

LIGHTEN THE BURDEN: ASSESSING THE IMPACT OF THE INDONESIAN FOR-POOR- STUDENTS CASH TRANSFER ON SPENDING BEHAVIORS

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ABSTRACT

The Indonesian Government launched a for-poor students cash transfer program (*Bantuan Siswa Miskin* or BSM) to aid poor students in attaining goods and services necessary to support schooling activities. Recipients are given a freedom on how to spend the BSM cash, and ideally they should spend the cash for the intended purpose. However, the government does not have any control on how households spend the cash transfer. We evaluate the effect of the BSM program on household education spending using the 4th and 5th wave of the Indonesian Family Life Survey. To deal with the issue of endogeneity and the unobserved heterogeneity, we use BSM eligibility criteria set by Ministry of Education and Culture as instrumental variables and first difference estimation strategy. We find that BSM has a significant effect on household spending pattern by increasing the share of education spending. This study provides evidence that poor households use cash transfers according to the intended purpose even though there is no formal incentive to do so.

INTRODUCTION

The Government of Indonesia implemented the *Bantuan Siswa Miskin* (henceforth BSM) program or the for-poor students cash transfers in 1998. One of the main objectives of the program is to reduce school dropout rate among poor students. The Government of Indonesia reformed the program in 2012—from quota-based scheme to school-based targeting—to improve the inclusion rate of poor students. Post reform, the Government of Indonesia invested quite significantly in the program. In 2013, the Government of Indonesia spent Rp 7.43 trillion or 2.15% of total educational spending to the program. It is also the third largest cash transfer program by the government, just behind rice-for-the-poor and health insurance programs (The World Bank, 2012). Despite the significance of the program, there is little evidence about the impact of the program on how households spending pattern. This contribute to the literature by investigating the impact of the program on household education spending in a developing country setting.

This is an important issue because one of the objectives of such program is to aid poor students in attaining goods and services necessary for schooling. Ideally, households would spend the cash transfer to purchase goods or services that support schooling activities of their children. However, the government does not have any control on how households spend the cash transfer. Moreover, there is no formal incentive for households to spend the cash transfer according to the intended purpose. The cash transfer would have any effect on students' outcomes if households spend the transfer for schooling purposes. Thus, it is important to evaluate the impact of the cash transfer program on household's education spending.

The main issue of estimating the impact of the program is the endogeneity of receiving the cash transfer. Indeed, the government of Indonesia set an eligibility criteria for potential beneficiaries. However, the inclusion and the exclusion errors of the program were quite high. It is estimated that in 2013, the inclusion error is about 50% while the exclusion error is above 90% (Yulianti, 2015). The characteristics of eligible students who received the cash transfer are potentially different than the characteristics of eligible students who did not receive the cash transfer. For example, parents of eligible students who received the cash transfer may care more about education than parents of eligible students who did not receive the cash transfer. Alternatively, high-ability students may be more motivated to obtain the cash transfer than low-ability students. Thus, a simple with-and-without comparison of outcomes may produce a biased estimate of the impact. Specifically, the estimate of the impact can be overestimated if

receipt of the cash transfer is positively correlated with unobservable characteristics such as motivation or ability.

We exploit the selection procedure of the program to identify the impact of the program on household education spending. The government targeted beneficiaries through a household-based or school-based targeting. Through the household-based targeting, households who received the Social Protection Card (*Kartu Perlindungan Sosial*, KPS) or the BSM-Beneficiary Candidates Card (*Kartu Calon Penerima BSM*) were eligible to receive the BSM. Through the school-based targeting, school administrators nominated students with that met specific eligibility criteria to Regional Education Offices. Students that met the eligibility criteria are those whose households receive the Family of Hope Program (*Program Keluarga Harapan*, PKH), who were orphans, with a disability status, or whose head of households were poor and were laid-off. Regional Education Offices enlisted the nominated students as beneficiaries if quotas for BSM in corresponding regions were still available. As stated in the BSM implementation guide:

“Schools may recommend students who did not obtain KPS or BSM-Beneficiary Candidate Card through school’s teacher council and school committee given that there is a quota left in the region (district), and the students must meet the following eligibility criteria: 1. The student’s parents are enrolled in PKH, 2. The student may drop out owing to financial difficulty, 3. The student is an orphan, 4. The student is a victim of natural disaster, physically disabled, or the student comes from a very poor household whose head were laid off from the job.”(Ministry of Education and Culture, 2013, page 15).

We exploit this feature of the program to identify the impact of the program. The key is that, once nominated by the school, students received or did not receive the BSM in an unknown way. The award depended on whether there was still a quota in the region. Students and households had little knowledge on whether or not there were still quota in the region when schools nominated students to Regional Education Offices.

Beneficiaries received an annual cash transfer of Rp450,000 (US\$43.16) if they were elementary school students, Rp750,000 (US\$71.69) if junior high school students, and Rp1,000,000 (US\$95.59) if senior high school students.³ The amount of the cash transfer was

³ The average exchange rate for USD and IDR in 2013 was 10,641.26

quite substantial. For example, the transfer for junior high school students was about 21% of annual per-capita income of eligible BSM households. The government envisages that the cash transfers are used for education spending such as purchases of books, school stationaries, uniforms, and to finance transportation costs. Students and households were entitled to decide on how they spend the cash transfers.

We utilize microdata published in the 4th and 5th wave of the Indonesian Family Life Survey to estimate the impact of the program. The Indonesian Family Life Survey is a longitudinal survey that provides comprehensive household- and individual-level data including but not limited to health, education, labor supply decision, labor market earnings, migration, fertility, and spending. The main outcomes of interest is the share of education spending. The dataset allows us to obtain important covariates such as individual characteristics and household characteristics. More importantly, the data include the 5 eligibility criteria for the school-based targeting, the receipt of BSM, and the receipt of KPS.

We find that the 5 eligibility criteria, particularly receipt of PKH and whether a household is a victim of natural disaster, predict receipt of BSM even after controlling for the receipt of KPS. The main result of this study shows that BSM has a significant on educational spending. Households who received BSM spent a higher share of their spending on education by 11%. Specifically, the receipt of BSM significantly affect spending for school tuition, transportation and stipend, as well as room and boarding. Students in the households need to be enrolled in their schools to fulfill the condition of the BSM cash transfer. Higher spending in these categories is sensible because they reflect the operational costs of attending school. On the other hand, we find no BSM effect on household spending for protein and clothing. Overall, the results suggest that households used the BSM fund to support children's educational activities, which is in line with what the government envisaged.

Our study contributes to the literature about the effects of a cash transfer program on household education spending. The first line of studies investigates the effects of an unconditional cash transfer (UCT) program. Using a matching method, a study in China finds that recipients of *Dibao* spend more on health and education than non-recipients. Households spending on health and spending is positively correlated with the amount of cash transfer received (Gao, Zhai, Yang, & Li, 2014). In Vietnam, a study finds a positive effect of an UCT program on households' education spending, particularly on school registration fees. The study finds that the effect is higher among poor students (Long & Cuong, 2017). In Malawi, a study finds a

positive effect of the cash transfer on education spending, which leads to a higher enrollment rate (Kilburn, Handa, Angeles, Mvula, & Tsoka, 2017).

The second line of studies investigate the effects of a conditional cash transfer (CCT) program. A study in Nicaragua finds that the *Red de Proteccion Social* significantly improves education spending among households in which female are more educated than their spouses (Gitter & Barham, 2008). A systematic review of studies conducted in Brazil also finds a significant effect of the Bolsa Familia program on education spending (Soares, Ribas, & Osorio, 2010). On the other hand, a study of the Mexican Progresa program finds no effect on education spending. Households use the cash to compensate their previous spending for sending their children to school (Handa, Peterman, Davis, & Stampini, 2009).

