374	5492	10882	95.8	96.0	95.7	33.5	1.00
		Without land	713	226	487	4.2	4.0	4.3	31.7	0.95
			17087	5718	11369	100.0	100.0	100.0		
	Urban Central Java	With land	6762	1838	4924	83.1	83.8	82.8	27.2	1.01
		Without land	1380	355	1025	16.9	16.2	17.2	25.7	0.96
			8142	2193	5949	100.0	100.0	100.0		
	Jakarta	With land	4134	257	3877	68.0	59.1	68.7	6.2	0.87
		Without land	1946	178	1768	32.0	40.9	31.3	9.1	1.28
			6080	435	5645	100.0	100.0	100.0		

Table 5-5 Profile of Poverty

Category	Area	Gender of household head	Households		Non-poor	% of all hhs	% of poor hhs	% of non-poor hhs	Incidence of poverty (2)/(1)	Relative incidence of poverty (5)/(4)
			Poor	(2)						
Gender of household head	Rural Central Java	Male	14,852	5,154	9,698	86.9	90.1	85.3	34.7	1.04
		Female	2,235	564	1,671	13.1	9.9	14.7	25.2	0.75
			17,087	5,718	11,369	100.0	100.0	100.0		
	Urban Central Java	Male	6,762	1,914	4,848	83.1	87.3	81.5	28.3	1.05
		Female	1,380	279	1,101	16.9	12.7	18.5	20.2	0.75
			8,142	2,193	5,949	100.0	100.0	100.0		
Jakarta	Male	5,231	386	4,845	86.0	88.7	85.8	7.4	1.03	
	Female	849	49	800	14.0	11.3	14.2	5.8	0.81	
		6,080	435	5,645	100.0	100.0	100.0			

Table 5-6 Profile of Poverty

Category	Area	Family size	Households	Poor	Non-poor	% of all hhs	% of poor hhs	% of non-poor hhs	Incidence of poverty (2)/(1)	Relative incidence of poverty (5)/(4)
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Family size	Rural Central Java	1	905	48	857	5.3	0.8	7.5	5.3	0.16
		2	2,107	319	1,788	12.3	5.6	15.7	15.1	0.45
		3	3,646	812	2,834	21.3	14.2	24.9	22.3	0.67
		4	4,492	1,506	2,986	26.3	26.3	26.3	33.5	1.00
		5	3,173	1,445	1,728	18.6	25.3	15.2	45.5	1.36
		6	1,613	887	726	9.4	15.5	6.4	55.0	1.64
		7	726	431	295	4.2	7.5	2.6	59.4	1.77
		8	274	179	95	1.6	3.1	0.8	65.3	1.95
		9	95	56	39	0.6	1.0	0.3	58.9	1.76
		10 +	56	35	21	0.3	0.6	0.2	62.5	1.87
	Total	17,087	5,718	11,369	100.0	100.0	100.0			
	Urban Central Java	1	646	15	631	7.9	0.7	10.6	2.3	0.09
2		979	123	856	12.0	5.6	14.4	12.6	0.47	
3		1,514	247	1,267	18.6	11.3	21.3	16.3	0.61	
4		1,868	491	1,377	22.9	22.4	23.1	26.3	0.98	
5		1,455	489	966	17.9	22.3	16.2	33.6	1.25	
6		865	368	497	10.6	16.8	8.4	42.5	1.58	
7		442	220	222	5.4	10.0	3.7	49.8	1.85	
8		208	129	79	2.6	5.9	1.3	62.0	2.30	
9		94	60	34	1.2	2.7	0.6	63.8	2.37	
10 +		71	51	20	0.9	2.3	0.3	71.8	2.67	
	Total	8,142	2,193	5,949	100.0	100.0	100.0			
	Jakarta	1	436	1	435	7.2	0.2	7.7	0.2	0.03
2		597	8	589	9.8	1.8	10.4	1.3	0.19	
3		1,148	25	1,123	18.9	5.7	19.9	2.2	0.30	
4		1,337	71	1,266	22.0	16.3	22.4	5.3	0.74	
5		1,096	89	1,007	18.0	20.5	17.8	8.1	1.13	
6		713	74	639	11.7	17.0	11.3	10.4	1.45	
7		389	67	322	6.4	15.4	5.7	17.2	2.41	
8		187	44	143	3.1	10.1	2.5	23.5	3.29	
9		82	24	58	1.3	5.5	1.0	29.3	4.09	
10 +		95	32	63	1.6	7.4	1.1	33.7	4.71	
	Total	6,080	435	5,645	100.0	100.0	100.0			

