# The Impact of Social Safety Net Scholarships Program to School Dropout Rates in Indonesia: The Intention-To-Treat Analysis

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# THE IMPACT OF SOCIAL SAFETY NET SCHOLARSHIPS PROGRAM TO SCHOOL DROPOUT RATES IN INDONESIA: THE INTENTION-TO-TREAT ANALYSIS

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**ABSTRACT**

This study aims to investigate the role of Indonesia's Social Safety Net Scholarships Program to the school dropout rates in basic education in Indonesia using Indonesian Family Life Survey (IFLS) and the Intention-to-treat (ITT) analysis. Randomized controlled trials often suffer from two major complications, i.e., noncompliance and missing outcomes. One potential solution to this problem is a statistical concept called intention-to-treat (ITT) analysis. The results showed that the JPS scholarship received by boys and girls per 100 children is proven to be effective in reducing the school dropout rates in basic education, given that levels of education are very vulnerable to dropping out of school as a result of the impact of the economic crisis, particularly in junior secondary school. Meanwhile, the JPS scholarships received by boys more effective to reduce school dropout rates than girls in reducing the school dropout rates, considering that boys are more involved during the economic crisis. The findings were the same in Java and Bali that the average number of boys per 100 children who received JPS scholarship has shown a more significant share in reducing the total dropout number compared to those who are outside the Java and Bali areas. Thus, it will reduce the households that tried to offset the impact of the economic crisis with a variety of coping strategies, especially using boy's child labor in Java and Bali. Although the JPS scholarship effectively reduces the school dropout rates in basic education, but the influence is still felt inadequate. Therefore, the government needs to fix the target criteria for scholarships recipients to be more accurate and on target with the latest data update. This is important because accurate targeting will determine the effectiveness of the program. Furthermore, it has poor selection criteria carried out by the committee schools, therefore, it needs to be fixed in order to avoid any irregularities.

**JEL Classifications:** I38, H52 and H55
**Keyword*:*** Social Safety Net Scholarships Program, School Dropout Rates, IFLS, The Intention-to-treat (ITT) analysis
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## INTRODUCTION

The income shocks that occur in poor households often forces parents to pull their children from school and send them to the labor market when various attempts have been made to overcome the risk are futile. However, it can have an impact and long-term adverse consequences for the human capital development of the child. One mechanism that can be done to mitigate the risks of household income shocks without lowering the development of human capital is the formal institutions through the Social Safety Net Program (JPS).

The economic crisis in Indonesia in mid-1997 had a devastating effect on almost all aspects of the economy. In line with the deteriorating economic conditions Indonesia then appear different to the fear associated with the impact on the socio-economic conditions of society, especially children's education. For example, a decline in school attendance rates and the increasing number of children who experience dropout rates.

Cameron (2009) showed that the rate of primary school attendance rate is generally unchanged and relatively stable during the economic crisis in Indonesia, but the decline occurred at the level of junior secondary school from 77.5% in 1997 to 77.2% in the year 1998. Meanwhile, the school attendance rate for senior secondary school did not change. Hartono and Ehrman (2001) through the MOE data identified that the level of participation and dropout for primary school (SD) did not change significantly during the 1997/1998 and 1998/1999. The participation rate of junior secondary school has decreased from 54.5 percent in 1997/1998 to 53.2 percent in 1998/1999 and then rose again in the following year. Meanwhile, the school dropout rates of junior secondary school increased from 3.2 to 6 percent in 1998/1999. This causes the proportion of children aged 13-15 years in school has decreased from 73.4 to 72.3 percent during the period.

One of the things that the government's main concern in the field of education during the economic crisis is pressing the school dropout rate at the basic education, especially on the junior secondary school for the high school dropout rate prevalent in the stage. Meanwhile, the increase in the dropout rate at the level reflects that the child who reached senior secondary school mostly come from wealthier families. Recognizing the importance of keeping children, especially those who come from poor families, to stay in school, the government provides assistance through the Social Safety Net program in education by awarding scholarships and grants to school or operational funds or block grants. The program set out in the academic year 1998/1999, which is designed to reduce the impact of the economic crisis for the continuity of education for

children from poor families and households fall into poverty due to the crisis. Additionally, intended to support the compulsory 9 year basic education.

The primary aim of JPS scholarship program is intended to enable students, especially at the level of basic education and senior secondary school who come from poor families or are not able to be able to finance a child's school purposes so it does not drop out of school due to economic difficulties or problems. Moreover, it provides a greater opportunity to continue in school and continue their education to the next level and expects that all children, particularly girls can continue their education at least up to the level of junior secondary school (SMP).

Several studies of government programs in the field of education to dropout rates and school participation have been widely carried out in several developing countries involves techniques and diverse data. Behrman et al (2001) through a randomized experiment showed that PROGRESA program in Mexico effectively lower dropout rates and the value of children's progress, especially during the transition period towards primary to secondary school. Báez and Camacho (2011) identified the presence of "Familias en Accion" program can improve school participation for girls and program beneficiaries who live in rural areas. Various empirical studies in Indonesia are carried out by Dufflo (2000) use SUPAS data and the difference-in-difference estimation to identify the role of INPRES program on the level of educational attainment in Indonesia. Results of the study showed that INPRES Program plays an important role in educational attainment and income in Indonesia. Sparrow (2004) identified that the program of scholarships able to increase the participation of primary school (SD) who come from rural households and reduce child labor by using a combination of Susenas, survey seratus desa and the MOE data.