This study also contributes to the literature that investigate the effects of CCT on household spending. A study about a food stamp program in 1971 to 1975 showed that food stamp beneficiaries spent 6% more for food than non-beneficiaries (Knaub, 1981). This finding is further supported by a study that finds a decrease in cash from food stamp was associated with a decrease in food consumption (Breunig & Dasgupta, 2005). In a study of the *Progresa* program in Mexico, households in the treatment group consumed 6,4% higher calories than control group (Hoddinott & Skoufias, 2004). A study about *Oportunidades* in Mexico finds that beneficiaries of the program invested their money in productive assets, which in the long term increased household consumption (Gertler, Martinez, & Rubio-codina, 2012). Nicaraguan *Atencion a Crisis* also induced households to spend more on human capital spending such as high nutrition food, early childhood development, and healthcare (Macours, Schady, & Vakis, 2012). In Indonesia, a study shows that households who received PKH or *Generasi* programs spent more on high-protein food. Using a difference-in-differences approach, the study show that PKH increased milk and fish consumption by 19%, while *Generasi* increased milk and fish consumption by 14% (Kusuma, McConnell, Berman, & Cohen, 2017).

We also contribute to a growing literature on the effects of BSM on various outcomes. Supraswoto (2014) conducted a survey on students who received BSM and on those who did not receive BSM. He compares the outcomes of the two groups of students and finds that school dropout and grade retention rates decreased while students' motivation for studying increased (Suprasatowo, 2014). In a similar fashion, Yulianti (2015) utilizes the 2013 National Socioeconomic Survey to estimate the differences in outcomes of students who received the cash transfer to those of students who did not receive the cash transfer (Yulianti, 2015). She finds that the dropout rate among students who received the cash transfer is significantly lower

than the dropout rate among those who did not receive the cash transfer. These studies do not yield reliable estimates on the effects of the BSM program as these studies employ a simple difference.

The remainder of the paper is organized as follows. Section 2 discusses the design of the BSM program and its incentives. Section 3 presents the econometric approach. Section 4 presents the main results of the effect of the program on student's dropout rate and household spending. Section 5 concludes the discussion.

THE DESIGN OF THE BSM PROGRAM

The Government of Indonesia introduced the for-poor students cash transfer program in 1998. The cash transfer was part of the Social Safety Net program (*Jaringan Pengaman Sosial, JPS*), which was an effort to mitigate the negative effects of the economic crisis on poor households. The government initially disbursed the transfer to 1.8 million elementary school students, 1.65 million junior high school students, and 500,000 high school students. The program was expanded in 2001 as part of the fuel subsidy reduction compensation program (*Program Kompensasi Pengurangan Subsidi BBM*). The Government of Indonesia ends the Social Safety Net program in 2003, but the government maintained the cash transfer program under the *Bantuan Siswa Miskin* (BSM) program (Ministry of Education and Culture, 2013).

The main objectives of the BSM program are to relax constraints that poor students face in obtaining access to education, reduce dropout rates and improve re-enrollment among poor students, assist poor students in obtaining basic education necessities, and improve graduation rates. The disbursement of the BSM program is coordinated by the Ministry of Education and Culture and the Ministry of Religious Affairs. The Ministry of Education and Culture coordinates disbursement of funds to elementary to senior high school students, while the Ministry of Religious Affairs coordinate disbursement of funds to students in Islamic elementary to high school schools.

The targeting of BSM beneficiaries was a combination of household-based and school-based targeting. Using the former mechanism, households with Social Protection Cards (KPS) or BSM-beneficiary candidate cards (KCP BSM) were eligible to apply for BSM. The Government of Indonesia launched the Social Protection Acceleration and Expansion Program (P4S) in June 2013. The program expanded the existing social protection program and about 15.5 million households received KPS. These households are entitled to receive all social

protection program under government budget, including BSM. To determine BSM-beneficiary candidates, the government used TNP2K's integrated database (BDT) and Ministry of Education and Culture's education database (*Dapodik*). The government sent letters to eligible candidates that included KCP BSM. Students whose households received KPS or KCP BSM applied to schools before July 31st of 2013.

Under the school-based targeting mechanism, schools were able to target students who met eligibility criteria. The eligibility criteria include whether students were orphans, students' head of households were laid off, students' households were beneficiaries of the PKH program, or students' households were victims of natural disaster. Schools nominated students with BSM-beneficiary candidates and those who met the eligibility criteria to the Regional Education Office. Students would eventually be awarded BSM if there were quota left in their cities (*kota*) or districts (*kabupaten*).

Schools submitted nominated students to Regional Education Offices, who then submitted the lists to the corresponding Ministry. The Ministry of Education and Culture and the Ministry of Religious Affairs then issued a decree in mid-September 2013 with the final list of beneficiaries. The decree was the basis for the disbursement of BSM to each student.

There are several conditions to maintain entitlement of the BSM. First, students must stay enrolled in school. Second, students' households are still categorized as poor households. Third, students must not conduct a criminal activity that would make them a defendant. Students who violated one of these conditions will have their BSM entitlement revoked.

DATA

THE INDONESIAN FAMILY LIFE SURVEY

The Indonesian Family Life Survey is a longitudinal survey in Indonesia which allows us to study various outcomes. We combine the 2007 IFLS 4 (John Strauss, Witoelar, Sikoki, & Wattie, 2009) and the 2014 IFLS 5 (J. Strauss, Witoelar, & Sikoki, 2016) to obtain a panel dataset of households. The IFLS 4 was fielded in late 2007 and early 2008, while the IFLS 5 was fielded in late 2014 and early 2015. We use the IFLS 5 because it provides information on whether or not a household received the BSM program and on the criteria for receiving the BSM program. Moreover, IFLS 4 and IFLS 5 provide detailed information about households spending profiles.

We summarize the variables that we obtain from IFLS in Table B1 in Appendix B. The main outcome of interest is households' education spending. We also collect data on specific education spending such as spending for uniform and school supplies, school tuition, transportation and stipend, and boarding. We then calculate the share of education spending using total household spending. In addition, we collect data on food and non-food spending to calculate the share of food and non-food spending.

More importantly, we collect data on whether students in the household received BSM. We also collect information on whether the household owned KPS, was a victim of a natural disaster, received PKH, is a single-headed household, and whether the student in the household was an orphan, had physical disability, and might drop out from school owing to financial difficulty. Lastly, we collect households' characteristics such as household head's gender, household head's education level, number of family member, number of working family member, number of children in school, per-capita income, and urban-rural status.

We create a sample selection criteria to obtain a balanced panel data of households, and we summarize the selection criteria in Table B2 in Appendix B. First, we restrict the households whose information about receiving BSM, the criteria for receiving BSM are not missing, and spending are not missing. Second, we restrict the households whose information about number of family members, number of school-age children, per-capita income, and head of household's educational attainment are not missing. Finally, we impute zeros for missing log per-capita income and we create a dummy for zero log of per-capita income.

The dataset used for the estimation of the impact of the BSM program includes 9,349 households or 57.69% of total households in IFLS 5.

SUMMARY STATISTICS

In this section, we report descriptive statistics regarding households in the data. In Table 1, we report the eligibility and BSM-recipient status of households in the data. We define households as eligible if they received KPS, beneficiaries of the PKH, were victims of natural disasters, or were categorized as poor households and their head of households were laid off, one or both parents died, or the students had a disability status.

In Table 1, we show that only 25% of total eligible households that received BSM. Eligible households did not receive BSM due to a couple of reasons. First, eligible households did not apply to schools so that school administrators were not aware of their eligibility status. Thus, school administrators did not nominate these households to Regional Education Offices.

Second, school administrators did not nominate these households to Regional Education Offices for various reasons. On the other hand, there were 9% of ineligible households who received BSM. One possibility is that students from these households received KCP BSM, which allowed them to apply for BSM. Unfortunately, we cannot observe whether students in the households received KCP BSM or not.

We further breakdown the eligibility status in Table 2. In Column I and V of Table 2, we show that 42% of households who only owned KPS and 51% of households who owned KPS and fulfilled one of the five criteria received BSM. On the other hand, in Column III of Table 2, we show that only 14% of households who did not have KPS and fulfilled one of the six criteria received BSM. The contrast in the shares of beneficiaries between these two groups support the fact that eligibility from the fulfillment of one of the five criteria did not guarantee households would receive BSM. Awards to these households depend on whether or not there were quotas left in the region.

In Figure 1, we compare the predicted probabilities of receiving BSM among households who owned KPS and those who did not own KPS. The figure confirms that households who owned KPS were more likely to obtain BSM than households that did not own KPS. The average probability of receiving BSM among households who owned KPS were 46%, while the one among households who did not own KPS was just 10%.

We find a similar finding when we compare the probabilities of receiving BSM among households who only owned KPS and those who fulfilled one of the six BSM criteria. On average, the probability of receiving BSM among households who only owned KPS were 40%, while the one among households that fulfilled one of the six criteria was 13%.

