

The Effects of The Cash Transfer Programme for Poor Students on Child's Work Participation: Evidence from Java (Indonesia)

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Abstract

Cash transfer is considered as a relatively safe policy instrument to improve child welfare. Over the past ten years, Indonesia has made major progress in reducing the number of children involved in child work. It has done so primarily by expanding education provision to increase the time children spend in school and reduce the time children allocate to work. This progress has been supported by the implementation of poverty alleviation programmes that provided income assistance to vulnerable families. The results of this thesis are particularly relevant for understanding the role of cash transfer programmes in developing countries. The findings of this thesis suggest that the Government of Indonesia needs to reach the poorest children who are out of school.

This thesis aims to analyse whether cash transfer subsidies provided by the Government of Indonesia were sufficient for children to decrease the probability of working and reduce the hours of working activities of children within households. This thesis includes a detailed exploration of differences in impacts by children's gender and areas of residence. The cash transfer for poor students programme is the third-largest antipoverty intervention that targets poor households, and it is designed to reduce poverty and enable families to invest in human capital development in children particularly. The programme was carried out in Indonesia from 2008 and has been in action until today.

This thesis uses cross sectional data to analyse the effects of the programme on child's work. The data covers children aged from six to 14 from the Indonesian Family Life Survey (IFLS) in 2014. The data is non-experimental and programme participation is not randomly assigned. The bivariate Probit with endogenous dummy models are also estimated for the probability that a child is working, controlling for additional characteristics of the child, head of household, household and community-level characteristics. To check the robustness of our results, we provide evidence based on two different identification strategies: a separate analysis based on child's gender and residence using working participation of children within households, and a regression analysis based on hours worked.

This thesis has found that the cash transfer programme has a negative and significant impact on child's work activities within households. The result indicates that the programme did affect a child's work participation whether children are considered as one group or are disaggregated by sex, by residence or by number of hours worked. We found that the

programme has a positive impact on reducing the probability of participation in household chores, economic activities and any activity. Children who attended school and participated in the programme, in comparison with those children who did not join the programme, have experienced a 32 – 38 percentage points decrease in working participation inside and outside the home. However, within the subsample of boys and girls, the programme caused substantial reduction in economic activities for boys. Meanwhile, girls who participated in the programme received a negative impact on the probability of engaging only in household chores. The estimate also shows that there is a smaller impact on children from beneficiary households in urban areas in activities inside and outside the home than on rural children. Furthermore, it has also been found that the programme was able to reduce time spent by children in the programme in different working activities.

Keywords: Cash transfer, Bivariate Probit, IFLS, Child Work

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List of Abbreviations, Acronyms and Indonesian Terms

Bappenas	National Development Planning Agency	<i>Badan Perencanaan dan Pembangunan Nasional</i>
BPS	Statistic Indonesia	<i>Badan Pusat Statistik</i>
BOS	School Operation Funds	<i>Bantuan Operasional Sekolah</i>
BSM	Cash Transfer for Poor Students	<i>Bantuan Siswa Miskin</i>
CCT	Conditional Cash Transfer	
GoI	Government of Indonesia	
IFLS	Indonesian Family Life Survey	
JPS	Social Safety Net	<i>Jaring Pengaman Sosial</i>
IDR	Indonesian Rupiah	
Susenas	National Socio-Economic Survey	<i>Survey Sosio-Ekonomi Nasional</i>
TNP2K	National Team for Accelerating Poverty Reduction	<i>Tim Nasional Percepatan Penanggulangan Kemiskinan</i>
UCT	Unconditional Cash Transfer	

Chapter 1: Introduction

In the last few decades, national efforts in alleviating poverty in the developing world have concentrated on human capital investment as a strategy for development. Cash transfer programmes are among the most common social protection policies which promote human capital investment. Moreover, several developing countries in Latin America and Asia have been implementing cash transfer and subsidies programmes to address challenges posed by poverty among poor households in general and that of children in particular. Examples of such programmes are *Progresa* in Mexico, *Bolsa Familia* in Brazil, *Familias en Accion* in Colombia, The *Bono de Desarrollo Humano* in Ecuador, and *The Atencion a Crisis* in Nicaragua. There are cases where cash transfers are offered unconditionally, and others conditional on households maintaining some commitments such as sending children to school, fulfilling nutritional requirements and going to health care clinics. There is growing evidence that cash transfer programmes have been effective at raising human capital and contributing to poverty alleviation among poor households (Baez & Camacho, 2011; Peruffo & Ferreira, 2017).

The issue of child's work has received considerable critical attention in developing countries. This is because poor households are especially vulnerable to economic shocks and can have difficulties in sustaining consumption. As a consequence, they might have to take children out of school to save on school fees and send children to work as an additional income source (de Janvry, Finan, Sadoulet, & Vakis, 2006; Rosati, 2003). Examples of such working activities are working in home-based enterprises, family farm businesses, and substitute for parent's time by doing household chores. Social protection programmes such as cash transfers provide financial assistance to prevent the household from economic shocks and child work. By alleviating the economic vulnerability of households, social protection policies may remove some of the reasons why families send children to work (Rosati, 2003). The incidence of working children is always related to a decline in educational level and performance, which, in the long run, will reduce the quality of human capital.

Cash transfers related to education is one of the policy options that deal with the working child issue. With this policy, the government or other public agency provides cash to a household when a family has school-age children and meets certain requirements. The assumption behind this policy is that increasing school enrolment and attendance would lead to a decrease in participation of children in working activities within households and children can be more focused on school related activities (Hoop & Rosati, 2014; Rosati, 2003; Tabatabai, 2009).

There are studies that have reported that cash transfer programmes are effective in increasing school participation and reducing child work. For example, evaluations of several conditional cash transfer (CCT) programmes such as Mexico's *Progresa* programme, Nicaragua's *Red de Proteccion Social*, and Colombia's *Familias en Accion* programme report reductions in the probability of a child engaging in work as a consequence of the CCT offer (Attanasio et al., 2010; Gee, 2010; Maluccio & Flores, 2005; Skoufias & Parker, 2001). Furthermore, evaluations of other unconditional cash transfers (UCTs), such as Ecuador's *Bono Desarrollo Humano* programme and Malawi's Social Cash Transfer Scheme programme, suggest that a UCT offer has negative effects on the probability that a child engages in work (Edmonds & Schady, 2012; Miller & Tsoka, 2012). However, empirical findings regarding the effects of cash transfer programmes remain mixed. While evaluations in some countries suggest that the programmes are well targeted and decrease child work, recent evidence in some countries find that cash transfers increase child work, and for several programmes, no significant impact could be identified (Amarante, Ferrando, & Vigorito, 2011; Cardoso & Souza, 2004; Glewwe & Olinto, 2004; Pais, Silva, & Teixeira, 2017).

Indonesia has been implementing a wide range of policies and programmes to reduce poverty and encourage investment in human capital. The Government of Indonesia also implemented a cash transfer to poor students programme to protect enrolment in education and reduce child's work. Cash transfers for poor students, which began in 2008, has now become the third-largest poverty alleviation programme in Indonesia, with more than 19 million beneficiary students in 2016 (Bappenas, 2013; Ministry of Finance, 2016b). The lack of empirical studies addressing the effectiveness of cash transfers to poor students programme in Indonesia is an area worth exploring, specifically on how to adapt the cash transfer programme for different contexts related to children's issues.

This thesis contributes to the literature in several aspects. First, compared with other literature such as Cardoso and Souza (2004); Del Carpio, Loayza, and Wada (2016); Miller and Tsoka (2012), this thesis uses survey data with self-reported information on whether children get cash transfer subsidies from the government. This allows us to estimate the impact on the children as a beneficiary. Second, the cash transfer for poor students programme is an example of a specific subsidy programme to support basic education in Indonesia. The main contribution of this thesis is to examine and analyse this cash transfer programme for poor students.

The major objective of this thesis is to investigate how the offering of a cash transfer programme subsidy has an impact on the probability that a child engages in working activities and whether it reduces the work hours of a working child. In particular, we evaluate a cash transfer for poor students programme implemented among poor and vulnerable families in Indonesia during the year 2014. This thesis mainly discusses the programme effects on children's participation in household chores, economic activities, and any other activities in terms of incidence and duration. First, the aim of this thesis is to find out the influence of cash transfers on poor students and their work involvement. Second, even though many studies stated that poverty is the main cause of child work, studies that give a fair explanation regarding education and poverty alleviation in Indonesia are quite rare. Third, this thesis also compares and contrasts how child gender and child residence have an effect on a child's work activities.

Data for this thesis were collected using data from the Indonesian Family Life Survey (IFLS) using the most recent wave in 2014 – 2015. The IFLS survey contains detailed information on a wide range of individual and household characteristics, including the household socio-demographic structure, such as age and educational background of household heads as well as household size, household assets, household income, and expenditure. In addition, the data in community level contains information about the presence of education facilities and poverty alleviation programmes. In order to examine the effects of cash transfers on child's work, this thesis combines the individual data, household head, household characteristics and community-level dataset of a sample of beneficiaries and non-beneficiaries. The sample of households is restricted to those who have children aged between six and 14 years old in six provinces on Java Island, namely, Jakarta, West Java, Central Java, Yogyakarta, East Java, and Banten, and it covers both urban and rural areas. The final analysis includes 4,512 children; 21 per cent are participating in the programme and 79 per cent of all children are not participating in the programme.

Endogenous programme participation is a concern in any study that compares programme participants to non-participants. The endogeneity of the main independent variable of a child receiving a cash transfer programme or not raises concerns because the recipients of the cash transfer programme are not assigned randomly; instead, students from poor households are specifically targeted. In other words, not every child is specifically targeted. The methodological approach taken in this thesis is a bivariate Probit model with endogenous dummy for estimating the effect of an endogenous binary regressor. To check the robustness of our result, we provide evidence using two additional identification strategies. One of them is

separating analysis based on child's gender and residence and the other one is regression analysis based on hours worked.

The results show that the programme has a significant impact on children's participation in different work activities. Furthermore, the programme helps participants reduce the involvement of their work so they can spend more time on school-related activities. Compared with non-participants, children who participated in the programme experienced a 32 – 38 percentage points decrease in working participation inside and outside the home. A full set of control variables included in the regression shows that child's gender, child's age, age and education of household heads, household size, and per capita non-food expenditure, household living in rural area, community characteristics such as the number of elementary schools and the presence of factories have significant effects on working activities of children. There is also evidence of heterogeneity in programme impacts, with effects on probability of work being larger for boys and beneficiaries in rural areas. The results are robust to a variety of controls for observable differences between children who are beneficiaries and those who are non-beneficiaries children.

The main robustness results show that impact estimates vary among the children beneficiaries. Boys who participated in the programme experienced a negative impact on the probability of engaging in household chores, economic activities, and any other activities. On the other hand, girls who participated in the programme experienced a negative impact on the probability of engaging only in household chores. The estimates also show that children from beneficiary households in urban areas experienced a smaller impact of the programme on participation in activities inside and outside the home than rural children. In addition, we conduct the same exercise for participation in different types of work, as well as for the amount of time spent in different activities. The cash transfer programme given to children was effective in reducing the amount of time spent involved in household chores, economic activities, and any activity, thus allowing children to spend more time on school related activities.

The rest of the chapter is organised as follows: Chapter two is a review of the literature on the effect of cash transfer subsidies on working children. Chapter three contains background information about Indonesia and Java and provides an overview of the programme. Chapter four describes the data source and the main variables used as well as a summary of statistics and other descriptive statistics followed by methodology. Chapter five discusses the main

results and the robustness checks. The last chapter concludes with comments and recommendations.

Chapter 2: Background Literature

This chapter reviews the relevant literature that provides the context and foundation for this thesis, and highlights the gaps in the literature that this thesis attempts to address. This chapter begins by examining the major insights of the literature on poverty and child labour. This is followed by an explanation of cash transfer programmes as a poverty alleviation policy and the effects on child labour. The last section of the chapter is devoted to the evidence on the impact of the Indonesian cash transfer programmes.

2.1 Poverty and Child Labour

Child labour is a complex problem in developing countries particularly in Asia, Latin America and Africa. Government, policymakers and researchers have focused their attention on how to deal with these issues. The effectiveness of the intervention policies and programme implementations to deal with child work issues are based on adequate knowledge of the causes that drive children to work. There are several underlying factors that contribute to the existence of child work: for instance, poverty (Basu & Van, 1998), household characteristics (Amin, Shakil Quayes, & Rives, 2004; Suryahadi, Priyambada, & Sumarto, 2005), household income shocks (Bandara, Dehejia, & Lavie-Rouse, 2015; Beegle, Dehejia, & Gatti, 2006), market imperfection (Baland & Robinson, 2000; Dehejia & Gatti, 2005) and parental illness (Alam, 2015).