The relationship between the Social Safety Net program in scholarships to the dropout rate in basic education using IFLS data and the intention-to-treat (ITT) analysis is a recent finding, although previously there have been studies on the JPS scholarship to school dropout rates in the junior secondary in Indonesia using survey seratus desa data and propensity score matching (Cameron, 2009), but there are some weaknesses. First, the majority of households in the sample (about 82 percent) have not been classified by the BKKBN (Cano and Filmer, 2004). Thus, nothing prevents the existence of some households with high per capita expenditure accepts the scholarship. Secondly, survey seratus desa data is not designed as a nationally representative sample because only focus on the relatively poor countryside so it is not appropriate to generalize specific estimates overall. Finally, the weaknesses arising from the use of propensity score matching, namely the identification of the treatment group and control group only based on the characteristics of the samples was observed. Thus, if there are differences in the characteristics of the two groups are derived from characteristics cannot be observed can result in the use of the propensity score matching will produce biased estimator (Khandker, Koolwal, and Samad, 2010).

Based on the various estimation techniques and diverse empirical data and the issue of the economic crisis in Indonesia that have an impact on the rising dropout rates, the purpose of this study was to investigate the role of the Social Safety Net Program, in particular the provision of scholarships to the school dropout rates in basic education (primary and junior secondary schools) in Indonesia. In addition, the influence of the program on the dropout rate in basic education by gender composition and region of Java-Bali and outside Java-Bali.

Organization of this paper is organized as follows. The second section describes overview of social safety net program in Indonesia. The third will discuss a model of optimal cash transfer. The fourth describe empirical model, variables and data. The last section discusses the results obtained and closed with conclusions and recommendations.

## OVERVIEW OF SOCIAL SAFETY NET PROGRAM IN INDONESIA

At the beginning of the economic crisis in Indonesia, there were rising concerns about the increase in dropout rates as the consequence of falling incomes and rising household costs. Based on that, the government set JPS education program to mitigate the impact of the economic crisis and support the sustainability of the education of children to stay in school. The program started in the academic year 1998/1999, which has two important components. The first is a scholarship for students from poor families to keep schools, both in the form of grants (block grants) allocated to schools to help school operations.

In general, targeted Social Safety Net Programs Indonesia are based on a combination of geographic and household (Sumarto, Suryahadi, and Widyanti, 2002). Targeting for some of the programs carried out by the classification of households made by the BKKBN. In this case, households are classified into 4 categories of socio-economic conditions for keluarga pra sejahtera or KPS, keluarga sejahtera 1 or KS 1, 2 or KS II and KS III. In addition, the scholarship funds are allocated in advance to the poorer schools in order to proportionately receive more scholarships. Furthermore, the school committee allocates these scholarships to students.

The allocation of JPS scholarship is intended to reach 6 percent of primary school, 17 percent of junior secondary school and 10 percent of senior secondary school, including students from schools based on religion. Meanwhile, 60 percent of the school became the target or targets to receive a grant, whereby the selected schools located in the poorest communities in each district. Furthermore, these scholarships are allocated to children who are members of a family of 2 to the family at the bottom in the order of the family based on BKKBN.

So far, the importance of conditional cash transfers, including Social Safety Net Program as an instrument of poverty alleviation cause various debates (Fiszbein and Schady, 2009). There are at least 2 reasons against the implementation of conditional cash transfers for the poor. First, poverty can be reduced or mitigated through high economic growth rates, especially in poor countries. This is done because most of the poor countries are generally characterized by efforts fiscal and capacity administration is low. Therefore, the government should focus the provision basic infrastructure. In this view, the conditional cash transfer to partially large poor households be regarded have influence and impact smaller than investment in public capital. Furthermore, conditional cash transfers difficult to targeting and distribution to poor households. Second,

conditional cash transfer could provide incentive improper to beneficiaries. Reasons against the existence of a conditional cash transfer underlines the importance of direct investment in government investment as an alternative policy to tackle poverty in poor countries. Meanwhile, there are 3 reason main supporting the existence conditional cash transfer as an instrument in overcoming poverty level. First, the economic agents are not always behave as expected. Second, government policies are not always based on the decision of the dictator. In general, the result of a policy decision decision-making process involving voters, lobby, bureaucracy, bargain and the various. Third, although human capital investments that do poor households would be optimal in private, but it may not be socially optimal because of the existence of market failures caused by negative externalities.

Despite the debates about the role of conditional cash transfer in overcoming poverty but it is undeniable that economic growth is considered as a key driver in overcoming poverty in most developing countries. However, these conditions cannot run completely in the event of market failure. Therefore, the need for government policies in providing the institutional foundations, public goods and resolve any market failures. In addition, the government can complement the role of economic growth on poverty reduction with resource redistribution policies directly to poor households.