We summarize simple averages of the main variables in Table 3. We group households into 4 separate groups: eligible beneficiaries, eligible non-beneficiaries, ineligible beneficiaries, and ineligible non-beneficiaries. We find that eligible beneficiaries are indeed poorer than eligible non-beneficiaries and ineligible households. The per-capita incomes of eligible beneficiaries were Rp3.579 millions. On the other hand, the per-capita incomes of eligible non-beneficiaries were Rp6.574 millions, while the per-capita incomes non-eligible non-beneficiaries were Rp9.550 millions. The amount of cash transfer was quite substantial. For example, the transfer for junior high school students is about 21% of average per-capita income of eligible beneficiaries.

Row D of Table 3 shows information about households' eligibility indicators. About 64% of eligible BSM beneficiaries were KPS owners. However, there were still a significant 25% of eligible households who did not obtain BSM. We also find that most of the eligible households were victims of natural disasters. The share of students who were orphans, whose head of households were laid off, and who had physical disability were negligible.

Row A of Table 3 shows shares of education spending for each group. We find that both eligible and ineligible beneficiaries spent a higher share of education than their non-beneficiary counterparts. On average, eligible beneficiaries spent 15% of total spending on education, while eligible non-beneficiaries spent 9.3% of total spending on education. What's important is the difference in the change of the share of education spending between 2007 and 2014. The average change in the share of education spending among eligible beneficiaries were 7.9%, while the one among eligible non-beneficiaries were 2.6%. This descriptive finding motivates our estimation of the effect of the BSM program on household education spending.

EMPIRICAL STRATEGY

In this section, we develop an empirical strategy to exploit the variation in the selection of BSM recipients. We aim to estimate the effect of the BSM program on households' education spending using the following unobserved effects model:

$$share_{it} = \alpha + \beta_1 BSM_{it} + \beta_2 KPS_{it} + \mathbf{z}_{it}\boldsymbol{\delta} + c_i + u_{it}, \quad (1)$$

where i indicates a household and t indicates time index. The term c indicates time-invariant unobserved characteristics of households. The vector z includes gender of the head of household, dummy variables for head of household's educational attainment (the omitted category is no education), number of family members, number of family members in school, number of working family member, log per-capita income, a dummy for urban status, province fixed-effects, and year-by-province fixed effects. We are interested in estimating β_1 , which is the effect of BSM on household's education spending.

An OLS regression of Equation 1 may yield a biased estimate of β_1 if c is correlated with receipt of BSM. The solution to eliminate household-specific unobserved effect for two-period data panel is first differencing:

$$\Delta share_i = \beta_1 \Delta BSM_i + \beta_2 \Delta KPS_i + \Delta \mathbf{z}_i \boldsymbol{\delta} + \Delta u_i. \quad (2)$$

The estimate of β_1 is not biased if receipt of BSM (ΔBSM) is not correlated with unobservables u (Δu). However, more motivated or more education-minded eligible households may be more motivated to apply their children to schools. Thus, receipt of BSM is endogenous and the estimate of β_1 is potentially biased.

To identify β_1 , we exploit the BSM selection process such that schools were allowed to nominate students who fulfilled one of the five criteria. The Regional Education Offices enlisted these nominated students if there were quotas left in the region. Thus, we use the first difference instrumental variable (FDIV) model, and we use the five criteria as instruments for receipt of BSM (Levitt, 1996; Wooldridge, 2010: 362). The first-stage regression is:

$$\begin{aligned} \Delta BSM_i = & \theta_1 PKH_i + \theta_2 DISASTER_i + \theta_3 LAIDOFF_i + \theta_4 ORPHAN_i \\ & + \theta_5 DISABILITY_i + \rho \Delta KPS_i + \Delta \mathbf{z}_i \boldsymbol{\gamma} + \Delta u_i, \end{aligned} \quad (3)$$

where a dummy for a receipt of PKH (PKH), a dummy if a household was a victim of a natural disaster ($DISASTER$), a dummy if head of household were laid-off ($LAIDOFF$), a dummy if the student in the household was an orphan ($ORPHAN$), a dummy if the student in the household had a disability ($DISABILITY$) are exogenous variables excluded from the structural equation. Note that we omit financial difficulty criterion because we only observe a negligible number of households.

Students who fulfilled at least one of the five criteria were nominated by the school and only received BSM if there were quota left in the region. Thus, these variables induced receipt of BSM in an unknown way. Note that the instruments are the 5 criteria observed in 2014, but not the 5 criteria in 2007. The main reason is that the school-based targeting was conducted starting in 2013.

We then use the predicted receipt of BSM from the first-stage regression, $\widehat{\Delta BSM}$, into the second-stage regression:

$$\Delta share_i = \beta_1 \widehat{\Delta BSM}_i + \beta_2 \Delta KPS_i + \Delta \mathbf{z}_i \boldsymbol{\delta} + \Delta u_i, \quad (4)$$

to estimate β_1 . The estimate of β_1 is interpreted as the effect of receiving BSM among a subset of households who were induced to take BSM due to the exogenous variation in the selection procedure.

We now discuss the assumptions to for the IV estimation (Angrist, Imbens, & Rubin, 1996). The first is the assumption of independence, which says that the instruments are as good as randomly assigned. There is no direct test for independence. However, we can conduct balance

tests on households' characteristics observed in 2007. First, we group households into those who owned KPS and those who didn't own KPS in 2014. The reason for this grouping is that KPS households are more likely to be similar in characteristics. Second, we group households who were eligible by the 5 criteria and households who were not eligible by the 5 criteria.

We present a summary statistics of the comparisons in Table A1 in Appendix 1. In Column I and II of Table A1, KPS households who were eligible and those who were not eligible are quite similar in characteristics. There are few noticeable difference. For example, eligible households spent a higher share for transportation and pocket money, had more children in school, and have more university educated heads of households. This finding is sensible because households were chosen to receive KPS based on observable characteristics.

On the other hand, In Column III and IV of Table A1, non-KPS households who were eligible and those who were not eligible are quite different. In general, non-KPS households who were eligible earned lower per-capita income, spent lower share of their expenditure for education, had more schooling-age children, and were more likely to live in rural areas.

Given this finding, we test whether the values of the instruments in 2007 predicted eligibility for BSM in 2014 controlling for households' characteristics. Specifically, we regress eligibility for BSM in 2014 on ownership of KPS in 2014, the values of the instruments in 2007, and households' characteristics using a linear probability model. We control for KPS ownership since KPS and non-KPS households are quite different in characteristics. We expect that the instruments in 2007 are not strong predictors of eligibility in 2014, while the instruments in 2014 are strong predictors of eligibility in 2014.

We present the results in Table A2 of Appendix A. We find that the instruments in 2007, except for ownership of PKH and whether head of households were laid off, do not predict eligibility of BSM in 2014. One explanation for this finding is that households who received PKH were very poor and that they stayed poor. Furthermore, it might be quite easy for schools to identify students from these households, and listed them as eligible for BSM. In contrast, the instruments in 2014 predicted eligibility of BSM in 2014. This is also suggestive evidence that the first-stage assumption for the IV is fulfilled. We present the formal tests for the first-stage assumption in the next section, and we show that the first-stage assumption is fulfilled.

The next assumption for the IV estimation is monotonicity. We note that there is no formal test for monotonicity. However, we can test whether the instruments move eligibility in the same way across different subgroups. The subgroup for the analysis is head of households' highest

educational attainment. We present the results of the subgroup analysis in Table A3 of Appendix A. We find that the signs of the estimated coefficients for the instruments are consistent across subgroups.

The last assumption for the IV estimation is the exclusion restriction. This assumption requires the instruments affect household education spending only through receipt of BSM. There is no formal way to test exclusion restriction, but we argue that the BSM mechanism is the key for the fulfillment of this assumption. Households without KPS obtain BSM if they were eligible by the 5 criteria and that there were quota left in the district. Households cannot control whether there were quota left in the region, and if there were any, households couldn't influence schools to prioritize them. To investigate this mechanism, we check the first-stage estimates for households who received KPS and households who did not receive KPS. We present the results of the first-stage estimations in Table A4. We find that the 5 instruments significantly predict receipt of BSM among non-KPS households. However, we find that all instruments, except ownership of PKH, did not predict receipt of BSM among KPS households. Ownership of PKH predicts receipt of BSM among KPS and non-KPS households because households who owned PKH are quite poor. Thus, students from these households would be the first to be identified as eligible for BSM.