Table 5-7 Profile of Poverty

Category	Area	Age of household head	Households	Poor	Non-poor	% of all hhs	% of poor hhs	% of non-poor hhs	Incidence of poverty (2)/(1)	Relative incidence of poverty (5)/(4)	
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Age	Rural Central Java	under 20	19	3	16	0.1	0.1	0.1	15.8	0.47	
		20-29	1,334	379	955	7.8	6.6	8.4	28.4	0.85	
		30-39	4,430	1,683	2,747	25.9	29.4	24.2	38.0	1.14	
		40-49	4,113	1,470	2,643	24.1	25.7	23.2	35.7	1.07	
		50-59	3,142	1,050	2,092	18.4	18.4	18.4	33.4	1.00	
		60-69	2,637	749	1,888	15.4	13.1	16.6	28.4	0.85	
		70-	1,412	384	1,028	8.3	6.7	9.0	27.2	0.81	
			17,087	5,718	11,369	100.0	100.0	100.0			
		Urban Central Java	under 20	60	4	56	0.7	0.2	0.9	6.7	0.25
	20-29		661	117	544	8.1	5.3	9.1	17.7	0.66	
	30-39		1,822	545	1,277	22.4	24.9	21.5	29.9	1.11	
	40-49		2,197	662	1,535	27.0	30.2	25.8	30.1	1.12	
	50-59		1,481	390	1,091	18.2	17.8	18.3	26.3	0.98	
	60-69		1,214	310	904	14.9	14.1	15.2	25.5	0.95	
	70-		707	165	542	8.7	7.5	9.1	23.3	0.87	
			8,142	2,193	5,949	100.0	100.0	100.0			
		Jakarta	under 20	27	0	27	0.4	0.0	0.5	0.0	0.00
	20-29		675	18	657	11.1	6.4	11.3	2.7	0.58	
	30-39		1,654	116	1,538	27.2	41.3	26.5	7.0	1.52	
	40-49		1,639	88	1,551	27.0	31.3	26.7	5.4	1.16	
	50-59		1,198	44	1,154	19.7	15.7	19.9	3.7	0.79	
60-69	635		15	620	10.4	5.3	10.7	2.4	0.51		
70-	252		0	252	4.1	0.0	4.3	0.0	0.00		
		6,080	281	5,799	100.0	100.0	100.0				

Table 5-8 Profile of Poverty

Area	Work status	Incomplete	Primary	Junior high	Senior high	Vocational high	Diploma I/II	Diploma III	Diploma IV/univ./graduate	NA	Total	Share (%)
Rural Central Java	Self employed	1,216	1,496	280	91	46	3	5	3	667	3,807	22.3
	Temporary employed	2,012	2,488	345	129	91	4	3	8	1,291	6,371	37.3
	Employer	61	110	36	14	11	0	1	0	36	269	1.6
	Employee	1,220	1,863	461	264	327	85	64	70	638	4,992	29.2
	Unpaid workers	53	65	14	5	4	0	0	0	38	179	1.0
	NA	352	275	63	30	29	2	9	5	704	1,469	8.6
	Total	4,914	6,297	1,199	533	508	94	82	86	3,374	17,087	100.0
Urban Central Java	Self employed	409	655	264	162	73	3	13	14	233	1,826	22.4
	Temporary employed	242	388	166	100	42	1	11	14	111	1,075	13.2
	Employer	34	77	52	78	31	1	9	21	12	315	3.9
	Employee	413	879	520	602	368	69	144	207	175	3,377	41.5
	Unpaid workers	21	30	16	5	5	1	0	0	10	88	1.1
	NA	254	351	210	221	74	9	22	16	304	1,461	17.9
	Total	1,373	2,380	1,228	1,168	593	84	199	272	845	8,142	100.0
Jakarta	Self employed	191	446	344	285	69	9	24	34	47	1,449	23.8
	Temporary employed	34	135	88	109	20	0	8	13	11	418	6.9
	Employer	7	21	30	77	10	2	23	49	0	219	3.6
	Employee	124	422	510	916	320	34	197	329	16	2,868	47.2
	Unpaid workers	0	5	2	1	1	0	0	1	2	12	0.2
	NA	151	272	193	247	56	5	47	62	81	1,114	18.3
	Total	507	1,301	1,167	1,635	476	50	299	488	157	6,080	100.0