## A MODEL OF OPTIMAL CASH TRANSFER

In this section, we will construct an optimal cash transfer model version of de Janvry and Sadoulet (2006)**.** Denote by $P(X,T)$ the probability that a child with characteristics $X$ and eligible for a transfer $T$ will enroll in school. Eligibility is denoted by the index function $I \in [0,1]$. Children characteristics are distributed according to the density function $f(X)$. The allocation problem consists in choosing the eligibility status $I(X)$ and, if eligible, the transfer $T(X)$ offered to each child $X$, to maximize the gain in enrollment over the population:

$$\max_{I(X),T(X)} \int [P(X,T) - P(X,0)] I \, f(X) dX \tag{1}$$

subject to a budget constraint:

$$\int [P(X,T)T \, \mathrm{I} \, f(X) dX \le B \tag{2}$$

where $B$ is the budget available for the program. The first order conditions for the optimal transfer is that, for any eligible child ($I = 1$),

$$P_T - \lambda(P_T + P) = 0 \tag{3}$$

where $P_T = \dfrac{\partial P}{\partial T}$ and $\lambda$ is the Lagrange multiplier associated with the budget constraint. This relationship states that the ratio of cost $(P_T T + P)dT$ to enrollment benefit $P_T T dT$ of a marginal increase $dT$ in the transfer offered is equal across children. Hence, the cost of the marginal child brought to school is equal across children types $X$. Note that the cost has two terms. The first term $P_T T dT$ is the transfer cost to the marginal children $PT\,dT$ brought to school by the increase in transfer. The second term is the cost of giving the increase in transfer $dT$ to all $P$ children from the same type $X$, even though they went to school with the initial transfer $T$. This is the marginal equivalent of the decomposition of the cost of transfer:

$$P(X,T)T = [P(X,T) - P(X,0)]T + P(X,0)T$$

where the first term represents the cost of the transfer to the kids brought to school by the transfer, and the second term the cost to the kids of similar observable characteristics who would have gone to school anyway. Given the optimal transfer conditional on eligibility, the optimal eligibility rule is defined by:

$$I = 1 \text{ if } (P(X,T) - P(X,0)) - \lambda P(X,T) \ge 0, 0 \text{ otherwise} \tag{4}$$

the optimal allocation of a budget $B$ is thus the solution to the system (3), (4), and (2).

In the particular case of a linear probability model that we consider in the following empirical work, the conditional expectation of the enrollment probability is written:

$$EP(X,T) = X\beta + \delta_0 I + X\delta T \tag{5}$$

where $\delta_0 I + X\delta T$ measures the total impact of a transfer $T$, and $X\delta$, which includes a constant term, measures the marginal impact of the transfer $T$. The optimal transfer and eligibility criteria defined in equations (3) and (4) are written:

$$T = \max\left(\frac{1}{2\lambda} - \frac{1}{2}\frac{X\beta + \delta_0}{X\delta}, 0\right) \tag{6}$$

where $\lambda$ is solution to the budget constraint (2). This expression shows that both eligibility and the optimal transfer for any given child are function of the ratio $X\beta + \delta_0 / X\delta = EP(X,0) + \delta_0 / EP_T$. The first term in the numerator is the expected probability that children with characteristics $X$ would go to school even without a transfer, and the denominator is the marginal effect of the transfer on the expected enrollment probability. Children will thus be eligible and receive high transfers if they have a low initial probability of enrollment and/or a high enrollment response to a transfer.

## EMPIRICAL MODEL, VARIABLES AND DATA

Randomized controlled trials often suffer from two major complications, i.e., noncompliance and missing outcomes. One potential solution to this problem is a statistical concept called intention-to-treat (ITT) analysis (Gupta, 2011). Specifically,

in cases where the actual treatment is distinct from the variable that is randomly manipulated, call Z the variable that is randomly assigned, while T remains the treatment of interest. One knows because of random assignment that E[Yi(0)|Zi = 1] – E[Yi(0)|Zi = 0] is equal to zero and that the difference E[Yi(1)|Zi = 1] – E[Yi(0)|Zi = 0] is equal to the causal effect of Z. However, it is not equal to the effect of the treatment, T, because Z is not equal to T. Because Z has been chosen to at least influence the treatment, this difference is the ITT impact.

One of the challenges of estimating the effect of the JPS program is the non-random allocation of the scholarships. In this case, the scholarships are allocated in advance to the school and then distributed to students through the school committee consisting of the principal, head of the association of parents, teachers' representatives, student representatives and village or community leaders. The method used in this research is the intention-to-treat (ITT) analysis, where all subjects' randomized studies have been included in the analysis in accordance with the initial condition without seeing whether it complies with the subject of the protocol or not (Fisher et al, 1990). Thus, the intention-to-treat (ITT) analysis reflects the results of randomization and demonstrate the effectiveness of interventions when applied to the actual population.

Basic estimation model used in this study is to follow the model used by Giles and Satriawan (2015) with some modifications.

$$S_{ivt} = \alpha_0 + \beta JPS_{vt} + \lambda X_{it} + \tau X_{ht} + \delta X_{vt} + \chi y2000 + \mu_v + \varepsilon_{ivt} \quad (7)$$

where $S_{ivt}$ is the school dropout rate at the individual level in basic education (7-15 year old). Meanwhile, JPS is the average number of boys and girls who receive JPS scholarships, y2000 is a dummy for the 2000 survey round, $\varepsilon_{ivt}$ is the error term, $X_{it}$, $X_{ht}$, $X_{vt}$ is time-varying individual, household, and community characteristics, while $\mu_v$ is unobserved heterogeneity at the community level. For example, their proximity or a good relationship between households with village head or the school committee in the village so that it can influence the decision in determining who has the right and not the receiving of JPS scholarships.

The data used in this study is IFLS in 1997 and 2000. Data in this period provides an opportunity to analyze the period before and after the implementation of the Social Safety Net program in the form of scholarships in Indonesia. In this study, a variable describing the program of scholarships is the average number of boys and girls who receive scholarships JPS in basic education or school age 7-15 year old. Table 1 shows that the average number of JPS scholarships received by boys and girls for ages 7-15 years reach 25 to 26 people per 100 children. Meanwhile, the average number of JPS scholarships received by boys aged 7-15 years is greater than girls, reaching 13.9 percent. This indicates the occurrence of the gender gap in the number of scholarships received by boys and girls.