A possible threat to identification would be a scenario in which schools nominated students who met the eligibility criteria based on order of applications, and more motivated households applied early. However, the Ministry of Education and Culture set an implementation guideline that instructed schools to nominate students based on their priority. Specifically, each school was instructed to create a shortlist of students by grade and gender (Ministry of Education and Culture, 2013). Schools then nominated these students to Regional Education Offices.

RESULTS: BSM AND HOUSEHOLD EDUCATION SPENDING

We discuss the main empirical results of this study in this section. We consider estimation of the first difference (FD henceforth) model using OLS and IV. We also use different model specifications for the IV estimations. Table 4 summarizes estimates on the effects of receiving BSM on household education spending.

In Column I of Table 4, a simple regression using OLS suggests that the effects of BSM on households' share of educational spending is 5.3%. Note that this estimate is problematic because receiving BSM is endogenous to observed and unobserved characteristics that may

affect household education spending. We compare the OLS estimate to IV estimates to investigate whether endogeneity is an issue.

We show the IV estimates in Column II, III, and IV of Table 4. We find that PKH beneficiary, and victims of natural disasters are significant correlated with receipt of BSM. The first-stage *F*-tests also suggest that the instruments are not weak instruments. These results also confirm that the first-stage assumption is fulfilled.

We find that the OLS and IV estimates are quite different. In Column II of Table 4, the IV estimate is 15.9%, which is higher than the OLS estimate. Note that this is an estimate for households who received BSM due to the eligibility criteria, but did not have KPS. This result suggests that BSM has a strong effect on households' educational spending. The negative estimated correlation between KPS and household educational spending also justifies this. Households who had KPS but did not obtain BSM spent a lower share of their spending for education.

We acknowledge that the receipt of BSM can also be correlated with individual's or household's characteristics. These characteristics include gender of the head of households, dummies for head of households' educational attainment, number of family member, number of working family number, number of schooling-age children, log of per-capita income, province fixed effects, and a dummy for urban residency. We provide an IV estimate of the BSM effect controlling for these characteristics, and we show the estimate in Column III and IV of Table 4. The results show that the IV estimate of the BSM effect is about 11.4% and it is statistically significant.

We also conduct sub-group analysis to estimate the effects of BSM on different sub-population. Specifically, we estimate the effects of BSM by income quartile, and we show the results in Table 5. First, we sort households in the sample by per-capita income. We then group households into quartiles, based on their per-capita income. We use the IV model shown in equation 3 and 4 to estimate the effects of BSM in each income quartile. We find that the effects of BSM on share of educational spending are significant in both quartiles. The estimated effect among households in the lowest quartile is 10%, while the estimated effect among households in the second quartile is 15.2%. Note that the BSM effect is marginally significant among households in the 3rd quartile and is insignificant among households in the 4th quartile. Among these households, those who received the BSM are those who owned PKH. We argue that households with higher income, whose heads are more educated, already invested more in

education. Thus, receipt of BSM did not induce a higher share of educational spending among these households.

We observe students' test scores in the IFLS although there were many missing observations. We test whether the estimated BSM effect is sensitive to the addition of students' test scores. Households with performing students may invest more on education. Thus, omitting students' test scores may overestimate the BSM effect. We estimate a model that includes students' test scores, and we show the results in Table 6.

Indeed, we find a lower estimated BSM effect once we control for students' test scores. This is suggestive evidence that households with performing children may invest more in education. However, the effect is no longer significant. The main explanation for this result is that there are many missing students' test scores. Our regression only includes 2,672 households or less than a third of the sample used in the initial estimation. Consequently, the estimated standard errors are larger in the estimates with students' test scores.

The IFLS dataset provides a detailed education spending report for each household. Specifically, the IFLS report household spending on school uniform, school tuition, transportation and stipend, and room and boarding. We test how the receipt of BSM affects these spending categories, and we show the results on Table 7. We find that the receipt of BSM significantly affect spending for school tuition, transportation and stipend, and room and boarding. The spending category that increased the most due to the receipt of BSM is transportation and stipend.

Recall that the main condition of maintaining the BSM cash transfer is a student's enrollment in school. The result shows that households use the BSM fund to finance costs of attending schools and maintain students' enrollment in schools. On the other hand, there is no effect of BSM on households spending on school uniform and school supplies. A possible explanation is that students already have uniform, or that they do not need to spend additional money on school supplies to maintain their enrollment.

We test whether the receipt of BSM has any effect on other spending category such as protein and clothing. In Column V and VI of Table 7, we show that the receipt of BSM has no significant effect on protein and clothing. These results support the previous finding that households used the BSM fund for school-related spending. Overall, these results show that households used the BSM fund in a manner that is consistent with what the government envisaged.

CONCLUSION

We find that the conditional cash transfer for education has a significant effect on household education spending. Moreover, we find that households spent the additional cash for educational purposes such as tuition, transportation to schools, stipend, and boarding. We find no evidence that the additional cash transfer was used for other purposes such as spending for protein or clothing. Our findings suggest that the cash transfer relaxed households' budget constraint, and that households used the additional cash for educational purposes. Furthermore, households who were facing larger constraints obtained higher benefit from BSM. This may indicate that these households value educational investment, and the cash transfer relaxed their constraints.

Our findings provide important implications for social welfare policy in Indonesia and research. First, poor households indeed face constraints and transfers allow these households to invest in human capital. These investments may improve their welfare in the longer run and provide an opportunity for upward social mobility. Second, households use the transfers for the intended purposes despite relax conditionalities on the use of the cash transfer. This indicates that households value educational investment.

A follow-up qualitative study can investigate why households use transfers for the intended purposes, although there is no specific monitoring on how households spend the transfers. This potentially reduces costs that government has to bear for monitoring. Lastly, it is important for a future study to investigate whether the transfer improved educational outcomes such as national exam scores, graduation, and completion of the high school.

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TABLES AND FIGURES

Table 1. Eligibility status and BSM-recipient status of households

Eligible households			Ineligible households		
I: Beneficiaries	II: Non-beneficiaries	Total	III: Beneficiaries	IV: Non-beneficiaries	Total
762	2,317	3,079	554	5,713	6,267
24.74%	75.25%	100%	8.83%	91.16%	100%

Source: authors' calculations using IFLS 5.

Table 2. Eligibility status and BSM-recipient status of households

Eligibility with KPS only			Eligibility with one of the five criteria		
I: Beneficiaries	II: Non-beneficiaries	Total	III: Beneficiaries	IV: Non-beneficiaries	Total
270	368	638	275	1,688	1,963
42.32%	57.68%	100%	14.00%	86.00%	100%
Eligibility with KPS & one of the five criteria					
V: Beneficiaries	VI: Non-beneficiaries	Total			
202	194	396			
51.01%	48.98%	100%			

Source: authors' calculations using IFLS 5.