Table 6. Probability of being poor in 1999

	Rural Central Java		Semi-urban Central Java		Urban Jakarta	
	Estimate	P> z	Estimate	P> z	Estimate	P> z
Constant	-0.1287	0.008	-0.0270	0.634	-0.3686	0.000
Household						
Family size	0.0948	0.000	0.0725	0.000	0.0239	0.000
Dependent below 5 years old	0.0471	0.000	0.0476	0.000	0.0172	0.002
School age children	-0.0182	0.000	-0.0092	0.084	0.0009	0.768
Livestock holding	0.0246	0.001	0.0206	0.038	0.0002	0.993
Land owning	-0.0108	0.521	-0.0512	0.000	0.0308	0.000
Household head						
Gender	-0.0029	0.813	-0.0023	0.908	0.0106	0.427
Age	-0.0116	0.000	-0.0075	0.001	0.0003	0.853
Age square	0.0001	0.000	0.0001	0.019	0.0000	0.427
Education of head						
Not completed	-0.0755	0.000	-0.0494	0.003	0.0921	0.000
Primary	-0.1334	0.000	-0.1247	0.000	0.0757	0.000
Junior high	-0.1861	0.000	-0.1843	0.000	0.0465	0.001
Senior high	-0.2778	0.000	-0.2932	0.000	0.0179	0.209
Vocational senior high	-0.2611	0.000	-0.2142	0.000	0.0167	0.355
Diploma I/II	-0.2402	0.000	-0.2400	0.000		
Diploma III	-0.3980	0.000	-0.5023	0.000		
Diploma IV/bachelor	-0.5090	0.000	-0.5195	0.000		
Education of spouse						
Not completed	-0.0148	0.154	0.0005	0.184	0.0395	0.002
Primary	-0.0243	0.029	0.0120	0.454	0.0203	0.086
Junior high	-0.0674	0.000	-0.0128	0.399	0.0057	0.661
Senior high	-0.1427	0.000	-0.0664	0.001	-0.0295	0.048
Vocational senior high	-0.2087	0.000	-0.0909	0.000	-0.0231	0.297
Diploma I/II	-0.3633	0.012	-0.1080	0.000	-0.0324	0.530
Diploma III	-0.2004	0.157	-0.1972	0.004		
Diploma IV/bachelor	-0.2419	0.181	-0.2098	0.006		
Sector of head employment						
Agriculture	0.1208	0.000	-0.0568	0.694	0.0500	0.021
Mining	0.0593	0.218	0.1702	0.013		
Manufacturing	0.0277	0.242	-0.0160	0.294	-0.0001	0.993
Utility	-0.1209	0.351	-0.0934	0.267	-0.0120	0.826
Construction	0.0386	0.126	-0.0003	0.986	-0.0314	0.085
Trade	-0.0014	0.953	-0.0430	0.003	0.0050	0.742
Transportation	-0.0076	0.778	-0.0147	0.423	0.0059	0.725
Finance	0.0290	0.675	-0.1450	0.004	-0.0129	0.530
Services	0.0228	0.344	-0.0151	0.310	0.0129	0.197
Other	0.1606	0.007	0.0678	0.289		
Employment status						
Employer (head)	-0.1212	0.000	-0.1695	0.000	-0.0944	0.004
Employee (head)	-0.0217	0.050	0.0295	0.026	-0.0238	0.012
Employer (spouse)	-0.0134	0.449	-0.2118	0.007		
Employee (spouse)	-0.0134	0.225	0.0433	0.001	0.0202	0.054
Own business	0.0358	0.002	-0.0384	0.005	-0.0536	0.547
Number of observations	17087		8142		6080	
Log likelihood	-9373.95		-3758.09		-1221.92	
LR chi2	3035.16		1970.96		688.816	
Prob>chi2	0.000		0.000		0.000	
Pseudo R2	0.1655		0.2252		0.1559	