**TABLE 1 SUMMARY STATISTICS OF KEY VARIABLES**

| Variables | Mean | Std. Dev. |
|---|---|---|
| The average number of boys received JPS scholarships | 13.873 | 19.127 |
| The average number of girls received JPS scholarships | 11.760 | 16.289 |
| The average number of boys and girls received JPS scholarships | 25.640 | 35.052 |
| The average number of boys and girls received JPS scholarships | 25.640 | 35.052 |
| Year dummy (2000 = 1) | 0.500 | 0.500 |
| Sex (girls=1) | 0.423 | 0.494 |
| Household utilize electricity (yes =1) | 0.870 | 0.336 |
| Household head have a television (yes =1) | 0.610 | 0.488 |
| Child age (years) | 12.335 | 2.947 |
| Household head education | | |
| No school (yes =1)* | 0,133 | 0,339 |
| Primary (yes =1) | 0.560 | 0.496 |
| Junior secondary school (yes =1) | 0.123 | 0.329 |
| Senior secondary school (yes =1) | 0.134 | 0.341 |
| University (yes =1) | 0.047 | 0.212 |
| Household size | 5.720 | 1.922 |
| Household head marital status (married = 1) | 0.897 | 0.304 |
| Household head age (years) | 45.896 | 10.532 |
| Household work (yes=1) | 0.922 | 0.268 |
| Household head sex (women =1) | 0.114 | 0.318 |
| The farm business (self-owned=1) | 0.354 | 0.478 |
| Household head has its own toilet (yes =1) | 0.589 | 0.492 |
| Per capita consumption expenditure (log) | 11.563 | 0.830 |
| Nearest public telephone/telephone office (km) | 5.212 | 12.488 |
| District capital center (km) | 21.093 | 28.193 |
| Nearest bank or other formal financial institution (km) | 4.963 | 9.835 |
| Community has asphalt road (yes=1) | 0.768 | 0.422 |
| Schools are used by the local population (yes=1) | 7.854 | 4.528 |

*Sources: IFLS2 and IFLS3*

** Categorical reference*

## RESULTS AND DISCUSSION

### Social Safety Net Scholarships Program to School Dropout Rates

Table 2 shows the results of Ordinary Least Square (OLS) and Fixed Effects to determine the influence of JPS scholarship to school dropout rates at basic education. Based on the results of the OLS estimates in column (1), that the average number of JPS scholarships received by boys and girls per 100 children negatively affects the school dropout rates, but not statistically significant. Meanwhile, through the fixed effects in column (2) shows that the average number of JPS scholarships received by boys and girls per 100 children negatively affects the school dropout rates at 0.0125 and statistically significant at 10 percent level. This indicates that the average number of boys and girls per 100 children who received JPS scholarships was able to reduce school dropout rates in basic education.

**TABLE 2 JPS SCHOLARSHIP TO SCHOOL DROPOUT RATES**

| Variables | Dependent variable : School Dropout Rates | |
|---|---|---|
| | OLS | Fixed Effects |
| | (1) | (2) |
| Boys and Girls received JPS scholarships | -0.0070 | -0.0125* |
| | [0.0055] | [0.0073] |
| **Child Characteristics** | | |
| Child age (years) | 0.0031*** | 0.0029*** |
| | [0.0005] | [0.0005] |
| **Household Characteristics** | | |
| Household head have a television (yes =1) | -0.0103*** | -0.0106*** |
| | [0.0039] | [0.0039] |
| Household head education | | |
| Primary (yes =1) | -0.0174*** | -0.0153** |
| | [0.0062] | [0.0068] |
| Junior secondary school (yes =1) | -0.0293*** | -0.0216*** |
| | [0.0066] | [0.0074] |
| Senior secondary school (yes =1) | -0.0273*** | -0.0205*** |
| | [0.0067] | [0.0072] |
| University (yes =1) | -0.0260*** | -0.0172** |
| | [0.0072] | [0.0079] |
| **Community Characteristics** | | |
| Nearest public telephone/telephone office (km) | 0.0000 | 0.0001 |
| | [0.0002] | [0.0003] |
| Schools are used by the local population | -0.0010*** | -0.0011** |
| | [0.0002] | [0.0005] |
| Constant | 0.0524* | 0.035 |
| | [0.0278] | [0.0312] |
| R-Squared | 0.0145 | 0.0074 |
| Observations | 10298 | 10298 |
| Year Dummy | Yes | Yes |
| Community Fixed Effects | No | Yes |

*Robust standard errors in brackets*
*Additional controls : Sex (girls=1), Household utilize electricity (yes =1), Household size, Household head marital status (married = 1), Household head age (years), Household head sex (women =1), The farm business (self-owned=1), Household head has its own toilet (yes =1), Per capita consumption expenditure (log), Distance to district capital Center (km), Nearest bank or other formal financial institution (km), Community has asphalt road (yes=1) are included but not reported.*
** p<0.1, ** p<0.05, *** p<0.01*

The JPS scholarship received by boys and girls per 100 children is proven to be effective in reducing the school dropout rates in basic education. Thus, the program can help students, especially those from poor families or are not able to prevent dropouts. In addition, the program can act as a coping strategy to consumption smoothing in reducing economic crisis without reducing investment in the education of children that can be detrimental to the human capital development of the child. These findings are consistent with previous studies that JPS scholarship is effective in reducing the school dropout rates in junior secondary school in Indonesia (Cameron, 2009). De Janvry, Finan and Sadoulet, (2006) showed that the Bolsa

Escola program in Brazil has a strong impact lowering the dropout rates of children at the age of 6-15 years by 7.8 percentage points.