The theoretical literature on child labour has stressed the role of poverty as one of the main determinants of a parent's decision to send their children to work rather than study (Basu & Van, 1998; Deb & Rosati, 2002). Research on poverty and child labour decisions has received considerable critical attention in the past few years. Most research has used household income or expenditure or consumption as the proxy for poverty. Basu and Van (1998) found that poverty is an important determinant of working children. According to the authors when household income increases, the need for a financial contribution by the children decreases and households are able to invest in their children's education. In addition, the authors noted that children living in poverty often have limited access to basic education and are involved in work activities.

According to Amin et al. (2004), parental poverty is the one factor that has been identified as a determinant of child labour. They examined poverty and other determinants of child labour in Bangladesh. By separating the income into quintiles and analysing other variables, such as child

and family characteristics and using a logistic regression model, they found that a family's poverty affects the probability that a child will work. Thus, household poverty can force families to send their children to work, thereby preventing the children from investing in human capital. Suryahadi et al. (2005) conducted a study of child labour in Indonesia. They examined the relationship between child labour and poverty utilising data from Statistics Indonesia and "100 village survey". They stated that the profile of child labour largely mirrors the profile of poverty and poverty was found to be an important determinant of working children. It means that the characteristics of a working child are similar to the characteristics of people living in poverty. Poverty and child labour in Indonesia are largely a rural phenomenon; most of the poor work in the agricultural sector; and both are closely linked to the educational level of household heads. The findings of these studies confirmed that household poverty was the most common reason for children to engage in working activities.

There are factors that also affect the intensity of child labour as pointed out in other works. First, the resources related to family income and the job or the education of the parents (Mukherjee & Das, 2008; Webbink, Smits, & de Jong, 2013). The authors noted that there is a lower frequency of the children engaging in working activities if their parents have a higher educational level. Second, the structural characteristics of households such as the number of family members also had an important effect on increasing the incidence of child labour (Mukherjee & Das, 2008; Rosati, 2003). Third, the culture as it relates to the existing values and norms associated with child labour (Webbink et al., 2013) also affects child labour.

Understanding how children's work affects their educational attainments is important for the national government to pursue universal primary and secondary education as part of the United Nation's Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs). A clear relationship exists between participation in working activities of children and decreasing school engagement and educational achievement, thereby interfering with the accumulation of the child's human capital. A study by Sim, Suryadarma, and Suryahadi (2017) examined the effect of child labour on long-term growth in human capital. They used measures of the output of human capital to production: mathematical skills, cognitive skills and pulmonary function. They found strong negative effects of child work on the growth of mathematical skills and lung capacity in the next seven years. In conclusion, in the long run, child labour will reduce children's human capital accumulation (Sim et al., 2017).

When children work, they are induced to quit schooling, decreasing academic performance and rate of grade completion (Edmonds, 2007; Fiszbein & Schady, 2009; Holgado et al., 2014; Zabaleta, 2011). According to Zabaleta (2011) the evidence of the impact of child labour on schooling outcomes change over time by examining a three-year longitudinal household dataset from Nicaragua. They found evidence that child labour is associated with school failure in the medium term. In addition, each additional hour worked over three hours a day is associated with an extra loss of about four months of educational attainment three years later. Similarly, Holgado et al. (2014) studied the impact of child labour on academic performance using a longitudinal survey in Colombia. They found that the number of weekly hours dedicated to work and the presence of work scheduled in the morning negatively affected the academic performance of child labourers.

Some studies have examined the negative relationship between child labour and school attendance (Beegle, Dehejia, & Gatti, 2009; Boozer & Suri, 2001). Boozer and Suri (2001), using cross sectional data in Ghana in 1988/1989 and regional rainfall patterns to provide variation in the demand for child labour, found that an hour of child labour reduced school attendance by approximately 0.38 hours. Looking at a very different level of data, Beegle et al. (2009) using a panel dataset from rural households in Vietnam found that children's work leads to 30 per cent lower chances of being in school and a six per cent decrease in educational attainment five years later. In general, the findings of these studies confirmed that working has a negative impact on the rate of school participation for children.

The phenomenon of child labour is strongly associated with and determined by poverty, the most effective policy for reducing the incidence of child labour is through poverty alleviation programmes which improve education levels (Basu, Das, & Dutta, 2010; Suryahadi et al., 2005). In recent years, there has been an increased attention on child labour in terms of social assistance policy such as cash transfers programmes. A cash transfer programme is one government policy intervention that helps reduce the economic vulnerability of households and increase human capital investment, especially for children in low-income countries (Attanasio et al., 2010; Glewwe & Kassouf, 2012; Maluccio, 2010; Skoufias & Parker, 2001). By alleviating the economic vulnerability of households, social assistance policies like cash transfers may remove some of the reasons that households send their children to work. A growing number of developing countries are adopting cash transfers targeted to vulnerable families, both conditionally and unconditionally on some behaviours on the participants' part, for instance, school enrolment and school attendance.

2.2 The Cash Transfer Programmes

In the last few decades, national efforts at alleviating poverty in the developing world have concentrated on human capital investment as a strategy for development. There is an increasing use of a new social assistance policy in the form of cash for poor families both conditionally and unconditionally in developing countries. Latin American countries initiated a new income transfer as a social safety net policy in the late 1990s. Today, over 50 countries have implemented cash transfer programmes around the world, particularly in Latin America and the Caribbean, and they have spread to several countries in Asia and Africa as well. Cash transfer programmes have now become an important part of policy interventions to address the larger issue of poverty alleviation in developing countries (Araujo, Bosch, & Schady, 2017; Fiszbein & Schady, 2009; Gabel & Kamerman, 2011; Morley & Coady, 2003; Schultz, 2004).

These programme covers a wide range of aspects including income support, and subsidies for household investments into child education, nutrition, and health. In addition, the cash transfer programmes are usually targeted to poor and vulnerable households with infants and children for the purpose of encouraging investment in human capital (Avila, 2012; Baez & Camacho, 2011; Dammert, 2009; Fiszbein & Schady, 2009; Peruffo & Ferreira, 2017; Saavedra, 2016). There are two types of cash transfer programmes: unconditional cash transfer (UCT) and conditional cash transfer (CCT). The difference is that the CCT programmes need specific behavioural requirements, for example, infants receiving immunisation and vitamin supplements, children and adolescents attending school and pregnant mothers attending antenatal care visits and being assisted by a trained professional during the birth. Unconditional cash transfers do not have any requirements imposed on recipients. Cash transfer programmes are playing an increasingly important role in improving children's human capital by stimulating investment in health, education, and nutrition. This increased human capital is also contributing to breaking the cycle of poverty for younger generations.

A key feature of cash transfer programmes is the dual aim to reduce inequality and poverty rates. Furthermore, cash transfer programmes aim to promote long-term human capital accumulation while recognising their role in breaking the intergenerational transmission of poverty (Araujo et al., 2017; Baez & Camacho, 2011; Barham, Macours, & Maluccio, 2013; Fiszbein & Schady, 2009; Gabel & Kamerman, 2011; Morley & Coady, 2003; Schultz, 2004). These programmes are attractive in countries with high levels of income inequality, low education levels, poor health, and poor nutrition. Additionally, these programmes provide

assistance to poor households by providing regular cash payments to address household vulnerability.

Cash transfer programmes were first implemented in the 1990s and since then have been implemented extensively in developing countries, especially across Latin America, for instance, *Progresa* (now referred to as *Oportunidades*) in Mexico, *Bolsa Escola* (now called *Bolsa Familia*) in Brazil, *PETI* (*Programa de Erradicação do Trabalho Infantil*) in Brazil, *Red de Protección Social* in Nicaragua, *Bono Desarrollo Humano* in Ecuador, *PRAF* (*Programa de Asignación Familiar*) in Honduras, and *FA* (*Familias en Acción*) in Colombia. Elsewhere, there are large-scale programmes in Bangladesh, Indonesia, and Turkey, and pilot programmes in Cambodia, Malawi, Morocco, Pakistan, and South Africa, among others.

Most programmes in Latin America are conditional cash transfers. The role of CCT programmes in social policy varies from place to place because of the differences in both the design and context of the programme in which they operate. Most obviously, CCT programmes vary with respect to the number of beneficiaries. In terms of absolute coverage, they range from 14 million households in Brazil to six million households in Mexico. In terms of budget, the costs range from about 0.5 per cent of gross domestic product (GDP) in such countries as Brazil to 0.2 per cent of GDP in Nicaragua.

Table 1. Comparison of CCT Programme Size

CCT Programmes	Country	Number of Beneficiaries	Total Annual Budget	Percent GDP
<i>Bolsa Familia</i> (introduced 1995)	Brazil	14 million households (until 2013)	US\$ 11 billion (2013)	0.5
<i>Progresa/Oportunidades</i> (introduced 1997)	Mexico	6.1 million households (until 2014)	US\$ 1 billion (2012)	0.3
<i>Familias en Acción</i> (introduced 2002)	Columbia	500,000 households (in 2006)	US\$ 95 million (2004)	n/a
<i>Programa de Asignación Familiar</i> (PRAF) (introduces 1990)	Honduras	240,000 household (in 2014)	n/a	2
<i>Red de Protección Social</i> (RPS)	Nicaragua	n/a	US\$ 11 million (2004)	0.2

Source: Attanasio et al. (2010); Glewwe and Kassouf (2012); Glewwe and Olinto (2004); (Maluccio & Flores, 2005)

Cash transfer programmes focus primarily on children as the recipients of the human capital investments. Investment in human capital, especially in children’s education, is a primary policy concern in low-income countries, as investment in children’s education is generally considered to help break the intergenerational cycle of poverty (Araujo et al., 2017; Fiszbein &

Schady, 2009; Morley & Coady, 2003; Sparrow, 2007). This means that by addressing educational problems, it is expected that children from poor households could escape poverty that they might have inherited from their parents. Therefore, cash transfer programmes are instrumental in promoting children's education and improving children's welfare.

A large and growing body of literature has investigated the significant impact of cash transfer programmes. Most evaluations of cash transfer programmes and their impact on educational outcomes have indicated that they have a positive impact on school enrolment, school attendance, and educational attainment (Dubois, de Janvry, & Sadoulet, 2012; Glewwe & Kassouf, 2012; Glewwe & Olinto, 2004; Schultz, 2004; Skoufias & Parker, 2001). Studies have found a strong correlation between the programme and several education-related outcomes, including higher school enrolment rates, better grade progression, lower dropout rates, and higher school re-entry rates among dropouts. However, this may not be surprising since most of these programmes are conditional upon school outcomes (Baez & Camacho, 2011).

Cash transfers to vulnerable households are increasingly being used in developing countries as key policy interventions to facilitate household investment in child education and health. Cash transfer programmes for education are known to be effective in improving children's education outcomes. Evaluations of cash transfer programmes and their impacts on educational outcomes have mainly indicated that they have improved school enrolment, educational attainment, attendance, and reduced dropout rates in several countries (Attanasio et al., 2010; Behrman, Gallardo-Garcia, Parker, Todd, & Velez-Grajales, 2012; Dubois et al., 2012; Glewwe & Kassouf, 2012; Glewwe & Olinto, 2004; Maluccio & Flores, 2005; Schultz, 2004; Skoufias & Parker, 2001). These programmes are particularly effective among the economically disadvantaged groups. In the long term, these investments in child health and education should be transformative, resulting in accumulate human capital development in children.

Table 2. Example of CCT Programmes and Impacts on Education Indicators

Name of Programme	Country of Implementation	Educational Indicators
<i>Progresal/Oportunidades</i>	Mexico	<ul style="list-style-type: none"> ▪ Positive impact on the school enrolment ▪ Positive impact on school continuation at all grade levels ▪ Decrease in dropout rates, particularly from primary to secondary education ▪ Positive impact on educational attainment
<i>Familias en Acción (FA)</i>	Colombia	<ul style="list-style-type: none"> ▪ Increase in school enrolment, particularly for children aged 12 – 17 in both urban and rural areas ▪ Reduce the probability of grade retention ▪ Males have generally benefitted more than females from the programme
<i>Red de Protección Social (RPS)</i>	Nicaragua	<ul style="list-style-type: none"> ▪ Positive impact on the school enrolment ▪ Positive impact in both maths and language achievements
<i>Programa de Asignación Familiar (PRAF)</i>	Honduras	<ul style="list-style-type: none"> ▪ Positive impact on the school enrolment ▪ Negative impact in dropout rate
<i>Bolsa Escola/Familia</i>	Brazil	<ul style="list-style-type: none"> ▪ Positive impact on the school enrolment ▪ Negative impact in dropout rate ▪ Positive impact on grade promotion rate

Source: Attanasio et al. (2010); Behrman et al. (2012); Dubois et al. (2012); Glewwe and Kassouf (2012); Glewwe and Olinto (2004); (Maluccio & Flores, 2005); Schultz (2004)

Evaluations of unconditional cash transfer programmes (UCT) in Ecuador (*Bono de Desarrollo Humano*), the old-age pension programme in South Africa, or the child support grants also in South Africa, have concluded that all of these programmes helped increased school enrolment, reduce dropout rates and improve health and nutrition outcomes in children in general (Asfaw, Davis, Dewbre, Handa, & Winters, 2014; Edmonds & Schady, 2012).