Table 3. Summary statistics

Variable	Eligible (by KPS + 5 criteria)				II: Ineligible (by KPS + 5 criteria)			
	I: Beneficiary		II: Non-Beneficiary		III: Beneficiary		IV: Non-Beneficiary	
	2014	Δ	2014	Δ	2014	Δ	2014	Δ
Education expenditure per total expenditure	0.152 (0.116)	0.079 (0.130)	0.095 (0.117)	0.028 (0.143)	0.145 (0.121)	0.068 (0.138)	0.092 (0.116)	0.015 (0.155)
Uniform and school supplies	0.021 (0.022)	0.007 (0.027)	0.012 (0.024)	0.0006 (0.035)	0.02 (0.028)	0.006 (0.035)	0.01 (0.017)	-0.001 (0.032)
School fees	0.03 (0.052)	0.016 (0.064)	0.026 (0.056)	0.009 (0.071)	0.034 (0.059)	0.016 (0.076)	0.027 (0.058)	0.004 (0.078)
Transportation and Pocket Money	0.097 (0.085)	0.053 (0.094)	0.053 (0.070)	0.017 (0.083)	0.088 (0.086)	0.042 (0.099)	0.051 (0.071)	0.012 (0.092)
Room rent	0.003 (0.022)	0.002 (0.023)	0.004 (0.023)	0.001 (0.034)	0.003 (0.021)	0.003 (0.022)	0.003 (0.020)	0.0007 (0.030)
Food expenditure per total expenditure	0.482 (0.159)	-0.107 (0.210)	0.488 (0.190)	-0.047 (0.232)	0.478 (0.168)	-0.081 (0.222)	0.462 (0.197)	-0.053 (0.241)
Protein expenditure	0.086 (0.061)	-0.016 (0.085)	0.098 (0.078)	-0.001 (0.099)	0.098 (0.064)	-0.013 (0.090)	0.098 (0.076)	-0.008 (0.104)
Non-protein expenditure	0.397 (0.146)	-0.091 (0.197)	0.39 (0.174)	-0.045 (0.209)	0.38 (0.149)	-0.068 (0.194)	0.363 (0.177)	-0.045 (0.213)
Non-Food expenditure per total expenditure	0.366 (0.152)	0.028 (0.211)	0.417 (0.184)	0.019 (0.237)	0.376 (0.164)	0.013 (0.224)	0.446 (0.192)	0.037 (0.245)
Clothing expenditure	0.031 (0.027)	-0.0004 (0.045)	0.027 (0.025)	-0.002 (0.044)	0.033 (0.028)	0.001 (0.036)	0.029 (0.033)	0.0004 (0.044)
Medical expenditure	0.016 (0.038)	-0.0004 (0.051)	0.03 (0.076)	0.004 (0.095)	0.013 (0.036)	-0.006 (0.060)	0.02 (0.050)	-0.002 (0.076)

Other expenditure	0.319	0.029	0.36	0.017	0.33	0.018	0.397	0.039
	(0.150)	(0.205)	(0.179)	(0.232)	(0.163)	(0.220)	(0.191)	(0.242)
Head of households' sex (1 if male, 0 otherwise)	0.846	-0.043	0.82	-0.044	0.854	-0.043	0.846	-0.002
	(0.361)	(0.347)	(0.384)	(0.400)	(0.353)	(0.353)	(0.360)	(0.343)
Head of household education level:								
Unschooling	0.258	-0.013	0.23	-0.012	0.204	-0.036	0.167	-0.013
	(0.438)	(0.359)	(0.421)	(0.373)	(0.403)	(0.354)	(0.373)	(0.312)
Elementary school	0.379	-0.01	0.301	-0.025	0.33	0.031	0.235	-0.019
	(0.486)	(0.461)	(0.459)	(0.451)	(0.470)	(0.447)	(0.424)	(0.390)
Junior high school	0.19	-0.001	0.148	0.002	0.184	0.005	0.143	-0.002
	(0.393)	(0.357)	(0.355)	(0.368)	(0.387)	(0.348)	(0.350)	(0.337)
Senior high school	0.151	0.013	0.239	0.031	0.24	0.002	0.291	0.016
	(0.358)	(0.275)	(0.426)	(0.347)	(0.428)	(0.315)	(0.454)	(0.343)
University	0.021	0.012	0.083	0.004	0.042	-0.002	0.164	0.019
	(0.143)	(0.149)	(0.276)	(0.228)	(0.200)	(0.185)	(0.371)	(0.254)
Number of family member	7.084	0.917	6.472	0.91	6.507	0.805	6.16	0.881
	(3.211)	(1.172)	(3.051)	(1.163)	(2.842)	(1.019)	(3.008)	(1.116)
Number of schooling children	1.728	0.617	0.9	0.124	1.574	0.451	0.831	0.083
	(0.953)	(1.197)	(0.938)	(1.082)	(0.889)	(1.122)	(0.893)	(1.070)
Per-capita income (in million IDR)	3.611	1.785	6.636	3.496	5.03	2.974	9.564	5.065
	(3.916)	(4.643)	(13.300)	(13.200)	(6.156)	(6.036)	(16.300)	(16.100)
Number of working family member	2.522	0.266	2.662	0.25	2.518	0.359	2.659	0.337
	(1.703)	(1.361)	(1.728)	(1.400)	(1.600)	(1.217)	(1.760)	(1.328)
Urban (1 if urban, 0 otherwise)	0.505	0.063	0.555	0.066	0.549	0.081	0.643	0.068
	(0.500)	(0.310)	(0.497)	(0.312)	(0.498)	(0.316)	(0.479)	(0.348)
BSM criteria								
1 if victim of natural disaster	0.467	0.38	0.771	0.698	0	-0.067	0	-0.063
	(0.499)	(0.580)	(0.420)	(0.517)	(0)	(0.250)	(0)	(0.243)

1 if PKH beneficiaries	0.194 (0.396)	0.185 (0.395)	0.044 (0.204)	0.043 (0.204)	0 (0)	-0.004 (0.060)	0 (0)	-0.0002 (0.013)
1 if owns KPS	0.619 (0.486)	0.619 (0.486)	0.242 (0.429)	0.242 (0.429)	0 (0)	0 (0)	0 (0)	0 (0)
Head of poor household laid off from job	0.001 (0.036)	0.001 (0.036)	0.004 (0.062)	0.002 (0.072)	0 (0)	-0.002 (0.042)	0 (0)	-0.0002 (0.013)
Orphan Status								
1 if fatherless	0.03 (0.036)	0.014 (0.195)	0.034 (0.181)	0.012 (0.197)	0 (0)	-0.025 (0.157)	0 (0)	-0.17 (0.129)
1 if motherless	0.017 (0.130)	-0.001 (0.149)	0.018 (0.132)	0.006 (0.150)	0 (0)	-0.014 (0.119)	0 (0)	-0.008 (0.086)
1 if an orphan	0.004 (0.063)	0.001 (0.081)	0.003 (0.059)	0.002 (0.062)	0 (0)	-0.009 (0.094)	0 (0)	-0.001 (0.035)
1 if have physical disability	0.004 (0.063)	0.004 (0.063)	0.002 (0.046)	0.001 (0.042)	0 (0)	0 (0)	0 (0)	-0.0004 (0.019)
1 if has financial difficulty	0 (0)	-0.001 (0.036)	0.002 (0.046)	0.001 (0.055)	0 (0)	0 (0)	0 (0)	-0.0004 (0.019)
Observations	762	762	2316	2316	554	554	5714	5714

Source: authors' calculations using IFLS 4 and IFLS 5.

Table 4. FDIV estimates on the effects of receiving BSM on household education spending

Dependent variable: share of educational spending	I: OLS	II: FDIV	III: FDIV	IV: FDIV
1 if received BSM	0.053*** (0.005)	0.159*** (0.027)	0.114*** (0.025)	0.114*** (0.025)
1 if owned KPS	0.009* (0.005)	-0.029*** (0.011)	-0.023** (0.010)	-0.024** (0.010)
First-stage: 1 if received BSM				
1 if PKH beneficiary	-	0.328*** (0.034)	0.313*** (0.034)	0.312*** (0.034)
1 if victims of natural disasters	-	0.024*** (0.008)	0.024*** (0.009)	0.025*** (0.009)
1 if head of HH were laid off	-	-0.092 (0.083)	-0.081 (0.078)	-0.099 (0.084)
1 if students were orphans	-	0.175 (0.136)	0.144 (0.140)	0.141 (0.136)
1 if students were disabled	-	0.125 (0.184)	0.136 (0.188)	0.137 (0.183)
Number of households	9,346	9,346	9,346	9,346
First-stage F-test	-	23.12	20.99	20.76
Sargan's over-identification test, p-value		0.316	0.578	0.628
Individual and household control covariates	N	N	Y	Y
Province, year, and province by year dummies	N	N	N	Y

Source: authors' calculations using IFLS 4 and IFLS 5.

Notes: The signs *, **, *** indicates significance at 10%, 5%, and 1% significance levels. Individual and household control covariates include the gender of the head of households, dummies of head of households' educational attainment, number of family member, number of schooling-age children, log of income per capita, number of working family member, and a dummy for urban residency. We impute zeros for households with missing log of income per capita, and we create a dummy for zero log of income per capita. Standard errors are clustered at 257 districts. The critical value to accept at most a rejection rate of 15% of a nominal 5% Wald test is 15.09.