Note: 1) The shaded coefficients are statistically significant at less than 5% level.
 2) The coefficients are dP/dx.

Table 7. Type of School in Susenas 1999 and estimated years of education

Susenas classification (1)	Type of school completed (2)	Years of schooling (3)
Blank	No indication about schooling	Not available
1	Not completed primary school	Not available
2	Primary school	6
3	Junior high school	9
3	Vocational junior school	9
4	Senior high school	12
5	Vocational high school	12
6	Diploma /	14
7	Diploma	15
8	Diploma /bachelor	16
9	Master/Ph.D.	19

Source: BPS, Survei Sosial Ekonomi Nasional, 1999.

Table 8-1. Determinants of Consumption in Rural Central Java, 1999

	Agriculture		Manufacturing		Trade		Services		Finance	
	Estimate	P> z	Estimate	P> z	Estimate	P> z	Estimate	P> z	Estimate	P> z
Constant	12.0411	0.000	11.5024	0.000	11.2603	0.000	11.4511	0.000	6.4454	0.008
Household										
Family size	0.1615	0.000	0.1411	0.000	0.1529	0.000	0.0888	0.000	-0.0168	0.877
Dependent below 5 years old	-0.7156	0.000	-0.0647	0.016	-0.0901	0.000	-0.0427	0.087	-0.1455	0.348
School age children	-0.0062	0.305	-0.0149	0.461	-0.0106	0.454	0.0617	0.000	0.1050	0.359
Livestock holding	-0.0097	0.442	-0.0364	0.174	-0.0176	0.404	-0.0749	0.001	-0.0953	0.585
Land owning	0.0402	0.213	0.0744	0.176	0.0511	0.253	0.0058	0.907	0.2004	0.510
Household head										
Gender	0.0045	0.890	0.0562	0.466	0.0952	0.093	0.1178	0.072	0.3986	0.614
Age	-0.0001	0.972	0.0223	0.009	0.0249	0.000	0.0169	0.056	0.2936	0.016
Age square	0.0000	0.790	-0.0002	0.021	-0.0002	0.000	-0.0001	0.281	-0.0032	0.028
Years of schooling	-0.0007	0.003	0.0073	0.255	0.0289	0.000	0.0345	0.000	0.0552	0.105
Education of spouse										
Not completed	0.1307	0.487	0.0623	0.275	0.0216	0.632	0.0462	0.397	-0.8508	0.913
Primary	0.0038	0.822	0.1489	0.005	0.0539	0.175	0.1195	0.008	-0.2001	0.730
Junior high	0.0404	0.131	0.1738	0.004	0.1502	0.002	0.1173	0.019	-0.3857	0.559
Senior high	0.0456	0.350	0.3220	0.000	0.1753	0.009	0.2432	0.000	-0.2890	0.638
Vocational senior high	0.0034	0.952	0.3520	0.001	0.2128	0.018	0.1887	0.001	-0.3484	0.600
Diploma I/II							0.3703	0.000	0.4412	0.606
Diploma III							0.2898	0.002	0.0231	0.974
Diploma IV/bachelor	0.2574	0.179	-0.1205	0.735	0.2316	0.286	0.4164	0.001	-0.2044	0.795
Employment status										
Employer (head)	-0.0148	0.735	0.2446	0.000	0.2459	0.000	0.2754	0.009	0.2227	0.421
Employee (head)	-0.0059	0.730	0.0238	0.657	-0.0245	0.521	0.0329	0.394	-0.1519	0.419
Employer (spouse)	0.0374	0.716	-0.0160	0.921	0.0131	0.916	0.2274	0.049		
Employee (spouse)	-0.1731	0.337	0.0324	0.328	-0.0964	0.025	0.0615	0.052		
Own business	-0.0086	0.630	-0.0943	0.085	-0.0263	0.546	-0.0275	0.529		
Unemployed (head)	-0.0020	0.932							-0.7228	0.066
Unemployed (Spouse)										
Number of observation	4141		790		1244		1162		42	
Log likelihood	-1186.48		-279.91		-492.578		-456.58		-5.78	
Prob>F	0.000		0.000		0.000		0.000		0.009	
Adjusted R2	0.0841		0.3351		0.3439		0.4070		0.4864	