2.3 Cash Transfers and Child Labour

This section aims to add to our understanding of the role of policy interventions by systematically reviewing the evidence on the impact of cash transfers, both unconditionally and conditionally, on child labour in developing countries. On the basis of the review presented in the previous section, household income can be pinpointed as a factor that explains how a cash transfer programme may affect school attendance and child work. When household income is high, they are likely investing in education of their children. However, when household income is low, they are likely to make inefficiently low investments in their children's education and to let their children work at an early age.

Cash transfer programmes are expected to reduce the probability of child work activities and number of hours among school-age children through two possible channels. First, cash transfers reduce the cost of schooling which includes school supplies, textbooks, and uniform (Edmonds & Schady, 2012; Gee, 2010; Hoop & Rosati, 2014). Second, conditional cash transfers require family beneficiaries to have their children regularly attend school, thus, the programme increases the time children spend in school and reduces the time to participate in work activities (Edmonds & Schady, 2012; Gee, 2010; Hoop & Rosati, 2014). On the other hand, the household uses part of the cash transfer to invest in assets such as in farming and small business that make child work more productive, thus more profitable (Rosati, 2003). In this situation, the cash transfer could increase the value of children's work to the household (Edmonds & Schady, 2012; Hoop & Rosati, 2014; Pais et al., 2017; Rosati, 2003). Because of this, the likely overall effect of cash transfer programmes on child labour is uncertain.

There is growing evidence that cash transfers are effective strategies for reducing child labour in developing countries (Attanasio et al., 2010; Del Carpio et al., 2016; Edmonds & Schady, 2012; Galiani & McEwan, 2013; Maluccio & Flores, 2005; Ravallion & Wodon, 2000; Skoufias & Parker, 2001). Most studies focused on children's participation in work, with a few studies discussing the impact on working hours. Some studies focused on specific activities such as work in agriculture, whereas others used a more general definition such as child work in economic activities or household chores. In addition, methods practised in previous studies are varied. Some studies used randomised experiments, and other studies implemented different methods, such as instrumental variable regression, difference-in-difference, propensity score matching, or linear parametric regression. This section reviews a group of programmes of cash transfer for poor households on the effect of cash transfer on reducing child labour.

The most influential study of poverty alleviation programme in developing countries is the study on the Mexican *Progresa* by Skoufias and Parker (2001). They examined the impact of the *Progresa* programme on children working and going to school in Mexico. Using a double difference and cross-section estimator, they found that the implementation of the *Progresa* programme increased the school attendance of children while decreasing their work activities. A key methodological strength of this evaluation was the randomised controlled trial. The study found that the offer of a *Progresa* subsidy lowered by approximately 3.1 percentage points the probability that boys aged eight to 17 will work, and for girls of the same age range, by 1.2 percentage points. The programme had a lower impact on the incidence of work for girls relative to boys. However, while the subsidy offer reduced the incidence of working, it had no impact

on the number of hours worked among either boys aged 12 – 17 or girls aged 14 – 15 who were already working. These findings suggested that *Progresa* may be more effective in preventing children from working rather than in reducing the number of hours that children work once they are working.

Colombia created a similar conditional cash transfer programme in 2002, *Familias en Acción* (FA), modelled on the *Progresa* conditional cash transfer programme. This programme targeted poor households in rural areas. Evidence pointed out that the programme increased school enrolment, yet it did not imply a reduction in child labour, as time spent at work and school may not be perfectly substitutable (Attanasio et al., 2010). They compared work participation and time allocation across treatment and control areas before and after the programme using a difference-in-differences methodology combined with matching. They found that the programme decreased participation in domestic work after the programme by around 10 – 13 percentage points for younger children, but participation in income-generating work remained largely unaffected. The effects on domestic work participation are the largest in urban areas. It was indicated that the rate of work involvement was about 10 and 13 percentage points lower after the programme, for 61 per cent and 62 per cent of older and younger children respectively. Time spent at mainly domestic work was reduced by less than the increase in time spent at school. As there is very little evidence that the programme in Colombia decreased significantly the time spent by children in income-generating activities, it seems unlikely that household income has been negatively affected through this channel.

The *Red de Proteccion Social* (RPS) is a CCT which was first implemented in 2000 as a cluster-randomised experiment that included 42 eligible districts in rural Nicaragua. It is conditional on children's regular school attendance and healthcare visits. The RPS programme targeted improving health outcomes for young children aged from seven to 17 years old in poor families. Dammert (2009) examined the impact of RPS. He used a quasi-experimental research design and quantile treatment effect methodology to measure the impact of the programme. He found that boys experienced a larger positive impact from programme participation on schooling and a negative impact on the probability of engaging in labour activities and hours worked. The result showed that the RPS programme decreased participation in labour activities for boys by 11 percentage points in 2001 and 14 percentage points in 2002. The negative effect of the RPS programme on labour participation for girls is small, just one percentage point in both years (Dammert, 2009). In addition, it is important to note that this definition of work in this research does not include other activities on household chores.

Gee (2010) estimated the causal impact of a CCT offer on both the incidence and duration of child labour. His study used data from the International Food Policy Research Institute relating to RPS, Nicaragua's cluster-randomised CCT, to evaluate whether or not a CCT offer does, in fact, reduce the occurrence and duration of child labour. The study found that the offer of an RPS subsidy causes the estimated probability that a child will engage in work activities to be reduced by approximately 10.6 per cent. The offer of an RPS subsidy reduced the hours that a child will engage in work activities, given that the child is currently working, by 3.7 hours on average (Gee, 2010). The definition of work was the probability that a child is working: number of hours a child has worked during the immediate past seven days (not including Saturday and Sunday) using post-randomisation method.

Using different data and method, Del Carpio et al. (2016) conducted an evaluation based on a randomised and fixed-effects regression. The study analyses the impact of *Atención a Crisis* in Nicaragua and of its different transfer components on child labour in poor households. Using data collected from a sample of about 3,000 eligible households in the treatment group, and a random sample of about 1,000 eligible households in the communities that were randomly assigned to the control group, the study examined the impact of the transfer on the number of hours worked per child during the 12 months before the survey. The regression on child labour hours was estimated using a Tobit procedure. The study also carried out a pre/post treatment evaluation of the differences (DID estimation) in child labour between treatment and control groups. This programme affected the volume and quality of child labour, reducing it in the aggregate and steering it towards skill-forming activities. Meanwhile, the programme appears to have reduced the use of child labour for household chores and farm work, while increasing it for non-traditional, skill-forming activities related to commerce and retail. Indicators reported various types of child labour, including household chores, farm work, and non-farming activities; number of hours worked per child in the week prior to the survey; number of days in which any amount of work was done per child during the 12 months previous to the survey.

Honduras is another country with a cash transfer programme similar to those of Mexico, Colombia, and Nicaragua. The *Programa de Asignación Familiar* (PRAF) is one of the largest government social welfare programmes in Honduras. The programme was initiated in 1990 as a social safety net. The impact evaluation showed that the Honduran CCT increased the enrolment of eligible children by eight percentage points and it also decreased the proportion of children who worked outside the home by three percentage points or 30 per cent and

decreased the proportion who work inside the home by four percentage points or 29 per cent (Galiani & McEwan, 2013).

The *Bono de Desarrollo Humano* (BDH) is an unconditional cash transfer in Ecuador since 1998. The intent of the programme was to assist poor and vulnerable families during an economic crisis,¹ the programme continued well past the crisis. The impact evaluation showed that the programme reduced child work for both paid and unpaid activities (Edmonds & Schady, 2012). Furthermore, the decline in paid employment is large and was concentrated among children who were students at the time of random assignment.

Cash transfer programmes have proven to be valuable in reducing child labour that arises as a response to household vulnerability even though child labour has not been a direct objective of most cash transfer programmes. Cash transfer programmes appear to be more effective in reducing child work in economic activities, which is typically dominated by boys, than in household chores, which is more often dominated by girls. However, studies that looked at impacts on child labour tend to focus solely on children's economic activities. Few studies have documented changes in household chores as a result of cash programs, thus underreporting the effects of programmes on girls. This is an important oversight as many girls can be attending school while burdened by a heavy load of household tasks, and compromising learning and therefore leading to early dropout.

Empirical findings regarding the welfare effects of cash transfer programmes seem to be mixed. While evaluation results in the countries previously mentioned suggest that the programmes are well-targeted and decrease child labour (Edmonds & Schady, 2012; Maluccio & Flores, 2005; Skoufias & Parker, 2001), evaluations in several country found that cash transfers increase child labour or that cash transfers have no effect on child labour (Amarante et al., 2011; Cardoso & Souza, 2004; Del Carpio et al., 2016; Miller & Tsoka, 2012; Pais et al., 2017).

Malawi's Social cash Transfer Scheme is a UCT programme launched in 2006. This programme targeted the ultra-poor households that were also labour constrained. The study found that compared with non-beneficiaries, intervention children experienced an eight percentage point increase in household chores (Miller & Tsoka, 2012). Furthermore, the percentage of children who engaged in family work increased among boys, resulting in nine percentage point's

¹ In 1998/1999 Ecuador experienced an economic crisis that was characterised by drastic increases in prices and the eventual adoption of the dollar as its currency.

increase according to the authors' difference-in-difference and propensity score matching estimates. The authors pointed out that the household increased investment in productive agricultural assets such as farm animals and land for agricultural production, thus, the programme could be increasing household demand for child work.

Another example of a cash transfer programme that is reported to be unable to decrease child labour is *Bolsa Familia* CCT in Brazil, because the transfers are considered too small to provide an incentive to forgo labour income (Cardoso & Souza, 2004; Pais et al., 2017). Participation in the *Bolsa Familia* programme increased child-labour time allocation. Pais et al. (2017) investigated the influence of *Bolsa Familia* on child labour and estimated the effects of the programme within a propensity score matching framework. They found that the programme increased the number of hours of child labour in Brazil. This outcome might be explained by the fact that the programme may have not been formulated well enough to reduce child labour. The cash incentive was not enough to support additional education costs.

Cardoso and Souza (2004) also found that the transfers are too small to provide an incentive to forgo the labour income. They found that income transfer programmes had no significant effect on child labour but a positive and significant impact on school attendance. The conditional transfers helped protect enrolment, but did not effectively reduce child labour in Brazil. The other explanation could be that requiring school attendance does not inherently prevent child labour since education and work may not be perfect substitutes (Attanasio et al., 2010; Ravallion & Wodon, 2000; Rosati, 2003). They also pointed out that the parents may be reallocating the time from other activities, such as leisure, to increasing school participation rate, thus are not substituting the child labour earnings with the cash incentive from the programme.

There have also been numerous studies of cash transfer programmes in Uruguay, Brazil, and Colombia where the results indicated that the programme did not affect child labour (Amarante et al., 2011; Cardoso & Souza, 2004). Amarante et al. (2011) evaluated the influence of *Plan Nacional de Atencion a la Emergencia Social* (PANES) in Uruguay on child labour. The authors used a difference-in-difference method and found that PANES did not affect school attendance and child labour whether children are considered as one group or are disaggregated by age or gender. The evidence suggested that either the transfer was too small an incentive to promote secondary school attendance or that variables other than income were involved in this decision.

Cash transfer programmes are generally designed to increase children's human capital, mainly through a monetary incentive that is given to poor families. In general, effectiveness evaluations of cash transfer programmes found that both unconditional and conditional cash transfers can increase school enrolment rates, the proportion of school days attended for children as beneficiaries and, for some cases, reduce the participation of child work. There are, however, large variations in the effects of different cash transfer programmes, and for several programmes, no significant impact could be identified. Additionally, cash transfers reduce child work as an indirect benefit because few cash transfer programmes have had reducing child work as a primary objective. Increasing school enrolment and attendance implies that children who work or do not go to school can participate in the investment of education. Cash transfers allow poor families to keep the children in school, rather than sending them to work. The next section provides the impact evaluation of several cash transfer programmes in Indonesia.

2.4 The Indonesian Context: Effectiveness of Cash Transfer Programme on Children

The current welfare system of social protection programmes in Indonesia dates back to the late 1990s. Indonesia suffered from the Asian economic crisis in 1997/1998; GDP per capita fell by 14 per cent in a single year, inflation was high, and unemployment increased. Furthermore, the economic crisis in Indonesia in mid-1997 had a devastating effect on almost all aspects of the economy. There have been many discussions on the need for a "social safety net" to protect vulnerable households from sudden and unanticipated macroeconomic downturns. The safety net programmes were designed as an instrument to help mitigate the effects of the economic crisis on the wellbeing of vulnerable households and promote human capital formation. Thus, the Government of Indonesia (GoI) developed numerous poverty alleviation programmes in areas such as food security, education, nutrition, and health to provide a social safety net for the poor. The Government of Indonesia launched a set of new social safety net programmes known collectively as the *Jaring Pengaman Sosial* (JPS) in 1998.