Table 5. FDIV estimates on the effects of receiving BSM by per-capita income quantile

Dependent variable: Share of educational spending	I: 1 st Quartile	II: 2 nd Quartile	III: 1 st Quartile + 2 nd Quartile	IV: 3 rd Quartile	V: 4 th Quartile
1 if received BSM	0.100* (0.057)	0.152** (0.071)	0.112*** (0.036)	0.096* (0.058)	0.044 (0.045)
1 if received KPS	-0.030 (0.020)	-0.045** (0.021)	-0.034** (0.013)	-0.009 (0.021)	0.008 (0.017)
First Stage: 1 if received BSM					
1 if PKH beneficiary	0.404*** (0.053)	0.206*** (0.063)	0.297*** (0.013)	0.238*** (0.063)	0.444*** (0.111)
1 if victims of natural disasters	0.056*** (0.019)	-0.0006 (0.020)	0.030** (0.013)	-0.005 (0.017)	0.017 (0.012)
1 if head of HH were laid off	-0.182*** (0.061)	-0.046 (0.149)	-0.130 (0.132)	-0.133*** (0.032)	-0.088*** (0.016)
1 if students were orphans	0.189 (0.300)	.	0.169 (0.294)	0.084 (0.180)	0.204 (0.229)
1 if students were disabled	.	-0.490*** (0.047)	-0.466*** (0.039)	-0.165*** (0.032)	0.530** (0.226)
Number of households	1,867	1,696	3,563	2,461	3,322
First-stage F-test	18.83	43.935	50.099	10.952	14.832
Overidentification test, p-value	0.774	0.265	0.438	0.277	0.426

Source: authors' calculations using IFLS 4 and IFLS 5.

Notes: the signs *, **, *** indicates significance at 10%, 5%, and 1% significance levels. individual and household control covariates include ownership of KPS, the gender of the head of households, dummies of head of households' educational attainment, number of family member, number of schooling-age children, log of income per capita, number of working family member, and a dummy for urban residency. We impute zeros for households with missing log of income per capita, and we create a dummy for zero log of income per capita. Standard errors are clustered at 257 districts. The critical value to accept at most a rejection rate of 15% of a nominal 5% Wald test is 13.96 (estimation I and II) and 15.09 (estimation III).

Table 6. Sensitivity analysis using a subgroup with observed test scores

Dependent variable: share of educational spending	I: OLS	II: FDIV	III: FDIV	IV: FDIV
1 if received BSM	0.052*** (0.009)	0.107 (0.059)	0.078 (0.061)	0.078 (0.061)
1 if owned KPS	0.004 (0.011)	-0.016 (0.024)	-0.012 (0.024)	-0.012 (0.24)
Number of households	2,672	2,672	2,672	2,672
Individual and household control covariates	N	N	N	Y
Province, year, and province by year dummies	N	N	N	Y
Math test score	N	N	Y	Y
First stage F-test	-	9.18	8.43	8.43
Sargan's over-identification test, p-value	-	0.616	0.533	0.533

Source: authors' calculations using IFLS 4 and IFLS 5.

Notes: The signs *, **, *** indicates significance at 10%, 5%, and 1% significance levels. The instruments are a dummy for PKH ownership, a dummy for victims of natural disasters, a dummy if head of HH were laid off, 1 if students were orphans, and 1 if students were disabled. Individual and household control covariates include ownership of KPS, the gender of the head of households, dummies of head of households' educational attainment, number of family member, number of schooling-age children, log of income per capita, number of working family member, and a dummy for urban residency. We impute zeros for households with missing log of income per capita, and we create a dummy for zero log of income per capita. Standard errors are clustered at 198 districts. The critical value to accept at most a rejection rate of 15% of a nominal 5% Wald test is 15.09.

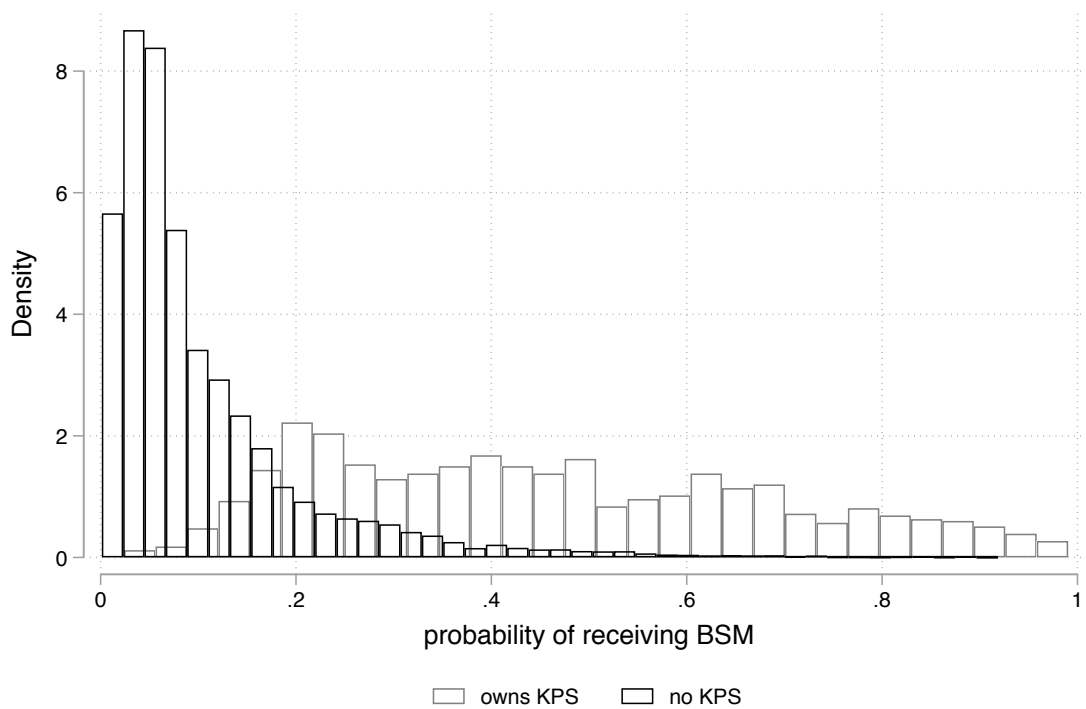
Table 7. FDIV estimates on the effects of receiving BSM on education spending

Dependent variable: Share to total spending	I: Uniform and school supplies	II: School Tuition	III: Transportation & Stipend	IV: Room & Boarding	V: Protein	VI: Clothing
1 if received BSM	0.002 (0.007)	0.035*** (0.013)	0.064*** (0.019)	0.013** (0.006)	0.006 (0.018)	-0.008 (0.008)
Number of households	9,346	9,346	9,346	9,346	9,346	9,346
First-stage F-test	20.77	20.77	20.77	20.77	20.77	20.77
Overidentification test, p-value	0.714	0.750	0.455	0.857	0.127	0.258

Source: authors' calculations using IFLS 4 and IFLS 5.

Notes: The signs *, **, *** indicates significance at 10%, 5%, and 1% significance levels. Individual and household control covariates include ownership of KPS, the gender of the head of households, dummies of head of households' educational attainment, number of family member, number of schooling-age children, log of income per capita, number of working family member, and a dummy for urban residency. We impute zeros for households with missing log of income per capita, and we create a dummy for zero log of income per capita. Standard errors are clustered at 257 districts. The critical value to accept at most a rejection rate of 15% of a nominal 5% Wald test is 20.78.