Based on estimates that the effect of the average number of boys and girls who receive JPS scholarships against the school dropout rates is still felt inadequate. This is due to the ineffectiveness of these programs in targeting children who are most at risk of dropping out of school (Cano and Filmer, 2004). Hartono and Herman (2001) identified an error in targeting at-risk children drop out of school due to poor selection criteria carried out by the school committee. Many students who have dropped out of school are not eligible to receive a scholarship, many of whom come from poor households who need financial assistance. Cameron (2009) showed that the JPS scholarship was originally intended for households that included two finishes at the bottom BKKBN. However, in reality, this provision was not followed according to the rules because in some cases, such as the scholarship is awarded to students from households that are on top. SMERU (2003) identified that in selecting the recipients of scholarships and the targeting method has several drawbacks, among others, the school committee had difficulty in deciding the recipients of scholarships are worthy and qualified. This happened because the potential number of recipients is much greater than the number of scholarships allocated. There are rules that are violated, where the scholarships were distributed to ensure equal opportunity for among students who really deserve the scholarship require (Baines, 2005).

Based on the characteristics of children in column (2) that the school dropout rates positive effect on the child's age and statistically significant at 1 percent level. These findings indicate that the older child has possibility to drop out of school than younger. Furthermore, ownership of television has a negative effect on the dropout rate at 1 percent level. This indicates that the ownership of television can provide information on the whereabouts of the household JPS scholarship program, particularly regarding the benefits of the program to prevent dropout rates. Meanwhile, the education of household head had negative effect on school dropout rates and was statistically significant at 1 to 5 percent level. Thus, it can be concluded that the level of education of household head is vital to decreasing the school dropout rates in basic education. On the characteristics of the community that the number of primary and junior secondary school building facilities used by villagers negative effect on school dropout rates and statistically significant at the 5 percent level. These findings indicate that the greater availability of the infrastructure of school buildings, indirectly reduce school dropout rates in basic education.

**Social Safety Net Scholarships Program to School Dropout Rates Disaggregated by Gender**

In this section, we will discuss the effect of the average number of recipients of scholarships to the dropout rates disaggregated by gender composition between boys and girls. Table 3 shows the various results of the estimation by OLS and fixed effects. In column (1) and (2) show that the average number of girls who receive scholarships JPS per 100 children negatively affects the school dropout rates, but did not statistical significance. Meanwhile, in column (3) through the OLS estimates show that the average number of boys who received the JPS scholarship per 100 children negatively affects the school dropout rates and statistically significant at the 10 percent level. Lastly, in column (4) through fixed effects shows that the average number of boys who received the JPS scholarship per 100 children against the dropout rate is much greater than the OLS estimates and statistically significant at the level 5 percent. This indicates that the availability of JPS scholarships received by boys more effective than girls in reducing the school dropout rates, considering the boy has a probability involved in times of economic crisis (Priyambada, Sumarto and Suryahadi, 2005).

In times of economic crisis, households tend to involve boys, as did consumption smoothing in order to obtain additional income for the family. This happens because the rate of return and the wages earned boys tend to be higher than girls. Meanwhile, girls more work in agriculture and domestic workers (Sparrow, 2004). Therefore, with the scholarship program, it can reduce the use of child labor, especially boys 'in an attempt to offset or mitigate the economic crisis so that the dropout rate of boys can be reduced. Child's age in column (4) shows consistently positive effect on school dropout rates and statistically significant at the 1 percent level. The findings are consistent with studies in Indonesia (Cameron, 2009).

Based on estimates of the various characteristics of households that television ownership and education of household head showed signs consistent negative effect on school dropout rates. The same result in the characteristics of the community shows that the primary and junior secondary school building used by villagers consistent negative effect on school dropout rates