As to financing education, the Government of Indonesia designed several subsidy programmes in the last two decades especially to support basic education, such as the social safety net programme, the school operational assistance, conditional cash transfer, and cash transfer for poor students. These programmes mostly targeted poor households because they are likely to make inefficiently low investments in their children's education and to let their children work. There are numerous evaluations of the impact of social safety net on a variety of education

outcomes (such as; Cameron, 2009; Kharisma, Satriawan, & Arsyad, 2017; Sparrow, 2007; Sulistyaningrum, 2016; Triningsih & Ichihashi, 2010; Yulianti, 2015).

Sparrow (2007) investigated the impact of the social safety net in education on school enrolment and child labour after Indonesia was hit by the financial crisis in 1997/1998 using a combination of National Socio-Economic Survey or *Survei Sosio – Ekonomi Nasional (Susenas)* and data from a 100-village survey. Using instrumental variable regression method, the study found that the programme increased school enrolment, especially for primary school-aged children who come from poor rural households. This programme was found to increase school attendance by 1.2 percentage points for participant children aged 10 – 12 and 1.8 percentage points for children in the programme aged 13 – 15. In addition, the study also concluded that it has reduced child labour for participant children aged 10 – 18 by 3.8 percentage points. An important limitation of this study is that it only collected data on activities of individuals in the sample households who are at least ten years old. Therefore, it cannot capture the phenomenon of child labour for those aged less than ten years of age.

The social safety net is proven to be effective in reducing the school dropout rates (Cameron, 2009; Kharisma et al., 2017). Cameron (2009) used data from the “100 village survey” and propensity score matching to evaluate the role played by Indonesia’s Social Safety Net programme in reducing school dropout rates during the Asian financial crisis. The data was not designed to be a nationally representative sample and focuses disproportionately on rural areas. The assumption of this thesis was that vulnerable groups would have found it difficult to keep their children in school and thus dropout rates would be high. The result has shown that the programme reduced dropout by about 38 percentage points at the junior secondary school.

A negative effect of the social safety net programme on school dropout rates was also reported by Kharisma et al. (2017). The study used the Indonesian Family Life Survey (IFLS) in 1997 and 2000 and the intention-to-treat (ITT) analysis. The study found that the programme received by boys and girls per 100 children is proven to be effective in reducing the school dropout rates in basic education. Furthermore, the benefit of the programme received by boys is more effective for reducing school dropout rates than for girls. The findings were the same in Java and Bali in that the average number of boys who received the JPS scholarship has shown a more significant share in reducing the total dropout compared to those who were outside the Java and Bali areas. These findings are consistent with previous studies that JPS scholarship is effective in reducing the school dropout rates in junior secondary school (Cameron, 2009). In conclusion,

Indonesia's social safety net programme was an effective poverty policy for protecting the education of the poor during the economic crisis.

The Government of Indonesia (GoI) launched its own household conditional cash transfer programme, *Program Keluarga Harapan* (hereafter referred to as PKH or Hopeful Family Programme), in order to improve lagging health, education, and social welfare outcomes among poor and extremely poor households. This programme was launched in 2007 as part of the Government of Indonesia national poverty reduction strategy. The programme guidelines stated that the main goal of the programme was to improve the quality of human development, especially for children from vulnerable households, so that children from extremely poor households can escape the intergenerational poverty trap.

Like other CCT programmes, PKH is a conditional cash transfer providing direct cash benefits to extremely poor households for access to health and education services. PKH involves demand side interventions that compensate poor households for the opportunity costs they incur by sending their children to school. The overall aims of PKH are also similar to CCT programmes in other countries. The main overall objectives of Indonesia's programmes are to reduce poverty and to promote human capital accumulation among poor households. The government also identified four specific programme objectives: first, improving the socio-economic conditions of the poorest households; second, improving the educational level of children; third, improving the health and nutritional status of pregnant women, post-partum mothers, and children less than six years in the poorest households; and finally, improving the access to and quality of education and health services, especially for the poorest households.

Evidence on the effect of PKH is mixed. Participation in the PKH was related to increased school participation, enrolment rate, and decreased dropout rates (Alatas et al., 2011). Another challenge faced by PKH is that evaluation could not find any impact on reducing child labour. Partly, this is due to inadequate mechanisms within PKH to deal with child work issues. Additionally, the PKH benefit is supposedly not enough to provide incentives for those children to quit work and go back to school. Overall, the research evidence supports the view that investing in CCT programmes that increase the demand for education can help the poor to increase school attendance and decrease repetition and dropout rates.

In 2005, a school-based education subsidy programme known as School Operation Assistance called *Bantuan Operasional Sekolah* (BOS) was introduced to provide grants directly to

primary and junior secondary schools on a per-student basis. The impact evaluation of BOS has increased school performance but has no effect on child labour (Sulistyaningrum, 2016; Triningsih & Ichihashi, 2010). Sulistyaningrum (2016) evaluated the impact of BOS on children's test scores by using Propensity Score Matching (PSM) to estimate the average treatment effect, in the absence of selection, on unobserved characteristics. The results confirm that BOS can increase student performance. The main finding is that the BOS programme has a positive and significant effect on child test scores. Students who receive subsidies on average increased their test score. It suggests that the BOS programme in Indonesia has increased test scores by 0.26 percentage points or 21.4 per cent.

Triningsih and Ichihashi (2010) evaluated the determinants and the impact of a school subsidy programme on child labour using data from IFLS in 2007. The study found no effect on children working activities. The explanation of this result is that the school subsidy programme was designed to cover direct educational costs, such as tuition fees, but not indirect costs associated with education, such as transportation costs and uniforms, which are recognised as being a major barrier to accessing schools for lower-income households.

In response, the government introduced the cash transfer for poor students to fulfil their educational support for other educational expenses. For example, children can use the money to purchase books and school stationery, clothing or uniforms and school equipment, transportation costs and the course or tutoring fees. The cash programme could help poor households facing still-elevated education cost. As it is targeted to students from poor households, it could be powerful for reducing the education gap between poor and non-poor households.

There are earlier evaluations of the cash transfer for poor student programme, including analysis on schooling outcomes (Yulianti, 2015). The author confirmed that the programme reduced the probability of dropping out of school at all levels of education for children in the poorest 25 per cent of households. The programme worked towards reducing the dropout rate at around 21.8 per cent, 29.2 per cent and 85.4 per cent at primary, junior, and senior high school level respectively. Although the cash transfer for poor student programme in Indonesia have existed since 2008, studies on their ex post impact are few.

The Government of Indonesia has promoted human capital investment, especially in children, by designing several educational assistance and cash transfer programmes to help families to

break the intergenerational circle of poverty. These programmes are to address the financial difficulties faced by vulnerable groups with inadequate resources. In recent years, a small but growing literature that evaluated education assistance programmes in Indonesia. Previous studies have examined the impact that cash transfer programmes such as JPS and BOS in Indonesia has on schooling and child work (Cameron, 2009; Kharisma et al., 2017; Sparrow, 2007; Sulistyaningrum, 2016; Triningsih & Ichihashi, 2010). While some research has been conducted on impact evaluations of cash transfer programmes on child labour, no studies have been found on programmes that transfer cash to poor students.

This thesis examines the effect of the cash transfer for poor students on child's work using data from IFLS in 2014 – 2015. Compared to the Latin America cash transfer programmes, the Indonesian cash transfer programmes have been studied less extensively. Although there have been several evaluations of the schooling impact of cash transfer to poor students and other cash transfer programmes in Indonesia, relatively little is known about their effectiveness in child's work. This thesis intends to add to the empirical literature on the consequences of cash transfer programmes on child work in several ways. First, this thesis uses different types of data collected in this survey concerned the working activities of children who were enrolled in school and those below age 15. Hence, the data provides a more comprehensive picture of child work that includes younger aged working children. Second, this thesis includes household chores as well as economic activities as a category of child work and includes the incidence and the duration. The economic activities include children working in a family's own business, working on a family's farm and working for paid jobs. Third, this thesis estimates the probability of child work as well as number of hours at work. Fourth, this thesis examines the impact on both urban and rural children. Finally, this thesis develops separate models for boys and girls to see if subsidies and other variables have different effects on different genders. In conclusion, by focusing more on the working activities of children within household's outcomes of the programme, the study hopes to widen the audience for consideration of such comprehensive programmes.

Chapter 3: Background and Context

This chapter presents the country background and overview of the programme. This chapter contains four sections: the first section, presents a short introduction to the country and sample overview. The second section describes education and child work participation in Indonesia. The third section presents the introduction of poverty alleviation programme in Indonesia. The last section describes the cash transfer for poor students programme.

3.1 Country and Sample Overview: Indonesia and Java

Indonesia is the largest country in Southeast Asia with a land area of 1,913,579 km², sea area of 3,544,744 km² and consists of 13,466 islands (BPS, 2017). Indonesia is the fourth most populous nation in the world, with a population of more than 259 million people in 2016 (BPS, 2017), and almost 60 per cent of the population is concentrated on the island of Java. This thesis will focus on the six provinces in Java namely, Jakarta, Yogyakarta, West Java, Central Java, East Java and Banten.

Indonesia experienced steady economic growth of around five per cent per year over the 2000s because of high domestic consumption and growth in exports of manufactured products and commodities. Strong consumption growth also reflects rising incomes with many Indonesians moving out of poverty and into the middle class. The share of the population living on less than US\$1.90 per person per day fell from 65.32 per cent in 1998 to 8.3 per cent in 2014 (World Bank, 2017). However, the situation looks bleaker when using the international poverty line of US\$3.10 per person per day as the threshold, which would classify 36.4 per cent of the population as poor in 2014 (World Bank, 2017). Most of the poor reside in the island of Java, given that 60 per cent of Indonesia's population lives in Java. Although Indonesia's average annual economic growth has risen by five per cent since 2010, the rate of poverty reduction has recently slowed and there are still large differences in poverty levels between urban and rural areas, and across regions in Indonesia.

The United Nation's Human Development Indicator (HDI) shows that between 1990 and 2015 Indonesia's life expectancy at birth increased by 5.8 years, mean years of schooling increased by 4.6 years, years of schooling increased by 2.8 years and Gross National Income (GNI) per capita increased by about 135.4 per cent (UNDP, 2016). In 2015, Indonesia had an HDI value of 0.689, which positions Indonesia in the medium human development category ranking 113 out of the 188 countries listed in the index (UNDP, 2016).

Several targets for Indonesia's Millennium Development Goals (MDGs) have already been achieved. Indonesia continues to make improvements in universal primary education for girls and boys. Based on statistics from the Ministry of Education and Culture, primary school completion has improved from approximately 88.7 per cent in 1992 to 96 per cent in 2014. Moreover, the literacy rate for people aged 15–24 years in 2014 has reached 98.8% with no significant difference between males and females. Indonesia has already achieved gender equality at most educational levels. For example, the net enrolment ratio of female to male, both at the junior and senior high school, is already within the MDG's target of 104 per cent and 103 per cent respectively. Furthermore, the net enrolment ratio of female to male at the higher education is 112 per cent. However, the net enrolment ratio of female to male at the primary education is 99.3 per cent. In other words, based on these statistics, gender equality in education has been realised. Despite these notable successes, challenges remain. Indonesia is one of the countries that still has many issues to be addressed such as regional disparity, poverty headcount ratio, education quality and child work.

3.2 Education and Child's Work Participation

Indonesia's education system is the fourth-largest in the world, with the MDG of 100 per cent primary enrolment achieved. Education is now the largest single sectoral outlay in the Indonesian budget, having increased from 7.2 per cent of public expenditure in 2006 to 20.2 per cent in 2016 (Ministry of Finance, 2016b). Table 3 shows the data in the education sector. In 2003 and 2015, the primary school net enrolment rates were 92.55 per cent and 96.20 per cent respectively. However, the difference at the junior and senior high school levels was quite substantial. At the junior secondary level, the net enrolment in 2003 and 2015 were 63.49 per cent and 77.45 per cent respectively. The net enrolments for senior secondary level in 2003 and 2015 were 40.56 per cent and 59.46 per cent respectively.

Table 3. Selected Education Indicator Indonesia 2003 and 2015

Education Indicators	2003	2015
Participation in Formal Education	%	%
School participation rate		
7–12 years old	96.42	98.59
13–15 years old	81.01	94.59
16–18 years old	50.97	70.32
19–24 years old	11.71	22.79
Net enrolment ratio		
Primary school level	92.55	96.20
Junior secondary school level	63.49	77.45
Senior secondary school level	40.56	59.46
Higher education	8.55	17.34
Illiteracy rate		
10 years old and older	9.07	4.27
15 years old and older	10.21	4.78
15–44 years old	3.88	1.10
45 years old and older	25.43	11.89

Source: Asian Development Bank and OECD (2015); BPS (2017)

Education, along with poverty, is one of the most important push factors for child's work. The cost of education combined with the need to raise family incomes has prompted many children to drop out of school and go to work. Child's work and education are largely incompatible activities; in other words, child's work cannot be associated with successful education.