Note: The shaded coefficients are statistically significant at less than 5% level.

Table 8-2. Determinants of Consumption in Urban Central Java, 1999

	Agriculture		Manufacturing		Trade		Services		Finance	
	Estimate	P> z	Estimate	P> z	Estimate	P> z	Estimate	P> z	Estimate	P> z
Constant	11.8931	0.000	11.7251	0.000	11.9084	0.000	11.7573	0.000	11.0070	0.000
Household										
Family size	0.1496	0.000	0.1140	0.000	0.1426	0.000	0.1509	0.000	0.1489	0.007
Dependent below 5 years old	-0.0662	0.143	-0.0355	0.143	-0.0880	0.000	-0.0868	0.000	-0.0256	0.833
School age children	-0.0021	0.941	0.0310	0.062	0.0130	0.315	-0.0046	0.720	0.0904	0.237
Livestock holding	-0.0123	0.767	-0.9473	0.002	-0.0601	0.031	-0.0546	0.036	-0.0731	0.606
Land owning	0.1321	0.129	0.1191	0.000	0.1298	0.000	0.1750	0.000	0.4489	0.075
Household head										
Gender	-0.03171	0.783	-0.1355	0.012	-0.0152	0.714	-0.0836	0.059	0.4358	0.061
Age	0.0140	0.209	0.0209	0.006	0.0049	0.413	0.0098	0.116	-0.0314	0.337
Age square	-0.0001	0.261	-0.0002	0.065	0.0000	0.932	0.0000	0.597	0.0005	0.173
Years of schooling	0.0187	0.060	0.0366	0.000	0.0301	0.000	0.0468	0.000	0.0749	0.003
Education of spouse										
Not completed	-0.0051	0.941	-0.0744	0.203	-0.0736	0.121	-0.1570	0.001	0.4612	0.211
Primary	0.0107	0.859	0.0166	0.710	0.0028	0.940	-0.0921	0.011	0.1217	0.597
Junior high	0.1274	0.122	0.0238	0.620	0.0147	0.723	0.0059	0.871	0.3083	0.284
Senior high	0.1688	0.185	0.1330	0.011	0.2133	0.000	0.0645	0.068	0.2224	0.258
Vocational senior high	0.1807	0.268	0.1420	0.028	0.1701	0.005	0.0251	0.524	0.2645	0.271
Diploma I/II										
Diploma III	0.5727	0.159							-0.0756	0.792
Diploma IV/bachelor	0.2537	0.307	0.4656	0.000	0.4703	0.000	0.2459	0.000	0.3253	0.214
Employment status										
Employer (head)	0.3507	0.004	0.3694	0.000	0.3642	0.000	0.2980	0.000	0.4087	0.340
Employee (head)	0.0205	0.767	-0.0531	0.320	0.0160	0.687	0.0037	0.927	-0.0055	0.984
Employer (spouse)	-0.1162	0.673	0.3874	0.000	0.2179	0.038	0.1727	0.073	0.0791	0.555
Employee (spouse)	-0.0944	0.122	-0.0669	0.028	-0.0507	0.259	-0.3311	0.897		
Own business	-0.0945	0.164	0.0247	0.648	-0.0600	0.152	0.0636	0.136	-0.0309	0.900
Unemployed (head)	-0.1516	0.039	-0.0468	0.395	0.0114	0.741	-0.1336	0.004	0.1897	0.432
Unemployed (Spouse)										
Number of observation	397		884		1444		1538		107	
Log likelihood	-17.00		-326.85		-694.52		-722.97		-57.01	
Prob>F	0.000		0.000		0.000		0.000		0.000	
Adjusted R2	0.3613		0.4984		0.4222		0.4464		0.3955	