**TABLE 3**
**JPS SCHOLARSHIP TO SCHOOL DROPOUT RATES DISAGGREGATED BY GENDER**

| Variables | Dependent variable : School Dropout Rates | | | |
|---|---|---|---|---|
| | OLS | Fixed Effects | OLS | Fixed Effects |
| | (1) | (2) | (3) | (4) |
| Boys received JPS scholarships | | | -0.0167* | -0.0270** |
| | | | [0.0096] | [0.0127] |
| Girls received JPS scholarships | -0.0085 | -0.0191 | | |
| | [0.0122] | [0.0161] | | |
| **Child Characteristics** | | | | |
| Child age (years) | 0.0031*** | 0.0029*** | 0.0031*** | 0.0029*** |
| | [0.0005] | [0.0005] | [0.0005] | [0.0005] |
| **Household Characteristics** | | | | |
| Household head have a television (yes =1) | -0.0103*** | -0.0106*** | -0.0103*** | -0.0105*** |
| | [0.0039] | [0.0039] | [0.0039] | [0.0039] |
| Household head education | | | | |
| Primary (yes =1) | -0.0174*** | -0.0153** | -0.0174*** | -0.0154** |
| | [0.0062] | [0.0068] | [0.0062] | [0.0068] |
| Junior secondary school (yes =1) | -0.0291*** | -0.0216*** | -0.0293*** | -0.0217*** |
| | [0.0066] | [0.0074] | [0.0066] | [0.0074] |
| Senior secondary school (yes =1) | -0.0272*** | -0.0204*** | -0.0274*** | -0.0205*** |
| | [0.0066] | [0.0072] | [0.0067] | [0.0072] |
| University (yes =1) | -0.0259*** | -0.0172** | -0.0260*** | -0.0173** |
| | [0.0072] | [0.0079] | [0.0072] | [0.0079] |
| **Community Characteristics** | | | | |
| Nearest public telephone/telephone office (km) | 0.0000 | 0.0000 | 0.0000 | 0.0001 |
| | [0.0002] | [0.0003] | [0.0002] | [0.0003] |
| Schools are used by the local population | -0.0010*** | -0.0010** | -0.0010*** | -0.0011** |
| | [0.0002] | [0.0005] | [0.0002] | [0.0005] |
| Constant | 0.0516* | 0.0342 | 0.0528* | 0.0355 |
| | [0.0279] | [0.0311] | [0.0278] | [0.0312] |
| R-Squared | 0.0145 | 0.0073 | 0.0146 | 0.0075 |
| Observations | 10298 | 10298 | 10298 | 10298 |
| Year Dummy | Yes | Yes | Yes | Yes |
| Community Fixed Effects | No | Yes | No | Yes |

*Robust standard errors in brackets*
*Additional controls : Sex (girls=1), Household utilize electricity (yes =1), Household size, Household head marital status (married = 1), Household head age (years), Household head sex (women =1), The farm business (self-owned=1), Household head has its own toilet (yes =1), Per capita consumption expenditure (log), Distance to district capital Center (km), Nearest bank or other formal financial institution (km), Community has asphalt road (yes=1) are included but not reported.*
** p<0.1, ** p<0.05, *** p<0.01*

**Social Safety Net Scholarships Program to School Dropout Rates Disaggregated by Region**

Table 4 shows the various results of the average number of boys and girls who receive JPS scholarships against school dropout rates disaggregated by region of Java-Bali and outside Java-Bali. Selection of these sub-samples to determine the effect of JPS scholarships on school dropout rates based on the criteria of Java and Bali which are urban areas and less developed regions outside Java and Bali generally rural areas (Hartono and Ehrmann, 2001). Based on the results of the OLS estimates in column (1) with a sub-sample Java and Bali that the average number of boys and girls who receive JPS scholarships per 100 children was not statistically significant. Meanwhile, in column (2), the fixed effects shows that the average number of boys and girls who receive JPS scholarships per 100 children negatively affects the school dropout rates and statistically significant at the 10 percent level.

In column (2) shows that the average number of JPS scholarships received by boys and girls per 100 children negative influence at 0.0164 against the school dropout rates in Java and Bali as well as statistically significant at 10 percent level. Meanwhile, the sub-sample in regions outside Java and Bali in column (3) and (4) that the average number of boys and girls who receive JPS scholarships per 100 children showed no statistically significant, either through OLS and fixed effects. Thus, we can conclude that the average number of boys and girls who receive JPS scholarships per 100 children tend to be instrumental in reducing the school dropout rates, especially in Java and Bali.

The average number of boys and girls who receive JPS scholarships effectively in reducing school dropout rates in Java and Bali due to a change in targeting the program from rural to urban areas, especially at the level of junior secondary school (SMP). This happened because of the level of participation at this level continue to decline, while outside Java and Bali experienced an increase (Filmer, et al., 2001). Hartono and Ehrmann (2001) showed that the attendance level of junior secondary school in Java and Bali since the beginning of the economic crisis of the academic year 1998/1999 amounted to -2.19 percent, while outside Java and Bali reached 1.02 percent. In addition, the target program focuses on areas most severely affected by the crisis are in Java and Bali than outside Java and Bali dominated by the agricultural sector (Filmer, et al, 2001).

Meanwhile, the child age consistent positive effect on school dropout rates and statistically significant at the 1 percent level. The same results occurred in regions outside Java and Bali that the positive effect on the child's age to school dropout rates and are statistically significant at the 1 percent level. The estimation results of the various characteristics of households that own television ownership, both in Java and Bali and outside Java and Bali negative effect on the school dropout rates at 5 percent. The education of households head in Java and Bali showed negative effect on school dropout rates and significant at 5 percent.

The characteristics of the community in Java and Bali, the variable of distance to the nearest telephone facilities as well as the number of primary and junior secondary school building facilities used villagers negative effect on the school dropout rates and significant at the 5 and 10 percent. Meanwhile, the distance to the district or town in regions outside Java and Bali positive effect and statistically significant at the 10 percent level. Other variables that affect the school dropout rates outside Java and Bali is the distance to the bank or other formal financial institutions nearby are statistically significant at the 1 percent level.