Child labour is an important social issue in Indonesia, as in many other countries, because of the implication and relation to education and human capital. Economic activity is not the only category of work involving children. An even larger proportion of Indonesian children is engaged in other productive activities and specifically household chores such as cleaning, cooking, and caring for siblings. The estimates of child labour vary depending on how the government defines work, a child, and how data are collected. Based on Indonesia's Child Labour Survey in 2009, around 2.3 million Indonesian children under 15 years old, or almost seven per cent of this age group, were in employment in 2009 (Understanding Children's Work (UCW) Programme, 2012). Almost nine out of ten children perform household chores as part of their daily routines, adding to their total work burden.

Table 4. Child Activity Status 7–14 years Age Group in 2009 (per cent)

Activity status	Male	Female	Urban	Rural	Total
Only employment	0.9	0.5	0.4	0.9	0.7
Only schooling	89.3	90.4	94.4	87.5	89.9
Employment and schooling	6.1	5.7	2.8	7.5	5.9
Neither activity	3.6	3.4	2.4	4.1	3.5
Total in employment ^a	7.0	6.2	3.2	8.4	6.6
Total in school ^b	95.4	96.1	97.2	95.0	95.8
Total out of school children ^c	4.5	3.9	2.8	5.0	4.2

Notes: a) refers to all children in employment, regardless of school status; b) refers to all children attending school, regardless of employment status; c) refers to all children out of school, regardless of employment status

Source: UCW calculations based on Indonesia Child Labour Survey, 2009

Table 4 shows that 90 per cent of all children aged seven to 14 years attended school exclusively in 2009 while almost six per cent attended school and worked at the same time. Less than one per cent of children were in the labour market without going to school, while the remaining four per cent of children aged between seven and 14 years old were not involved in employment or in schooling.

Data from the Social Protection Programme Unified Database (PPLS) in 2011 recorded that nearly 25 million children live in the bottom 40 per cent households in Indonesia based on family income level. This excludes children who are outside of household settings such as migrant, street and trafficked children. Among these 25 million, around 1.5 million children aged six to 17 years are currently working (Patunru & Kusumaningrum, 2013). This data shows that most child labour is concentrated in Jakarta province followed by East Java, West Java, Central Java and Banten.

Table 5. Children in the Bottom 40 per cent based on their Labour Status According to PPLS 2011

Number of Children in the Bottom 40% Household		
By working status	Boys	Girls
Not working	12,074,669	11,313,039
Temporarily not working	76,461	65,285
Working	829,616	607,892
Total by Gender	12,980,746	11,986,216
Total Children		24,966,962
Working Children in the Bottom 40% Household		
By age category	Boys	Girls
<10	36,212	33,118
10–14	234,232	191,437
15–17	559,172	383,337
Total by Gender	829,616	607,892
Total Children		1,437,508

Source : Patunru and Kusumaningrum (2013)

Data from Statistics Indonesia (BPS) from 2011 to 2014 show that child labour participation aged 10 – 17 varies across different groups of children. In terms of gender, for example, in 2011, 4.82 per cent of boys and 3.62 per cent of girls were involved in child labour. The 2014 survey shows that this gender difference in child labour participation persisted over time. About 3.26 per cent of boys participated in child labour compared to only 2.26 per cent of girls. There is also a difference in the rates of child labour participation between rural and urban areas. In 2011, about 3.80 per cent of urban children and 4.64 per cent of rural children were involved in child labour; whereas in 2014, about 2.42 per cent of children in urban areas participated in child labour compared to 3.11 per cent of children in rural areas. Therefore, the declining trend in child labour, in this case aged 10 to 17 is evident in Indonesia, but the relative importance of different factors that contributed to this declining trend is not yet well established, especially for child labour below 10 years old.

Table 6. Child Labour Rate Aged 10–17

Sex/Residence	2011	2012	2013	2014
Male	4.82	4.70	3.13	3.26
Female	3.62	3.60	2.56	2.26
Urban	3.80	3.47	2.54	2.42
Rural	4.64	4.83	3.15	3.11
Total	4.23	4.17	2.85	2.77

Source: Razali Ritonga (2014)

The problem of child labour in Indonesia is important. In some larger cities throughout the country, especially cities in Java such as Jakarta, Surabaya, Semarang and Bandung, children work on the streets selling newspapers, candies, food and drinks, or become street singers at intersections and on public buses. I have selected all provinces in Java as a case study, because Java is the largest and most populous island in Indonesia. While Java cannot be viewed as representative of all regions in Indonesia, the study does suggest several patterns that appear to be common to other regions.

Child labour tends to interfere with the development of a child's human capital and the country's development potential. This is particularly relevant as Indonesia is pushing for a paradigm shift in economic development where human capital will play a critical role (Patunru & Kusumaningrum, 2013). Papers that investigate the relationship between education and child labour find that school and part time work are not mutually exclusive activities (Ravallion & Wodon, 2000). Therefore, working does not prevent children from attending school, but enrolled children who work are associated with lower levels of school attendance, grade progression, and school performance (Cardoso & Souza, 2004; Duryea & Morrison, 2004; Zabaleta, 2011)

Many scholars argue that child labour is associated with and determined by poverty (Amin et al., 2004). To reduce the incidence of child labour, the most effective policy is through poverty alleviation programmes (Rosati, 2003; Suryahadi et al., 2005). Other policies can foster the rate of reduction in child labour by preserving access to education for children from vulnerable households. It is recognised that the longer a child is kept in education, the lower the chance to be exploited and the greater the chances for future earnings. A cash transfer programme is part of such poverty alleviation programmes. Thus, a programme like this is targeted at young children in poor households to increase children's human capital.

3.3 Indonesia's Social Safety Net Programmes

In Indonesia, social safety net programmes were launched in 1998 to help deal with the impact of the Asian financial and economic crises. These programmes continued in 2005 when Government of Indonesia reduced fuel subsidies because of the global oil price hike. This situation made the government shift from commodity subsidy to household subsidy because Indonesia has a great number of poor households. Thus, a commodity subsidy is unfair to the poor households.

The social safety net programmes have gradually transformed into an integrated social protection programme targeting the very poor, poor and near-poor households and individuals. The programme covers five major sectors, namely, health, education, nutrition, food security, employment creation, and community empowerment (Rahayu, 2014). The Government of Indonesia identified three social protection programme objectives: first, assisting those who are poor in meeting their basic survival needs; second, helping the poor households to overcome poverty; finally, protecting the vulnerable households from falling into poverty (Bappenas, 2013). In addition, the social protection programmes are grouped into four clusters of poverty alleviation programmes where each cluster provides focused assistance and capacity building to the three groups of Indonesia's poor: the poorest, the poor and the near poor.² The development and supervision of all four clusters are under the control of the *Tim Nasional Percepatan Penanggulangan Kemiskinan*, hereafter TNP2K or Indonesian National Team for the Acceleration of Poverty Reduction.

Cluster one is a poverty alleviation programme targeting households. This cluster consists of several social assistance programmes such as an unconditional cash transfer programme, rice for the poor, health assistance, cash transfer for poor students and a conditional cash transfer programme.

Cluster two is a poverty alleviation programme targeting the community. This programme consists of several community-driven empowerment programmes under the umbrella of PNPM *Mandiri* (*Program Nasional Pemberdayaan Masyarakat*) or National Programme for Community Empowerment which attempts to increase community capacity and self-help to create jobs and achieve a better standard of community welfare (Bappenas, 2013). The PNPM

² Indonesia's national poverty line is set at consumption outlays of IDR 370,910 (US\$ 29) per month per person. This data based on Statistics of Indonesia in September 2017. The poorest is a household living below the poverty line (0.8 x poverty line). The poor is a household living below the poverty line and the near-poor is a household living in the poverty line and above the minimum line of poverty (1 – 1.2 x poverty line). In other words, the near-poor is easy fall back below the poverty line.

Mandiri is currently the largest community-driven development operation in the world (World Bank, 2012b).

Cluster three is a poverty alleviation programme targeting micro and small enterprises. This programme is broadly defined as microfinance programmes for small entrepreneurs and small and medium-sized enterprises (SMEs). The Government of Indonesia is offering a guarantee scheme for bank credit called *Kredit Usaha Rakyat* (KUR) or People’s Entrepreneurship Credit.

Cluster four is a poverty alleviation programme called Pro People. This cluster is the newest of the poverty alleviation programmes. This programme provides low-cost basic facilities such as housing, transportation, clean water, electricity and livelihood to fisher folk, the poor and marginal groups in urban areas, less-developed regions and the coastal areas (Bappenas, 2013).

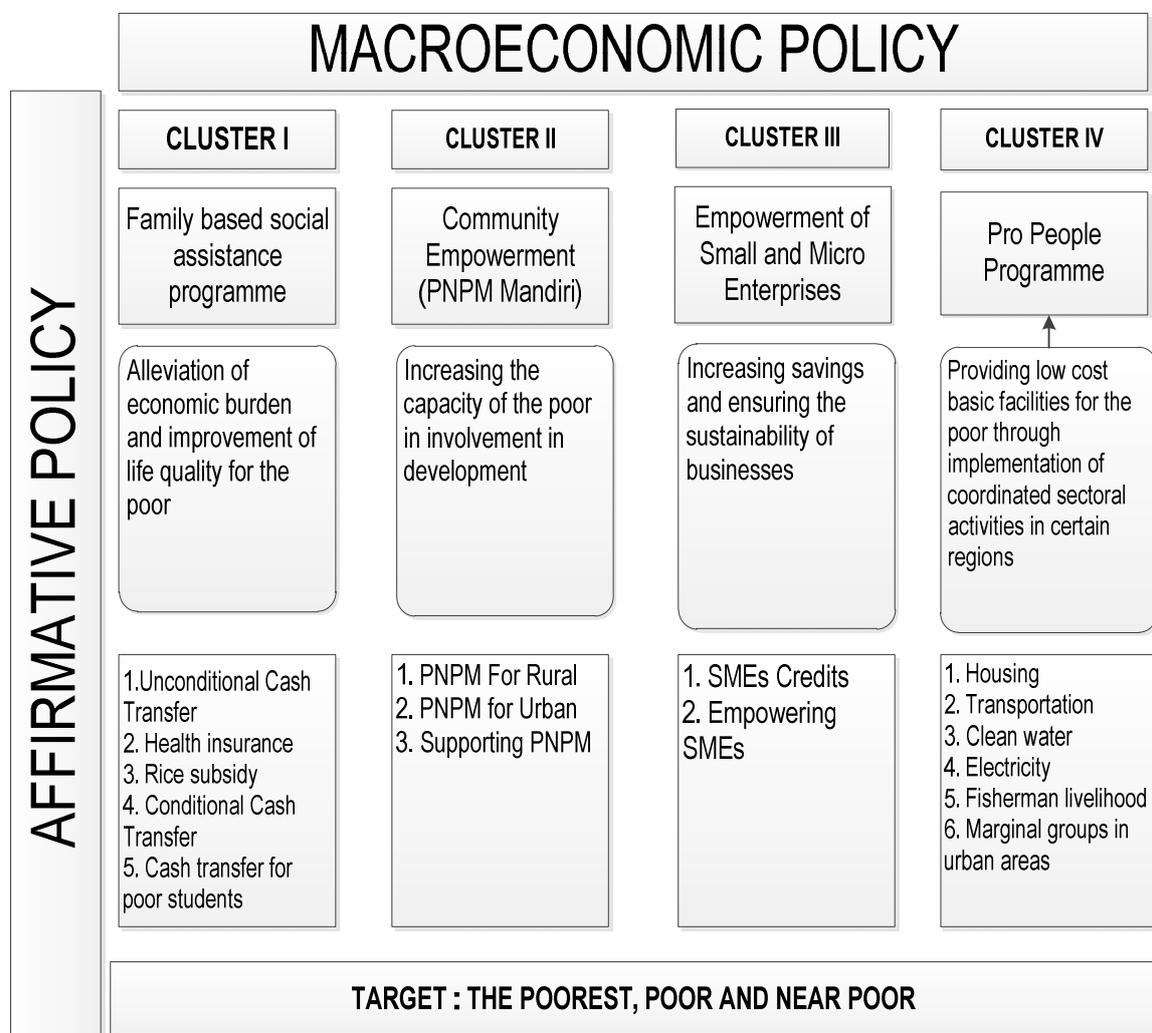


Figure 1. Indonesia’s Social Safety Net Programmes

Source: Bappenas, 2013

Indonesia’s social safety net programmes have been at the forefront of the central government’s efforts to reduce current poverty and inequality while promoting better human development

among poor households. In this section, I will briefly explain the social safety net programmes in cluster one because the cash transfer for poor students is under this cluster. The main characteristics of the programme are to fulfil the main basic needs of poor households and individuals that include food, education, health care, nutrition, sanitation and clean water. This cluster aims to reduce living costs and economic burden of the poor by providing cash transfers, subsidies, and insurance. The identification of these programmes' beneficiaries is based on the socioeconomic conditions of the household. Between 2015 and 2016, 37.8 million targeted households and 111.9 million targeted individuals received assistance from this cluster. National government spending on household-targeted social assistance programmes has increased markedly in nominal terms over the past decade where it has remained within the range of 0.4 per cent to 0.8 per cent of GDP.