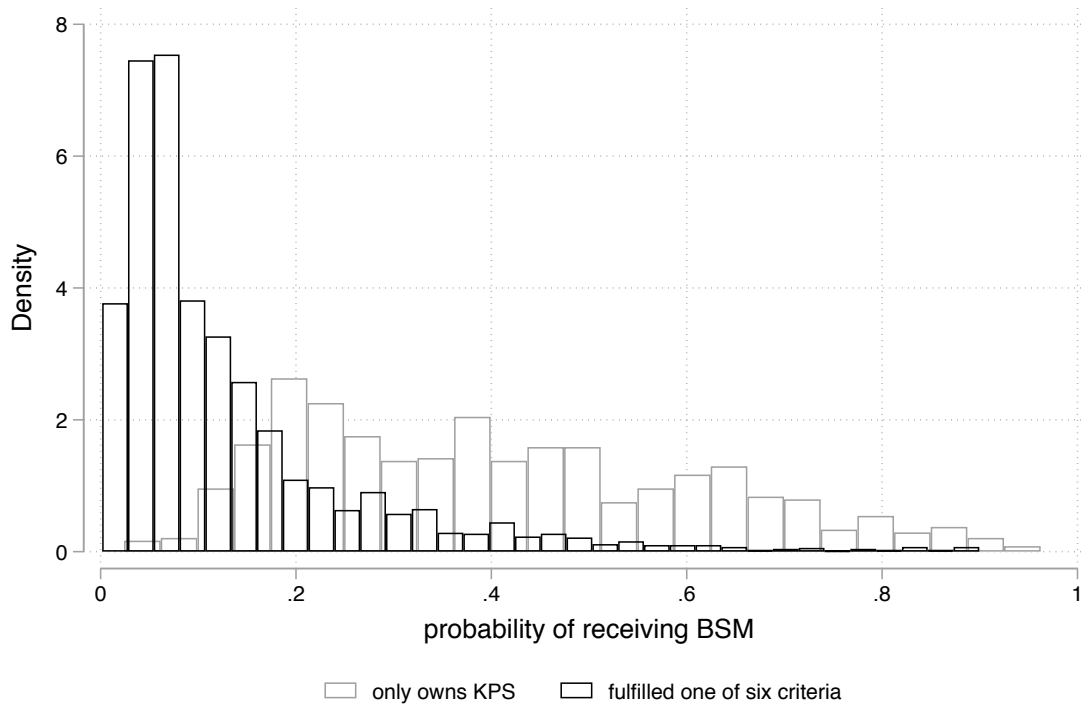
Figure 1. Distribution of predicted probabilities of receiving BSM by ownership of KPS



Source: authors' calculations using IFLS 5.

Notes: we estimate the probabilities of receiving BSM using a logit model. The control variables include the gender of the head of households, dummies of head of households' educational attainment, number of family member, number of schooling-age children, log of income per capita, number of working family member, and a dummy for urban residency. We impute zeros for households with missing log of income per capita, and we create a dummy for zero log of income per capita.

Figure 2. Distribution of predicted probabilities of receiving BSM among households who own KPS and households without KPS that fulfilled at least one of the six criteria



Source: authors' calculations using IFLS 5.

Notes: households who owned KPS did not fulfill one of the six BSM criteria. Households who fulfilled at least one of the six BSM criteria were beneficiaries of the PKH, were victims of natural disasters, or were categorized as poor households and their head of households were laid off, one or both parents died, or the students had a disability status. We estimate the probabilities of receiving BSM using a logit model. The control variables include the gender of the head of households, dummies of head of households' educational attainment, number of family member, number of schooling-age children, log of income per capita, number of working family member, and a dummy for urban residency. We impute zeros for households with missing log of income per capita, and we create a dummy for zero log of income per capita.

APPENDIX A

Table A1. Summary statistics of households' characteristics in 2007 by KPS ownership and eligibility

Variables (2007)	Owned KPS in 2014			Did not own KPS in 2014		
	I: Eligible by 5 criteria in 2014	II: Ineligible by 5 criteria in 2014	Diff t-test	III: Eligible by 5 criteria in 2014	IV: Ineligible by 5 criteria in 2014	Diff t-test
Education expenditure per total expenditure	0.072 (0.087)	0.066 (0.094)	0.007 (0.006)	0.069 (0.104)	0.077 (0.120)	-0.008*** (0.003)
Uniform and school supplies	0.013 (0.019)	0.012 (0.017)	0.002 (0.001)	0.012 (0.027)	0.012 (0.028)	0.0002 (0.0007)
School fees	0.013 (0.030)	0.016 (0.061)	-0.003 (0.003)	0.018 (0.046)	0.022 (0.059)	-0.005*** (0.001)
Transportation and Pocket Money	0.046 (0.063)	0.038 (0.055)	0.008** (0.004)	0.036 (0.056)	0.040 (0.067)	-0.004** (0.002)
Room rent	0.0006 (0.005)	0.0004 (0.004)	0.0001 (0.0003)	0.003 (0.028)	0.002 (0.022)	0.0004 (0.0006)
Food expenditure per total expenditure	0.596 (0.177)	0.613 (0.180)	-0.017 (0.011)	0.519 (0.196)	0.519 (0.201)	0.00009 (0.005)
Protein expenditure	0.095 (0.070)	0.099 (0.074)	-0.004 (0.005)	0.101 (0.078)	0.107 (0.082)	-0.006*** (0.002)
Non-protein expenditure	0.501 (0.172)	0.514 (0.169)	-0.012 (0.011)	0.418 (0.184)	0.411 (0.184)	0.006 (0.005)
Non-Food expenditure per total expenditure	0.331 (0.173)	0.321 (0.167)	0.010 (0.011)	0.412 (0.194)	0.404 (0.195)	0.008 (0.005)
Clothing expenditure	0.028 (0.025)	0.029 (0.045)	-0.0008 (0.002)	0.030 (0.039)	0.029 (0.059)	0.001 (0.0009)
Medical expenditure	0.026 (0.072)	0.017 (0.039)	0.009** (0.003)	0.026 (0.063)	0.021 (0.059)	0.004*** (0.002)
Other expenditure	0.277 (0.162)	0.275 (0.163)	0.002 (0.010)	0.356 (0.191)	0.354 (0.192)	0.002 (0.005)
Head of households' sex (1 if male, 0 otherwise)	0.895 (0.307)	0.878 (0.327)	0.016 (0.020)	0.864 (0.343)	0.853 (0.355)	0.011 (0.009)
Head of household education level:						
No schooling	0.309 (0.462)	0.348 (0.477)	-0.039 (0.030)	0.207 (0.405)	0.185 (0.189)	0.021** (0.010)
Elementary school	0.395 (0.489)	0.407 (0.492)	-0.013 (0.031)	0.311 (0.463)	0.258 (0.438)	0.053*** (0.011)
Junior high school	0.172 (0.377)	0.136 (0.343)	0.036 (0.023)	0.160 (0.367)	0.148 (0.356)	0.012 (0.009)

Variables (2007)	Owned KPS in 2014			Did not own KPS in 2014		
	I: Eligible by 5 criteria in 2014	II: Ineligible by 5 criteria in 2014	Diff t-test	III: Eligible by 5 criteria in 2014	IV: Ineligible by 5 criteria in 2014	Diff t-test
Senior high school	0.113 (0.317)	0.105 (0.307)	0.007 (0.020)	0.233 (0.423)	0.271 (0.445)	-0.039*** (0.011)
University	0.012 (0.110)	0.003 (0.056)	0.009* (0.005)	0.089 (0.286)	0.136 (0.343)	-0.047*** (0.008)
Number of family member	6.115 (2.968)	5.866 (2.801)	0.249 (0.182)	5.583 (2.929)	5.317 (2.867)	0.266*** (0.073)
Number of schooling children	1.012 (1.017)	0.855 (0.945)	0.158** (0.062)	0.829 (0.919)	0.781 (0.944)	0.048** (0.024)
Per-capita income (in million IDR)	1.728 (3.797)	1.660 (1.168)	0.068 (0.173)	3.377 (4.474)	4.285 (8.700)	-0.908*** (0.200)
Number of working family member	2.350 (1.611)	2.391 (1.551)	-0.041 (0.100)	2.371 (1.597)	2.308 (1.601)	0.063 (0.041)
Urban (1 if urban, 0 otherwise)	0.429 (0.500)	0.460 (0.499)	-0.031 (0.032)	0.493 (0.500)	0.566 (0.496)	-0.072*** (0.013)
BSM criteria						
1 if victim of natural disaster	0.098 (0.298)	0.125 (0.330)	-0.026 (0.020)	0.058 (0.233)	0.064 (0.244)	-0.006 (0.006)
1 if PKH beneficiaries	0.005 (0.070)	0.003 (0.057)	0.002 (0.004)	0.002 (0.049)	0.0005 (0.022)	0.002** (0.0008)
Head of poor household laid off from job	0 (0)	0 (0)	0 (0)	0.001 (0.038)	0.0003 (0.018)	0.001* (0.0006)
Orphan Status						
1 if fatherless	0.022 (0.147)	0.010 (0.098)	0.012 (0.008)	0.023 (0.150)	0.018 (0.132)	0.005 (0.003)
1 if motherless	0.012 (0.110)	0.003 (0.056)	0.009* (0.005)	0.017 (0.128)	0.008 (0.090)	0.008*** (0.002)
1 if an orphan	0.002 (0.050)	0 (0)	0.002 (0.002)	0.002 (0.044)	0.002 (0.044)	0.00004 (0.001)
1 if have physical disability	0 (0)	0 (0)	0 (0)	0.0005 (0.022)	0.0003 (0.018)	0.0002 (0.0005)
1 if has financial difficulty	0.002 (0.050)	0.003 (0.056)	-0.0007 (0.003)	0 (0)	0.0003 (0.018)	-0.0003 (0.0004)
Observations	408	626		2045	6267	

Notes: the signs *, **, *** indicates significance at 10%, 5%, and 1% significance levels.