**TABLE 4 JPS SCHOLARSHIP TO SCHOOL DROPOUT RATES DISAGGREGATED BY REGION**

| Variables | Dependent variable : School Dropout Rates | | | |
|---|---|---|---|---|
| | Java-Bali | | Outside Java-Bali | |
| | OLS | Fixed Effects | OLS | Fixed Effects |
| | (1) | (2) | (3) | (4) |
| Boys and Girls received JPS scholarships | -0.0053 | -0.0164* | -0.0105 | -0.0022 |
| | [0.0062] | [0.0091] | [0.0113] | [0.0087] |
| **Child Characteristics** | | | | |
| Child age (years) | 0.0028*** | 0.0028*** | 0.0037*** | 0.0034*** |
| | [0.0006] | [0.0006] | [0.0008] | [0.0009] |
| **Household Characteristics** | | | | |
| Household head have a television (yes =1) | -0.0101** | -0.0102** | -0.0112* | -0.0123** |
| | [0.0050] | [0.0052] | [0.0064] | [0.0057] |
| Household head education | | | | |
| Primary (yes =1) | -0.0213** | -0.0217** | -0.0114 | -0.0058 |
| | [0.0084] | [0.0092] | [0.0097] | [0.0094] |
| Junior secondary school (yes =1) | -0.0289*** | -0.0237** | -0.0276*** | -0.0168 |
| | [0.0091] | [0.0101] | [0.0098] | [0.0105] |
| Senior secondary school (yes =1) | -0.0299*** | -0.0240** | -0.0219** | -0.0142 |
| | [0.0088] | [0.0097] | [0.0105] | [0.0104] |
| University (yes =1) | -0.0280*** | -0.0227** | -0.0203* | -0.0056 |
| | [0.0095] | [0.0102] | [0.0118] | [0.0127] |
| **Community Characteristics** | | | | |
| Nearest public telephone/telephone office (km) | -0.0011** | -0.0022* | 0.0002 | 0.0002 |
| | [0.0005] | [0.0012] | [0.0002] | [0.0002] |
| Schools are used by the local population | -0.0009*** | -0.0012** | -0.0012 | 0.0003 |
| | [0.0003] | [0.0005] | [0.0008] | [0.0010] |
| Constant | 0.0214 | 0.0244 | 0.0977** | 0.0415 |
| | [0.0383] | [0.0453] | [0.0444] | [0.0498] |
| R-Squared | 0.0181 | 0.0104 | 0.0151 | 0.0089 |
| Observations | 6199 | 6199 | 4099 | 4099 |
| Year Dummy | Yes | Yes | Yes | Yes |
| Community Fixed Effects | No | Yes | No | Yes |

*Robust standard errors in brackets*

*Additional controls : Sex (girls=1), Household utilize electricity (yes =1), Household size, Household head marital status (married = 1), Household head age (years), Household head sex (women =1), The farm business (self-owned=1), Household head has its own toilet (yes =1), Per capita consumption expenditure (log), Distance to district capital Center (km), Nearest bank or other formal financial institution (km), Community has asphalt road (yes=1) are included but not reported.*

** p<0.1, ** p<0.05, *** p<0.01*

**Social Safety Net Scholarships Program to School Dropout Rates Disaggregated by Gender and Region**

Table 5 shows the various results of average number of students receiving JPS scholarships against the school dropout rates by gender composition and a sub-sample Java-Bali and outside Java and Bali. In column (1) and (2) with a sub-sample Java and Bali showed that the average number of girls who receive scholarships JPS negative effect on the school dropout rate, but did not show statistically significant. The same results in column (3) through the OLS estimates that the average number of boys who receive JPS scholarships no statistically significant. Furthermore, the fixed effects in column (4) shows that the average number of boys who receive JPS scholarships negative and statistically significant at 5 percent level. Lastly, the estimation with sub-sampling areas outside Java and Bali in column (5) to (8) shows that the average number of students receiving scholarships JPS, both boys and girls were not statistically significant. In column (4) shows that the average number of scholarships in Java and Bali received by boys per 100 children at 0.0327 against the negative influence school dropout rates and statistically significant at 5 percent level. These findings indicate that boys who receive JPS scholarships more effective than girls in reducing school dropout rates in basic education, especially in Java and Bali.

The average number boy who received JPS scholarship in Java and Bali have an important role in reducing the number of dropouts from outside Java and Bali. Thus, it will reduce the household who are trying to mitigate economic crisis with a variety of coping strategies, especially using child labor. Priyambada, Sumarto and Suryahadi (2005) showed that the average working hours of boys at the time of the economic crisis in 1998-1999 is 1 to 3 hours longer than girls in the hope that the received wages will be much greater. Although, the number of workers had more in rural areas, but the duration of the number of hours of work in urban is longer than rural areas (Bessell, 2009). The low duration of working hours in the countryside caused by the influence of potential seasonal effect on working hours of children who are generally a lot of work in the agricultural sector so that the number of hours children work relatively shorter than in urban areas. Therefore, the program of scholarships was possible for households to offset the impact of the economic crisis in Java and Bali without the use of child labor by adjusting the duration of the number of hours of work longer, so the time allotted in the school will be more. Other variables that affect and statistically significant on school dropout rates in basic education, both in Java and Bali and outside Java and Bali showed results consistent with previous estimates.