As shown in Table 7, the first programme is a temporary, unconditional cash transfer, which was launched to help poorer households deal with rising fuel prices. This programme was implemented in 2005, 2006, 2008, 2014 and 2015. The cash transfer targeted the poorest 25 per cent of households or 16.3 million households in 2015. This programme provides monthly payments of IDR 200,000 (US\$ 15).

The second programme is subsidised rice for low-income households and is the second-largest social assistance programme in Indonesia. This programme is aimed at reducing the expenditure of the targeted groups by selling rice below the market price and improving food security among targeted households. In 2016, the total expenditure was IDR 21 trillion or equivalent of 0.2 per cent of GDP for 15.5 million poor households (Ministry of Finance, 2016b).

The third programme is health insurance for the poor with a budget of IDR 25.50 trillion in 2016 or almost 0.3 per cent of GDP. The programme is aimed at protecting the poor families against financial risks during illnesses or other health problems. In 2016, this programme targeted 92.4 million Indonesians or approximately one-third of the population. This programme has become the largest social assistance programme in the country in terms of population, expenditure and geographic coverage.

The fourth programme is a conditional cash transfer providing poor households with health and education services, especially for pregnant and lactating mothers and for children under 15 years old. This programme aims to improve lagging health, education, and social welfare among poor and extremely poor households. In 2016, the programme covered six million households,

compared with the total of 66 million households in Indonesia, and approximately seven million households below the poverty line. The CCT spent IDR 10 trillion in 2016, equivalent to 0.1 per cent of the GDP.

The last programme is a cash transfer to all school-age children who come from poor and vulnerable families. This programme targeted 19.5 million students in 2016 and had an annual budget of about IDR 11 trillion, and it now ranks as the third-largest social assistance programme behind subsidised rice and health insurance for the poor. This cash transfer is managed by the Ministry of Education and Culture (MoEc) and the Ministry of Religious Affairs (MoRA).

The decrease in poverty in Indonesia is largely attributed to the expansion of such government programmes that have targeted poor and vulnerable households. Over the past decade, Indonesia has made significant progress in a short time towards a comprehensive and adequate social safety net, yet challenges remain as the country continues to expand the net to reach more of the country's poor and vulnerable households (World Bank, 2012a).

Table 7. Poverty Reduction Programme Targeted to Households and Individuals

Programme Name	Unconditional Cash Transfer/Family Welfare	Rice for the Poor	Health Assistance	Conditional Cash Transfer	Cash Transfer for Poor Students
Year	2005,2006, 2008,2014, 2015	1998 – now	2005 – now	2007 – now	2008 – now
Transfer Type	Cash	Subsidised rice delivery	Health insurance fees waived	Cash and Conditions	Cash
Target Group	Poor and near-poor HHs	Poor and near-poor HHs	Poor and near-poor HHs	Very poor HHs	Students from poor HHs
Coverage 2016	34 Provinces	34 Provinces	34 Provinces	34 Provinces	34 Provinces
Number of Beneficiaries	16.3 Million Households (2015)	15.5 Million Households (2016)	92.4 Million Individuals / 22 Million Households (2016)	6 Million Households (2016)	19.5 Million Students (2016)
Benefit	IDR 200,000 per month	15 kg rice per month (appr. IDR 1.1 million per year)	Unlimited, subject to conditions	IDR 950,000 – IDR 3,700,000 per year (based on condition)	IDR 450,000 – IDR 1,000,000 per year (based on level of school)
Central Government Expenditure	IDR 9.5 Trillion (2015)	IDR 21Trillion (2016)	IDR 25.50 Trillion (2016)	IDR 10 Trillion (2016)	IDR 11Trillion (2016)
Key Executing Agency	Ministry of Social Affairs	Ministry of Social Affairs	Ministry of Health	Ministry of Social Affairs	Ministry of Education and Ministry of Religious Affairs

Source: Ministry of Finance (2016a, 2016b)

3.4 Indonesian Cash Transfer Programme for Poor Students

Indonesia introduced its first pro-poor cash transfer on education programme, the Social Safety Net Scholarship scheme (*Jaring Pengaman Sosial*) or JPS³, in the wake of the 1997/1998 Asian crisis with the aim of improving the access of students from vulnerable families to education. This programme provided income assistance for primary, junior and senior high school students and gave grants to selected schools between 1998 and 2003. This programme was replaced by School Operational Assistance (*Bantuan Operasional Sekolah*) or BOS programme in 2005.

³ JPS is a social safety net programme for poor people which was established in 1998 to mitigate the impact of crises in 1998. The programme covers four sectors: education, health, community empowerment, and employment creation.

This programme is a school-based education subsidy which was introduced to provide grants directly to primary and secondary schools and to accelerate the completion of the compulsory nine-year basic education. The grants were designed to cover direct educational costs but not indirect costs associated with education, such as transportation costs, uniforms, books, shoes or other educational expenses, which are recognised as being major barriers to access schooling for lower-income households. In response, the government of Indonesia introduced the cash transfer for poor students (*Bantuan Siswa Miskin*).

The cash transfer for poor students is a result of the level of commitment from the Government of Indonesia in providing equal access to basic education for the poor. This programme provides cash assistance for students aged six to 18 from poor and vulnerable households who are enrolled in primary, junior secondary, and senior high school from both public and private schools. Protection of vulnerable people, particularly children, is important because Indonesia enjoyed its demographic bonus⁴ and investing in children today will drive opportunities to generate capital and wealth (World Bank, 2012a). The number of those aged 10 – 24 has increased significantly from 33.5 million in 1971 to 65.6 million, or 25.7 per cent of the population in 2015 (BPS, 2015).

The cash transfer programme for poor students is a centrally funded cash transfer/grant to current public and private school students from poor households intended for the use of education fees and other non-fee costs of attending school. Targeting of cash transfers for poor student beneficiaries was based on a combination of financial conditions of students, geographic targeting, and selection of eligible individuals within provinces (World Bank, 2012c). As for other social assistance schemes, a province-level quota of beneficiaries is determined by the implementing agency, in this case, the Ministry of Education and Culture (MoEc) and the Ministry of Religious Affairs (MoRA). Province-based offices then allocate province-level quotas to districts. Quotas are calculated on information coming from the national poor households registry maintained by Statistics of Indonesia. Next, district offices allocate their district-level quotas to individual schools. School, school committees, and school principals are then responsible for allocating their quota among beneficiaries. The name, student number, and class are compiled and provided to the provincial government. Finally, central government publishes a decree consisting of student name, number, and class. Continuation of

⁴ This demographic bonus refers to the potential of a larger proportion of working aged population and a lower dependency ratio, which can drive opportunities to generate capital and wealth (World Bank, 2012a)

the programme was conditional on enrolment, attendance and passing grade at the end of the school year.

The basic criteria of the cash transfer for poor students based on TNP2K are the following: a) Children of school-going age from households with Social Protection or Family Welfare cards; b) Children of school-going age from households that receive the Conditional Cash Transfer Programme for Poor Families; c) Children of school-going age living in orphanages or under social care; d) Children of school-going age attending Islamic boarding schools whose families hold Social Protection or Family Welfare cards; e) Children of school-going age who are at risk of dropping out because of economic factors and/or natural disasters; f) Children of school-going age who have never been to school or are no longer in school but they can register with a formal or non-formal educational institution.

In 2013, the Government of Indonesia used a unified data base⁵ that is integrated data from various sources to determine targeted households for all social safety net programmes. This data collected information on households and individuals and is used to categorise the poorest forty per cent of households based on household expenditure per capita (Rahayu, 2014). The programme's eligibility for households or individuals can be formulated using different criteria such as economic status (extreme poor, poor, near-poor, vulnerable), geographic (based on indicators of poverty, education, health) and demographic status (sex, age, education status, type of work). However, the criteria to identify beneficiaries also depends on the decision of the MoEC and MoRA because they manage the budget.

The school committee, as an official of the ministry, could also propose students who fulfil the criteria but are not in the list in the unified database as program recipients. The recommendation of the school committee will be forwarded to the local government, where the candidates will receive the programme the following year if they meet the ministry's requirement. Thus, implementation of the programme depends on those identified through the TNP2K and by the budget holders.

The cash transfer for poor students was introduced in 2008. The programme delivers cash transfers to students who have demonstrated enrolment, attendance, and good behaviour in

⁵ The Unified Database (BDT) for social assistance programmes is an electronic data system that contains social, economic and demographic information on roughly 24.5 million households with the lowest welfare status in Indonesia, or 96 million individuals. The BDT is used to improve the quality of targeting social assistance programmes. It helps programme planning and improves the use of budgets and resources. By using data from the BDT, the number of targeted beneficiaries can be analysed from the onset of the programme planning. This will help reduce errors in targeting social assistance programmes.

school, it means the programme is conditional upon verified enrolment and attendance. During the first year of operation, the education cash transfer provided assistance to some three million students at all levels of elementary and secondary education. In 2016, the coverage of the programme reached 19.2 million students at a budget of IDR 14 trillion and covered 34 provinces (Ministry of Finance, 2016a). The education cash transfer programme provides a cash transfer from IDR 450,000 (US\$ 35) to IDR 1,000,000 (US\$ 75) per student per year, depending on the school level (see Table 8). The cash transfers are distributed twice a year. Payments for the first semester are made in August/September and payments for the second semester are made in March/April. Funds are channelled to students either directly through post offices or delivered by school personnel (Ministry of Finance, 2016a; World Bank, 2012c).

The amount is intended to fulfil the educational needs of students, especially towards supporting their school expenses such as the purchase of books, school stationery, uniforms, school equipment, transportation costs to school, and the tutoring fee. Thus, while school operational assistance removed barriers to school fees, cash transfer for poor students contribute to covering indirect costs. Together, these two programmes address both supply- and demand-side financial constraints to universal education (Larasati & Howell, 2014; World Bank, 2012c).

Table 8. Amount of Cash Transfer Programme for Each Student (2016)

Educational Level	Amount of grant per year (IDR)
Elementary school (State/Islamic/Christian/Islamic boarding)	450,000
Junior secondary school (State/Islamic/Christian/Islamic boarding)	750,000
Senior secondary school (State/Islamic/Christian/Islamic boarding)	1,000,000

Source: Larasati and Howell (2014)

The programme's guidelines state that the main goal is to improve the quality of human development, especially for children from vulnerable households so that children from extremely poor households can eventually escape the intergenerational poverty trap. In addition, the education cash transfer provides an income supplement for households that have education-related expenditure and promotes greater school attendance. Moreover, the programme aims to prevent marginalised students from dropping out and reduce the probability of child labour. Finally, the programme aims to help fulfil the government's programme for

universal and compulsory education, consisting of nine years of elementary school and three years of secondary school.

The education system in Indonesia is delivered through the Ministry of Education and Culture (MoEC) and the Ministry of Religious Affairs (MoRA). The cash transfer programme provides transfers from central education agencies directly to students or schools in both MoEC and MoRA schools. In 2016, among more than 52.6 million students in Indonesia, over 44.6 million or 84.7 per cent attended regular schools under the MoEC, and 8 million or 15.3 per cent were registered in religious schools under the MoRA (BPS, 2017). Both the Ministry of Education and Culture and Ministry of Religious Affairs have cash transfers providing cash payment once enrolment, attendance and other criteria have been verified.

Table 9 shows that in the academic year 2013/2014 the number of beneficiaries of the programme comprised 29 per cent or nearly 15.5 million of 53.4 million students of the enrolled student population, including both regular and religious schools. Religious schools had a higher percentage than regular school, at 34 per cent and 28 per cent respectively (Larasati & Howell, 2014).

Table 9. Cash Transfer for Poor Students for the Academic Year 2013/14 Compared with Student Numbers in Academic Year 2012/13 by Education Level

Educational Level	Students (number)	Cash Transfer Beneficiaries (number)	Cash Transfer Beneficiaries (%)
MoEC (Total)	45,200,000	12,600,000	28
Primary school	26,900,000	8,000,000	30
Junior secondary school	9,600,000	2,900,000	30
Senior secondary school	8,700,000	1,700,000	20
MoRA (total)	8,100,000	2,800,000	35
Religious primary school	3,600,000	1,400,000	39
Religious junior secondary school	3,400,000	950,000	28
Religious senior secondary school	1,100,000	450,000	41
Total	53,300,000	15,400,000	29

Source: Larasati and Howell (2014)

From 2008 to 2016, the number of programme beneficiaries across different educational levels and regions continued to increase. In 2008, the cash transfer for poor students targeted around three million students across all levels of schooling and in 2016 the coverage was at 11 million students (see Figure 2). In 2016, IDR 11 trillion or around US\$ 850 million was spent on the

programme, equivalent to 10 per cent of central government education expenditure. Moreover, this programme accounts for around 18 per cent of all central government resources devoted to family-integrated social assistance.