Note: The shaded coefficients are statistically significant at less than 5% level.

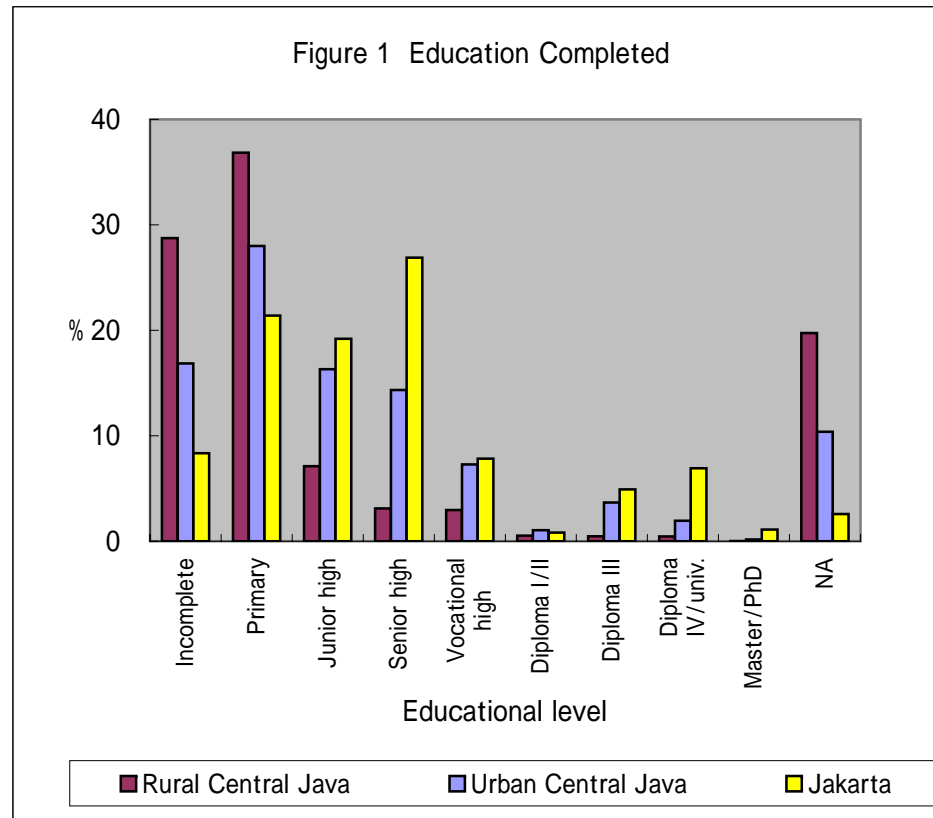
Table 8-3. Determinants of Consumption in Jakarta, 1999