Tabel A2. The relationship between instruments and eligibility of BSM

Dependent variable: eligibility of BSM in 2014	Values of instruments in 2007	Values of instruments in 2014
1 if owned KPS in 2014	0.720*** (0.014)	0.649*** (0.006)
1 if PKH beneficiary	0.222* (0.116)	0.411*** (0.012)
1 if victims of natural disasters	-0.002 (0.019)	0.849*** (0.004)
1 if head of HH were laid off	0.323* (0.180)	0.601*** (0.057)
1 if students were orphans	0.002 (0.098)	0.697*** (0.055)
1 if students were disabled	0.167 (0.232)	0.317*** (0.074)
Number of Household	9,342	9,346
F-test	99.25	1350.18
Individual and household control covariates	Yes	Yes
Province dummies	Yes	Yes

Notes: the signs *, **, *** indicates significance at 10%, 5%, and 1% significance levels.

Tabel A3. The relationship between the instruments and eligibility of BSM in 2014

Dependent variable: eligibility of BSM	Unschool ed	Elementary School	Junior High School	Senior High School	University
1 if owned KPS in 2014	0.609*** (0.057)	0.651*** (0.012)	0.606*** (0.016)	0.633*** (0.014)	0.644*** (0.037)
1 if PKH beneficiary	0.370*** (0.101)	0.401*** (0.020)	0.412*** (0.035)	0.368*** (0.030)	0.815*** (0.069)
1 if victims of natural disasters	0.710*** (0.055)	0.815*** (0.009)	0.832*** (0.012)	0.906*** (0.008)	0.958*** (0.011)
1 if head of HH were laid off	-	0.752*** (0.082)	0.214 (0.131)	0.508*** (0.108)	-
1 if students were orphans	-	0.724*** (0.100)	-	0.009 (0.153)	0.621*** (0.079)
1 if students were disabled	-	-0.530*** (0.200)	0.367*** (0.093)	0.973*** (0.152)	-
Number of Household	123	2,511	1,404	2,426	1,172
F-test	17.22	397.18	259.01	569.72	259.75
Individual and household control covariates	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes

Notes: the signs *, **, *** indicates significance at 10%, 5%, and 1% significance levels.

Table A4. FDIV estimates on the effects of receiving BSM by KPS ownership

Dependent variable: Share of educational spending	I: KPS holder	II: Non-KPS holder
1 if received BSM	0.133*** (0.051)	0.113*** (0.032)
First Stage: 1 if received BSM		
1 if PKH beneficiary	0.213*** (0.048)	0.389*** (0.047)
1 if victims of natural disasters	0.008 (0.035)	0.026*** (0.008)
1 if head of HH were laid off	0.125 (0.367)	-0.156*** (0.046)
1 if students were orphans	.	0.148 (0.134)
1 if students were disabled	0.052 (0.330)	0.170 (0.216)
Number of households	1,034	8,312
First-stage F-test	5.804	17.425
Overidentification test, p-value	0.820	0.625

Source: authors' calculations using IFLS 4 and IFLS 5.

Notes: the signs *, **, *** indicates significance at 10%, 5%, and 1% significance levels. individual and household control covariates include ownership of KPS, the gender of the head of households, dummies of head of households' educational attainment, number of family member, number of schooling-age children, log of income per capita, number of working family member, and a dummy for urban residency. We impute zeros for households with missing log of income per capita, and we create a dummy for zero log of income per capita. Standard errors are clustered at 257 districts. The critical value to accept at most a rejection rate of 15% of a nominal 5% Wald test is 13.96 (estimation I) and 15.09 (estimation II).

APPENDIX B

Table B1. List of Variables from IFLS

Variable	Question in IFLS	Variable Used from IFLS
Education expenditure	Total Education Expenditure in Year	
School fees	Approximately what was the total expenditures (e.g., tuition, PTA contribution, school committee contribution, laboratory, registration, exams, other contribution like student associations) for [...] during the past year?	KS10aa, KS10ab
Uniform and school supplies	Approximately what was the total of expenditures for schooling needs (like for school uniforms, school supplies) for [...] during the past year?	KS11aa, KS11ab
Transportation and Pocket Money	Approximately how much was spent on transportation and pocket money, special courses associated with [...]’s schooling in the past year?	KS12aa, KS12ab
Room rent	Approximately how much was the total cost of boarding/room rent (including meals) spent for [...] during the past year?	KS12bb
Food expenditure	Total Food Expenditure	
Protein expenditure	During the past week, what was the total expenditure to purchase [...]?	KS1TYPE, KS02a

Variable	Question in IFLS	Variable Used from IFLS
Non-protein expenditure	During the past week, what was the total expenditure to purchase [...]?	KS1TYPE, KS02a
Non-Food expenditure	Total non-Food Expenditure in year	
Clothing expenditure	What were the total expenditure bu all household members for [...] during the past year, namely since the month of [...] last year?	KS3YPE=A, KS08
Medical expenditure	What were the total expenditure bu all household members for [...] during the past year, namely since the month of [...] last year?	KS3YPE=C, KS08
Other expenditure	What were the total expenditure bu all household members for [...] during the past year, namely since the month of [...] last year?	KS3TYPE, KS08
	What were the total expenditures by all household members for [...] during the past month, namely since date [...] one month ago?	KS2TYPE, KS06
Total Expenditure	Total Expenditure in Year	
Head of households' sex (1 if male, 0 otherwise)	Sex. If status was Head of Household	AR07, if AR02=1
Head of household education level	Highest Level of Schooling Attended by HHM, Highest grade ever completed by HHM	AR16, AR17
Number of family member	Number of Person ID in Household ID	HHID14, PID14

Variable	Question in IFLS	Variable Used from IFLS
Number of schooling children	Is [...] in school this year?	AR18c
Per-capita income (in million IDR)	What were the total earnings of [...] in the last 12 months?	AR15b, HHID14, PID14
Number of working family member	What was [...]’s primary activity during the past week?	AR15c, HHID, PID
Urban (1 if urban, 0 otherwise)	Area: 1. Urban 2. Rural	SC05
BSM beneficiaries	Does this household get BSM (Help Poor Students)?	KR27d
1 if victim of natural disaster	When was the most severe [...] in the last 5 years occurred?	ND05y
1 if PKH beneficiaries	Has this household ever received cash transfer from [...] program? B. Program Bantuan Tunai Bersyarat (Keluarga Harapan) Conditional Cash Transfer Program	KSR17b
1 if owns KPS	Does this household get Social Security card / KPS?	KR27i
Head of poor household laid off from job	Does this household have or ever utilizes "letter of poor" (Surat Keterangan Tidak Mampu)?	KR27a
	Why haven’t you worked again since that year? Fired and/ or Company closed/moved/bankrupt	TK08
1 if fatherless	Line No. Birth Father	AR10 = 52. Died

Variable	Question in IFLS	Variable Used from IFLS
1 if motherless	Line No. Birth Mother	AR11 = 52. Died
1 if an orphan	Father and Mother Died	AR10 = 52. Died, AR11 = 52. Died
1 if have physical disability	Did a doctor/paramedic/nurse/midwife ever diagnose you with [...]? A. Physical disabilities	CD01TYPE, CD01
1 if has financial difficulty	Why did the school disruption occur?	DL11e, DL14d
	What the reason [CHILD'S NAME] stop/leave this level of schooling?	DLA71e, DLA74d

Table B2. Summary of Sample Restriction Procedure

Procedures	2007	2014	Observation
Initial	12,977	15,144	
drop missing household expenditures	12,977	15,139	
drop missing social assistance	12,956	15,083	
drop missing head of HH characteristics	11,822	13,946	
drop missing HH characteristics	11,822	13,941	
drop missing region and province	11,822	13,941	
Observation total	11,822	13,941	25,763