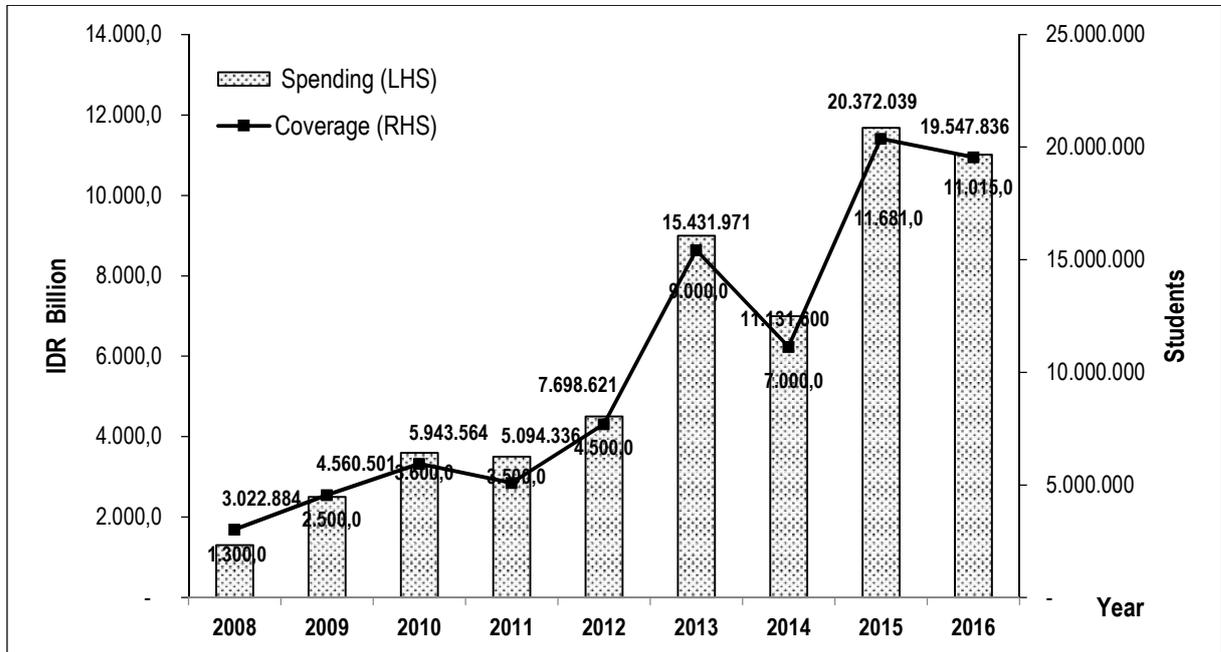


Figure 2. Indonesian Cash Transfer Programme for Poor Students Expenditure and Coverage 2008–2016

Source: Ministry of Finance (2016b); World Bank (2012c)

The programme of cash transfer to poor students was introduced with the objective to expand the education sector, aiming at a targeted population of a million students. This cash transfer programme has attracted the attention of policymakers and experts in the field of social protection. The Indonesian cash transfer programme for poor students plays a critical role in supporting poor students to maintain their school attendance, reduce dropout rates, increase transition rates, contribute to poverty reduction, and thereby improve human capital (World Bank, 2012c).

Targeted programmes can be cost-effective instruments for protecting investments in education for the poor, although their effectiveness highly depends on the ability to identify those most vulnerable to the crisis. Such policies that reduce the cost of education and improve the quality of education can also effectively decrease the occurrence of child labour. The next chapter will introduce the data and methodology being used for the test of these hypotheses.

Chapter 4: Data and Methods

This chapter consists of five sections. The first section describes the Indonesian Family Life Survey (IFLS) dataset, which is used in the econometric analysis. The second section provides descriptive statistics of individuals and households samples. The third section describes the measures of the dependent and independent variables. The fourth section presents a theoretical motivation for the empirical strategy. The final section describes the methods and data analysis techniques.

4.1 Data Source

The main source of data for this analysis is the Indonesian Family Life Survey (IFLS) obtained from RAND and Survey Meter Indonesia. IFLS is an ongoing longitudinal survey of individuals, households, communities and facilities in Indonesia. The IFLS is one of the leading panel surveys from developing countries and was first fielded in 1993 with the most recent wave in 2014 – 2015 (Strauss, Witoelar, & Sikoki, 2016). This thesis will use data from wave five of the IFLS, which was fielded in late 2014 and early 2015.

The IFLS wave five contains basic information for investigating the performance of the cash transfer for poor students programme in terms of implementation and work activities of children within households. The data provides both information on the household in which the child lives and information on the individual characteristics of the child. The core questionnaire consists of basic information about households and individual characteristics including demographics, living conditions, assets, income, social measures and participation in cash transfer and subsidy programmes. Surveys of communities and facilities contain detailed information on community infrastructure, education services and various poverty alleviation programmes including cash transfers for poor students. The strengths of the IFLS dataset are its size and comprehensive set of control variables that can be included in regression analyses.

The IFLS 2014/2015 data consists of separate individual, household and community-level datasets. Detailed information about household socio-economic traits is available in different modules. Specific questions on whether a household is a programme beneficiary or not are available in module 2 which is about household economic status. Information about children's working participation is available in module 5. The module considers children from age five to 14 years old, and it records activities of child's work for wages, family farm business, family non-farm business and household work. Moreover, the module collects information on the

number of hours worked in the previous week. The key outcome variables on which the paper focuses are work participation and number of working hours.

The IFLS survey contains detailed information on a wide range of individual and household characteristics, including the household socio-demographic structure, such as age and educational background as well as household size, household assets, household income and expenditure. In addition, the data at the community level collects information about the presence of education facilities, natural disaster and poverty alleviation programmes. In order to examine the effect of cash transfers on child's work, this thesis combines the individual data, household data and community-level dataset.

4.2 Descriptive Statistics

The second section of this chapter presents in detail, descriptive statistics of the sample of children and households. The sample of households is restricted to those who have children aged between six and 14 years old⁶ in six provinces on Java Island namely, Jakarta, West Java, Central Java, Yogyakarta, East Java and Banten. The sample covers both urban and rural areas. Table 10 provides detailed information about the sample of children used in the analysis of this thesis. The final analysis includes 4,512 children between six and 14 years old who live in 3,509 households with the number of male children slightly higher than female. This sample size is large enough for statistical analysis to be performed with many control variables and separate analysis for male and female, urban and rural areas.

The beneficiary household for the 2014 outcomes was defined according to whether the family has reported receiving a cash transfer for poor students in 2014. The non-beneficiary household for 2014 was similarly defined as any family who reported not receiving a cash transfer for poor students in 2014. Out of this sample, 694 households received the cash transfer programme and 2,815 households did not receive the cash transfer programme. A child in the beneficiary household is one who belongs to a family that receives a cash transfer programme. These children represent around 21 per cent of all children six to 14 years old in this dataset. The non-beneficiary are those children in families who did not receive the cash transfer programme; almost 79 per cent of all children analysed belong to the non-beneficiary household. In addition, based on residence, the majority of children in sample are living in urban areas.

⁶ The age range is based on the official age of entry into primary school and the minimum age of children to enter the labour market is 15 years old.

Table 10. Sample of Households and Children across Beneficiaries and Non-Beneficiaries Cash Transfer for Poor Students Programme

Sample	Total		Non-Beneficiary Group		Beneficiary Group	
	N	%	N	%	N	%
Number of household	3,509	100.00	2,815	80.22	694	19.78
Number of children	4,512	100.00	3,543	78.52	969	21.48
Children by gender						
Boys	2,322	51.46	1,835	40.67	487	10.79
Girl	2,190	48.54	1,708	37.85	482	10.68
Children by residence						
Rural	1,484	32.89	1,104	24.47	380	8.42
Urban	3,028	67.11	2,439	54.06	589	13.05

Source: Author's calculation from IFLS 5 (6 provinces on Java island).

Child's work used in the empirical analysis was measured using the participation of children doing various activities and the number of hours worked per child in the last week as a robustness check. This thesis considers children who are engaged in economic activities, children who are involved in household chores and children who participated in any activity as a definition of work. Economic activities are defined as activities that contribute to household income. This may include wage labour, but also non-wage labour such as working for a family farm business and a family non-farm business. Family farm business consists of agricultural activities and livestock productivity. Family non-farm business consists of unpaid activities at the shop. In most cases, children working for their families are unpaid labour for tending crops in the field, processing crops and tending livestock (Sim et al., 2017). Household chores are defined as activities such as cleaning, cooking or washing, caring for siblings and collecting water. Considering household chores as well as economic activities is important when it comes to accurately assessing its potentially negative effect on a child's welfare (Del Carpio et al., 2016; Miller & Tsoka, 2012; Zapata, Contreras, & Kruger, 2011). Furthermore, including household chores that are non-economic activities which are often performed by girls should be considered in order to avoid underestimation of the programme effect. The category of any activity is defined as child work that constitutes either household chores or economic activities or both activities.

Table 11. The Participation and Average Hours of Child’s Work by Activity, Gender and Residence

Gender of Children / Residence	Household Chores		Economic Activities		Any Activity (Total Hours)	
	Participation Rate (%)	Average hours/week	Participation Rate (%)	Average hours/week	Participation Rate (%)	Average hours/week
Boys	9.20	0.60	2.66	0.40	10.59	1.10
Girls	15.89	1.44	2.30	0.46	16.53	1.90
Urban	16.60	0.90	3.26	0.45	17.89	1.34
Rural	8.49	1.22	1.71	0.40	9.24	1.62
Total	25.09	1.00	4.96	0.43	27.13	1.43

Note: Mean number of hours for the sample, includes those who report zero hours on each activity.

Source: Author’s calculation from IFLS 5 (6 provinces on Java island).

Table 11 shows descriptive statistics with respect to household chores, economic activities and any activity of the sample of individuals. Additionally, Table 11 shows the participation rate and the average number of hours worked in the prior week on working activities by children by gender and residence. In this table, 27.13 per cent of those children are involved in household chores, economic activities and any activity, while more children are engaged in household chores than economic activities. Boys are more likely to be involved in economic activities than girls: about 2.7 per cent and 2.3 per cent respectively. However, overall participation rates of both are low. Girls, on the other hand, have much higher participation in household chores. The prevalence of child’s work shows that urban children have higher participation both in domestic and economic activities. Relatively, urban children are 17.89 per cent more likely than rural children to be involved in household chores, economic activities and both activities.

Table 11 also summarises the duration of work which is divided into three categories: (i) hours spent on household chores; (ii) hours spent on economic activities and (iii) total hours worked. The duration of work includes children in the activity who report zero working hours, thus clearly these children are not working. On average, children work 1.43 hours each week, with 1 hour spent on household work and 0.43 hours on economic activity. Table 11 shows around 27 per cent of children aged six to 14 reported spending on average 1.43 hours on total work hours. Girls spend 0.80 hours more on those activities than boys on the weekly basis, because girls spend more time doing household chores. Average hours on household chores are more time-intensive among girls and rural children, although they work similar hours performing economic activities.

Table 12 summarises background characteristics of children and their families for the 4,512 children separately for beneficiary and non-beneficiary groups. This is a large set of observable post-programme characteristics at the individual, household and community levels that explain participation of the programme. Important characteristics were highlighted between the beneficiary and non-beneficiary groups using descriptive statistics. Table 12 reveals a number of significant differences between beneficiary and non-beneficiary groups at the household levels. It can be clearly seen that the figures revealed some statistically significant differences at the child and head of household level between the beneficiary and non-beneficiary groups.

The data indicates differences between the beneficiary and non-beneficiary groups in age, sex and education of the head of households. The heads of households who did not receive cash transfers were also significantly more likely to be literate than the heads of beneficiary households. It seems families whose head of household has a higher education level are less likely to be the target of the cash transfer programme because usually these families have higher income and are less vulnerable (de Brauw, Gilligan, Hoddinott, & Roy, 2015). In terms of household characteristics, there was significant differences in floor, wall, roof, household size, television, non-food expenditure and poultry. Households that received transfers also seemed to have more members in the households than the ones that were not in the programme. Furthermore, households who participated in the programme are more likely to reside in the rural area. There was no significant difference between beneficiaries and non-beneficiaries in regard to ownership of house, electricity and land farming ownership.

In the community-level context, beneficiary households live in areas with fewer elementary schools, are more vulnerable in the poverty programme, have more factories in sub-districts and tend to be living in rural areas. Poor communities have the lowest access to formal education because of several factors such as the high cost of education and the scarcity and low quality of school infrastructure and education tools. The difference in other variables such as the number of flood incidents and number of junior high schools were not statistically significant. These differences at the child, household and community-level characteristics were all significant at the 5 per cent and 1 per cent levels. We made sure to include these statistically significant variables as control variables in the empirical estimation.