	Agriculture		Manufacturing		Trade		Services		Finance	
	Estimate	P> z	Estimate	P> z	Estimate	P> z	Estimate	P> z	Estimate	P> z
Constant	12.6522	0.000	12.1340	0.000	12.3797	0.000	12.5246	0.000	12.3367	0.000
Household										
Family size	0.0968	0.042	0.1428	0.000	0.1257	0.000	0.1385	0.000	0.1353	0.000
Dependent below 5 years old	-0.0510	0.750	-0.5134	0.132	-0.0603	0.016	-0.0239	0.347	-0.1197	0.046
School age children	0.0673	0.411	-0.0347	0.097	-0.0211	0.123	-0.0096	0.497	-0.0318	0.338
Livestock holding	-0.1657	0.590	-0.1150	0.467	0.0241	0.808	-0.1028	0.219	-0.1313	0.582
Land owning	-0.2426	0.063	-0.1765	0.000	-0.1489	0.000	-0.1193	0.000	-0.2260	0.002
Household head										
Gender	0.1119	0.720	-0.0298	0.646	0.0732	0.154	-0.0972	0.097	0.0469	0.704
Age	-0.0043	0.871	0.0200	0.026	0.0072	0.296	0.0030	0.698	0.0177	0.363
Age square	0.0001	0.605	0.0000	0.658	0.0000	0.649	0.0001	0.318	-0.0001	0.759
Years of schooling	0.0880	0.001	0.0428	0.000	0.0469	0.000	0.0631	0.000	0.0780	0.000
Education of spouse										
Not completed	-0.1910	0.580	-0.1812	0.045	-0.1310	0.028	-0.2552	0.000	-0.3479	0.067
Primary	0.0816	0.791	-0.0943	0.134	-0.0430	0.352	-0.1519	0.003	-0.2626	0.046
Junior high	0.0026	0.994	0.0010	0.987	0.0164	0.732	-0.1310	0.011	-0.2195	0.098
Senior high	0.4939	0.204	0.1125	0.080	0.1895	0.000	-0.0781	0.130	-0.2194	0.071
Vocational senior high	0.3393	0.419	0.0391	0.661	0.1398	0.054	-0.0501	0.438	-0.1676	0.280
Diploma I/II			0.3064	0.097	0.3127	0.022	-0.0569	0.604	0.3488	0.353
Diploma III			0.4601	0.000	0.3038	0.001	0.0202	0.808	0.1426	0.471
Diploma IV/bachelor	1.1223	0.183	1.1014	0.000	0.6049	0.000	0.4291	0.000	0.7603	0.000
Employment status										
Employer (head)	0.2206	0.588	0.2325	0.012	0.5580	0.000	0.5909	0.000	0.4792	0.007
Employee (head)	0.0742	0.807	0.2275	0.005	-0.0314	0.496	0.1104	0.022	0.0598	0.629
Employer (spouse)			0.2159	0.385	0.0736	0.553	-0.1350	0.508	-1.8424	0.001
Employee (spouse)	-0.1676	0.614	0.0665	0.185	-0.0457	0.386	-0.0003	0.994	-0.0658	0.518
Own business	0.0605	0.848	0.2796	0.001	-0.0007	0.987	0.0852	0.075	0.1595	0.084
Unemployed (head)	-0.1148	0.729	-0.2637	0.004	0.0305	0.521	0.0151	0.789	-0.1159	0.263
Unemployed (Spouse)										
Number of observation	93		770		1646		1387		315	
Log likelihood	-61.30		-419.57		-1074.34		-823.06		-218.24	
Prob>F	0.000		0.000		0.000		0.000		0.000	
Adjusted R2	0.4578		0.5696		0.4553		0.4997		0.4318	

Note: The shaded coefficients are statistically significant at less than 5% level.

Table 9 Summary of coefficient

	Agriculture	Manufacturing	Trade	Service	Finance
Rural Central Java	-0.0007	0.0073	0.0345	0.0345	0.0552
Urban Central Java	0.0187	0.0366	0.0301	0.0466	0.0749
Jakarta	0.0880	0.0428	0.0469	0.0631	0.0780



Note: NA indicates the samples that do not specify educational attainment.