**TABLE 5 JPS SCHOLARSHIP TO SCHOOL DROPOUT RATES DISAGGREGATED BY GENDER AND REGION**

| Variables | Dependent variable : School Dropout Rates | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Java-Bali | | | | Outside Java-Bali | | | |
| | OLS | Fixed Effects | OLS | Fixed Effects | OLS | Fixed Effects | OLS | Fixed Effects |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Boys received JPS scholarships | | | -0.0131 | -0.0327** | | | -0.0250 | -0.0132 |
| | | | [0.0107] | [0.0159] | | | [0.0206] | [0.0157] |
| Girls received JPS scholarships | -0.0057 | -0.0283 | | | -0.0132 | 0.009 | | |
| | [0.0142] | [0.0200] | | | [0.0245] | [0.0198] | | |
| **Child Characteristics** | | | | | | | | |
| Child age (years) | 0.0028*** | 0.0028*** | 0.0028*** | 0.0028*** | 0.0037*** | 0.0034*** | 0.0037*** | 0.0034*** |
| | [0.0006] | [0.0006] | [0.0006] | [0.0006] | [0.0008] | [0.0009] | [0.0008] | [0.0009] |
| **Household Characteristics** | | | | | | | | |
| Household head have a television (yes =1) | -0.0101** | -0.0103** | -0.0101** | -0.0102** | -0.0113* | -0.0124** | -0.0111* | -0.0123** |
| | [0.0050] | [0.0052] | [0.0050] | [0.0052] | [0.0064] | [0.0057] | [0.0064] | [0.0057] |
| Household head education | | | | | | | | |
| Primary (yes =1) | -0.0213** | -0.0217** | -0.0213** | -0.0218** | -0.0113 | -0.0058 | -0.0115 | -0.0058 |
| | [0.0084] | [0.0092] | [0.0084] | [0.0092] | [0.0097] | [0.0094] | [0.0096] | [0.0094] |
| Junior secondary school (yes =1) | -0.0288*** | -0.0236** | -0.0290*** | -0.0237** | -0.0275*** | -0.0169 | -0.0278*** | -0.0168 |
| | [0.0091] | [0.0101] | [0.0091] | [0.0101] | [0.0098] | [0.0105] | [0.0098] | [0.0104] |
| Senior secondary school (yes =1) | -0.0299*** | -0.0240** | -0.0299*** | -0.0240** | -0.0218** | -0.0142 | -0.0221** | -0.0142 |
| | [0.0088] | [0.0097] | [0.0088] | [0.0097] | [0.0105] | [0.0104] | [0.0105] | [0.0104] |
| University (yes =1) | -0.0279*** | -0.0226** | -0.0281*** | -0.0228** | -0.0202* | -0.0057 | -0.0203* | -0.0056 |
| | [0.0095] | [0.0102] | [0.0095] | [0.0102] | [0.0118] | [0.0127] | [0.0118] | [0.0126] |
| **Community Characteristics** | | | | | | | | |
| Nearest public telephone/telephone office (km) | -0.0011** | -0.0022* | -0.0011** | -0.0022* | 0.0002 | 0.0002 | 0.0002 | 0.0003 |
| | [0.0005] | [0.0012] | [0.0005] | [0.0012] | [0.0002] | [0.0002] | [0.0002] | [0.0003] |
| Schools are used by the local population | -0.0009*** | -0.0012** | -0.0010*** | -0.0012** | -0.0012 | 0.0003 | -0.0011 | 0.0002 |
| | [0.0003] | [0.0005] | [0.0003] | [0.0005] | [0.0008] | [0.0010] | [0.0008] | [0.0010] |
| Constant | 0.0203 | 0.0234 | 0.0222 | 0.0252 | 0.0982** | 0.0409 | 0.0973** | 0.0419 |
| | [0.0384] | [0.0451] | [0.0382] | [0.0454] | [0.0444] | [0.0499] | [0.0444] | [0.0497] |
| R-Squared | 0.0180 | 0.0102 | 0.0181 | 0.0105 | 0.0149 | 0.0089 | 0.0152 | 0.0090 |
| Observations | 6199 | 6199 | 6199 | 6199 | 4099 | 4099 | 4099 | 4099 |
| Year Dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Community Fixed Effects | No | Yes | No | Yes | No | Yes | No | Yes |

*Robust standard errors in brackets*

*Additional controls : Sex (girls=1), Household utilize electricity (yes =1), Household size, Household head marital status (married = 1), Household head age (years), Household head sex (women =1), The farm business (self-owned=1), Household head has its own toilet (yes =1), Per capita consumption expenditure (log), Distance to district capital Center (km), Nearest bank or other formal financial institution (km), Community has asphalt road (yes=1) are included but not reported.*

** p<0.1, ** p<0.05, *** p<0.01*

## CONCLUSIONS

The results of this study indicate that the JPS scholarships received by the average number of boys and girls per 100 children have been shown to be effective as an instrument of policy to reduce dropout rates in basic education. Thus, the existence of these programs can help students, especially those from poor families or are not able to have a greater opportunity to stay in school. The JPS scholarships received by boys more effective to reduce school dropout rates than girls. The findings were the same in Java and Bali that the average number of boys who received JPS scholarship has shown a more significant share in reducing the total dropout compared to those who are outside the Java and Bali areas.

The government needs to fix the target criteria for scholarships recipients to be more accurate and on target with the latest data update. This is important because accurate targeting will determine the effectiveness of the program. Furthermore, it has poor selection criteria carried out by the committee schools, therefore, it needs to be fixed in order to avoid any irregularities

Limitations of this study only focused on the Social Safety Net scholarships program, but doesn't account for the social safety net programs in the form of grants allocated to schools to assist school operations. This is important because of the limitation of the study is quantitatively related to the school dropout rate in primary and secondary school. In addition, this study only discusses the influence of the Social Safety Net Program scholarship to the school dropout rates, but does not take into account the impact on the level of school transition. Therefore, further studies are expected to discuss the impact of the JPS scholarships on the level of school transition rate, especially primary school graduates who continue to pursue junior secondary school (SMP), which is a critical point in the basic education system.

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