Figure 2-1 Educational Level by Sector in Rural Central Java

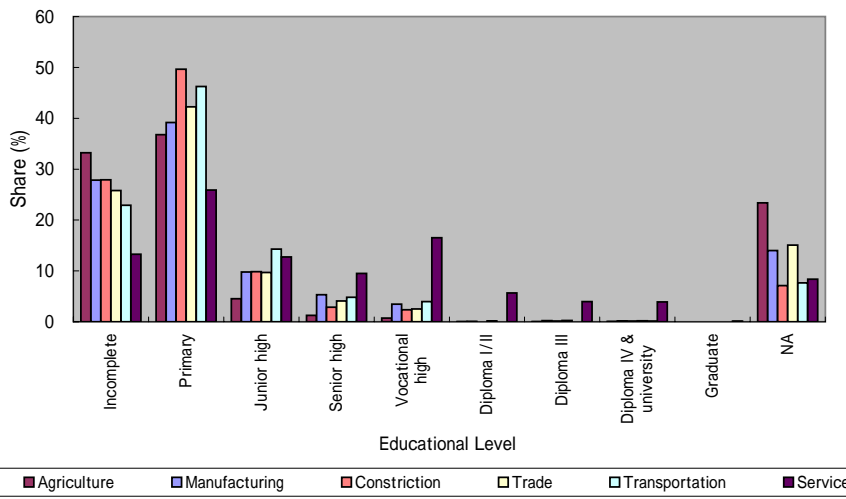


Figure 2-2 Educational Level by Sector in Urban Central Java

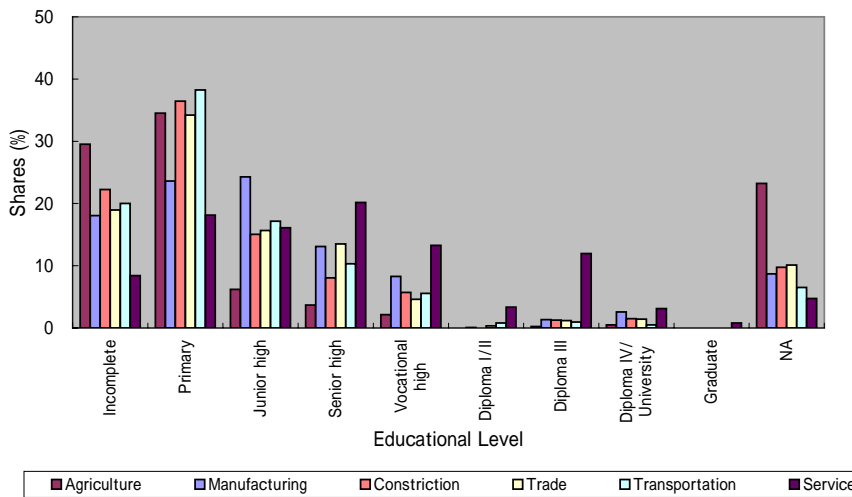
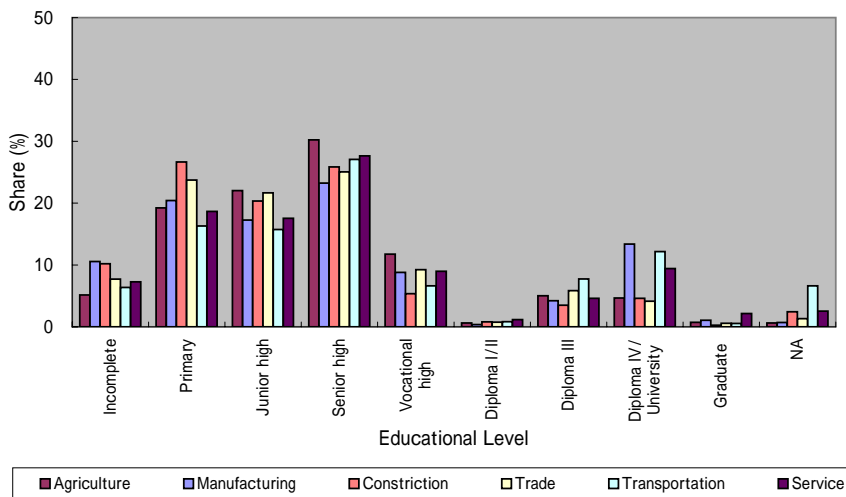


Figure 2-3 Educational Level by Sector in Jakarta



Note: NA indicates the samples that do not specify educational attainment.

Figure 3. Numbers of Students by Educational Level
(million)