Table 12. Comparison of Independent Variables across Programme Participating and Programme Non-Participating Groups

Variables	Non-Beneficiary	Beneficiary	Mean Difference	
Children age and sex				
Age	9.7748	10.1569	-0.3821	***
Male	0.5179	0.5026	0.0153	
Head of household				
Age	44.1942	44.8751	-0.6809	*
Male	0.8589	0.8070	0.0518	***
Education	9.7863	7.9226	1.8637	***
Household characteristics				
Has electricity	0.9966	0.9948	0.0018	
Has clean floor	0.8115	0.6450	0.1665	***
Has strong wall	0.9102	0.8421	0.0681	***
Has own house	0.7508	0.7358	0.0150	
Household size	4.6424	5.0072	-0.3648	***
Has television	0.9650	0.9329	0.0321	***
Non-food expenditure	15.4760	14.9768	0.4993	***
Has land farming	0.2185	0.2115	0.0069	
Has poultry	0.2120	0.2652	-0.0533	***
Residence				
Rural	0.3116	0.3922	-0.0806	***
Community-level characteristics				
Number of flood incidents	1.0260	0.8947	0.1312	
Has factory in sub-districts	0.6514	0.6863	-0.0348	**
Number of elementary school	7.0587	6.4045	0.6542	***
Number of junior high school	4.6314	4.5150	0.1164	
Level of poverty programme	0.6361	0.6466	-0.0104	**

Note: All estimates are based on households with children aged six to fourteen.

Source: Author's calculation from IFLS 5 (6 provinces on Java Island).

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

In this section, we describe some descriptive statistics relating to our outcomes. It is useful to consider the differences in the mean outcomes across the groups without controlling for other characteristics of the household or child. There are two outcome measurements in this thesis: participation of child in work and number of hours worked.

Table 13 reveals clear differences between children aged six to 14 who received a cash transfer programme and those who did not. The participation of child's work was significantly higher among the beneficiary group than the non-beneficiary group. Children in households who received an education transfer were more likely to engage in household chores and work outside

the home than children in households who did not receive a cash transfer for poor students. Boys and girls in the beneficiary group show similar differences in work. They were both more likely to engage in household chores and less likely to work outside the home, compared with non-recipient children.

Table 13. Comparison on Participation and Number of Hours Worked of Child’s Work Across Beneficiary Group and the Non-Beneficiary Group

Outcome Variables	Non-Beneficiary Group	Beneficiary Group	Mean Difference	
Participation of child’s work				
Household chores	0.2399	0.2910	-0.0511	***
Economic activities	0.2582	0.3188	-0.0606	***
Any activity	0.0434	0.0722	-0.0287	***
Number of hours worked				
Household chores	0.9486	1.2002	-0.2516	**
Economic activities	0.3579	0.6956	-0.3377	***
Any activity	1.3065	1.8803	-0.5738	***

Note: All estimates are based on households with children aged six to fourteen. Mean number of hours for the sample, includes those that report zero hours on each activity.

Source: Author’s calculation from IFLS 5 (6 provinces in Java).

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

The number of hours worked in household chores and economic activities in the week prior to the survey was statistically different between beneficiaries and non-beneficiaries. On average, number of hours of children is higher for those who have received the cash transfer programme. This is true for household chores, economic activities, as well as for any activity. The larger mean number of hours recipient children were doing household chores is probably due to the higher number of household activities in beneficiaries households, such as shopping, cleaning and caring for siblings. The t -statistics of outcome and p -values imply that the outcome variables are statistically different from each other at the 1 per cent significance level.

4.3 Definition of Variables

The primary interest of this thesis is to assess whether the cash transfer to poor students has an impact on both the participation and duration of children in different working activities. This section provides a detailed description of the variables of interest in this thesis, to be specific, how they were coded and how they were measured.

4.3.1 The Dependent Variables

As mentioned above, this thesis focuses on children aged six to 14 years old. Two ways of measuring child work were used in this thesis. The first outcome is the working participation of children within households and the second outcome is the number of hours worked per child in the previous week according to the survey. For all outcome variables, all work types are aggregated into three categories: household chores, economic activities and any activity. The summary of dependent variables can be seen in Table 14 below.

The first outcome is used to examine whether the cash transfer programme has an impact on the involvement of the child in different working activities. The first outcome measured in this thesis is labelled as *chwork*, a dummy variable that takes the value of one if a child is participating in household chores, economic activities, as well as any activity, and a value of zero otherwise. The estimated value of *chwork* is the probability that a child will engage in any of those activities. A negative relationship is expected between the probability of participating in the programme and child's work (Miller & Tsoka, 2012; Skoufias & Parker, 2001). That is, a cash transfer is expected to decrease the probability of child work.

The second outcome is used for the robustness check as to whether the cash transfer programme has any impact on the duration of child's work. The second outcome uses working hours for measurement, which is labelled as *hourswork*. This variable is a count variable that records the total hours spent working in economic activities and household chores in the previous week. The total number of hours of child work activities combining household chores and economic activities was also examined. Children in beneficiary households involved in total hours worked 1.88 hours on average compared with 1.31 hours among children in non-beneficiary households. The mean number of hours for the sample includes those children who were reported to be zero hours on each activity; clearly, these children are not involved in working activities. A negative relationship is expected between participating in the programme and the number of hours of child work (Del Carpio et al., 2016; Edmonds & Schady, 2012; Pais et al., 2017). That is a cash transfer is expected to reduce the child's work hours.

4.3.2 The Independent Variables

The main independent variable is labelled as *cashtrans*; this variable takes on a value of one if a child received a cash transfer and a value of zero otherwise. The transfer appears to have reduced the participation of child's work and number of working hours for household chores

and economic activities (Del Carpio et al., 2016; Edmonds & Schady, 2012; Miller & Tsoka, 2012; Skoufias & Parker, 2001). As reported in Table 10, approximately 21.48 per cent of the children in the sample are participating in the programme, while the other 78.52 per cent are not. The participation in the cash transfer programme is potentially endogenous since unmeasured characteristics may affect both the likelihood of receiving transfer and the outcome variable of interest or child's work. Our empirical approach relies on cash transfer, and while we do observe whether or not an individual has received a cash transfer, we recognise that cash transfer variable is endogenous.

The endogeneity of this variable raises concerns because the recipients of the cash transfer programme were not assigned randomly; instead, students from poor households were specifically targeted. In other words, not every household is eligible for the programme. The targeting and selection of beneficiaries have been carried out by the central government using a unified database that contains lists of potential beneficiaries of cash transfer programme based on welfare level and socio-economic status of households. The eligibility criteria may induce different sources of selection bias including observable and unobservable factors that could be correlated with programme eligibility and work outcomes.

The child work issue is related to the characteristics of the individual children themselves, as well as the characteristics of their families and the communities where they live (De Silva & Sumarto, 2015; Del Carpio et al., 2016; Gee, 2010; Miller & Tsoka, 2012; Suryahadi et al., 2005). To identify the factors that are associated with working activities of children within households, this section explores these characteristics. Guided by findings from previous studies, the characteristics consider those of the children themselves as well as those of the household heads, the households and the communities. These additional control variables are those that influence the household and these factors may also play a role in the effect of the cash transfer programme on child's work. In addition, the additional covariates in the model would help improve the precision of the estimates of the causal effect of interest.

Table 14 presents the definitions, means, and standard deviations for the variables included in this analyses for the sample of children beneficiary and children non-beneficiary.

Table 14. Variable Definitions and Descriptive Statistics

Variable (s)	Definition	Full Sample		Non-Beneficiary Group		Beneficiary Group	
		Mean	Std. Dev	Mean	Std. Dev	Mean	Std. Dev
Dependent Variable							
<i>Hhwork</i>	1 if child works in household chores; 0 otherwise	0.25	0.43	0.24	0.43	0.29	0.45
<i>Ecwork</i>	1 if child works in economic activities; 0 otherwise	0.05	0.22	0.04	0.20	0.07	0.26
<i>Allwork</i>	1 if child works in any activity; 0 otherwise	0.27	0.45	0.26	0.44	0.32	0.44
<i>Hhhours</i>	Number of hours in household chores/week	1.00	3.09	0.95	3.09	1.20	3.08
<i>Echours</i>	Number of hours in economic activity/week	0.43	3.22	0.36	2.83	0.70	4.33
<i>Allhours</i>	Number of hours in any activity/week	1.43	4.62	1.31	4.36	1.88	5.43
Independent Variable							
<i>Cashtran</i>	1 if children received cash transfer; 0 otherwise	0.21	0.41				
Children Characteristics							
<i>Age</i>	Child's age in years	9.87	2.57	9.77	2.61	10.12	2.37
<i>Sex</i>	1 if boy; 0 otherwise	0.51	0.50	0.52	0.50	0.50	0.50
Head of HH Characteristics							
<i>Headage</i>	Head of household's age in years	44.34	10.53	44.19	10.74	44.88	9.71
<i>Headsex</i>	1 if head of household is male; 0 otherwise	0.85	0.34	0.86	0.35	0.81	0.39
<i>Headeduc</i>	Head of household's education in years	9.39	3.84	9.79	3.91	7.92	3.17
Household Characteristics							
<i>Floor</i>	1 if the material is ceramic/marble/granite/terrazzo; 0 is cement/bricks/bamboo/dirt	0.77	0.42	0.81	0.39	0.64	0.48
<i>Wall</i>	1 if the material is cement/concrete/bricks; 0 is wood/bamboo	0.89	0.31	0.91	0.29	0.84	0.36
<i>Household size</i>	Number of the people in the household	4.72	1.68	4.64	1.62	5.01	1.85
<i>Television</i>	1 if household has television; 0 otherwise	0.96	0.20	0.97	0.18	0.93	0.25
<i>Poultry</i>	1 if household has poultry; 0 otherwise	0.22	0.42	0.21	0.41	0.26	0.44
<i>Non-Food Expenditure</i>	Natural log of non-food expenditure	15.37	1.14	15.48	1.14	14.50	1.04
<i>Rural</i>	1 if household lives in rural; 0 otherwise	0.33	0.47	0.31	0.46	0.39	0.49
Community Characteristics							
<i>Factory</i>	1 if community has factory in sub-districts; 0 otherwise	0.66	0.47	0.65	0.48	0.69	0.46
<i>Elementary</i>	Number of elementary school	6.92	5.97	7.06	6.05	6.40	5.65
<i>Poverty</i>	Level of poverty programme	0.64	0.13	0.64	0.13	0.65	0.13
N		4,512		3,543		969	

Note: The table presents means and standard deviations. All estimates are based on households with children aged six to fourteen. Mean number of hours for the sample includes those that report zero hours on each activity.

4.3.2.1 Child Characteristics

Among the individual characteristics that affect work decisions are child's age and sex (Amin et al., 2004; Del Carpio et al., 2016; Gee, 2010; Miller & Tsoka, 2012; Suryahadi et al., 2005). The vector of exogenous, child-specific variables includes age of the child and a dummy variable for sex. The control variable is *Age* and indicates the age of the child in years. The average age is 9.87 years. It is expected that families are more likely to send older children to work; thus, the coefficient on *Age* is expected to be positive.

Gender of the child is a relevant individual characteristic of a working child (Amin et al., 2004; Del Carpio et al., 2016; Gee, 2010; Miller & Tsoka, 2012; Suryahadi et al., 2005). The variable *gender* takes on a value of one if the child is a boy and zero if the child is a girl. Table 10 shows that 51.46 per cent of the children in this thesis are boys, slightly higher for male than female. Findings from other studies show boys are more likely to work than girls; thus, a positive sign on boys is expected.

4.3.2.2 Household Head Characteristics

The child's work phenomenon is also related to the household head's characteristics. This thesis includes the following variables that control for the family's demographic composition: whether the head of the household is male and household head's age. It also included variables that measure the educational attainment of the head of the household. The variable *head of household* takes on the value one if the head of the household is a man and zero otherwise. We expect that male-headed households are less likely to have children working because of social status and greater income stability than in female-headed households (Amin et al., 2004). Thus, the expected sign on male-headed household is negative. Household heads' ages would also have an impact on children's working activities. The household head's age has a decreasing effect on their children's work supply (Attanasio et al., 2010; Miller & Tsoka, 2012; Suryahadi et al., 2005).

The variable *Headeduc* is the number of years of schooling completed by the head of households. The average years of schooling for head of households is 9.39 years. Studies in other countries have shown that the households headed by persons with higher levels of education are less likely to send their children to work than households headed by persons with lower levels of education (Del Carpio et al., 2016; Edmonds & Schady, 2012). Thus, the expected sign on the education level of the head of household is negative.

4.3.2.3 Household Characteristics

At the household-level data, we include variables that reflect the household economic conditions, living conditions and the demographic structure of children within the household. Information on living conditions of households comprises standard indicators such as type of floor and wall and are used as control variables. Those variables capture the effect of differences in wealth, which might also affect the amount of time required to engage in both household chores and economic activities (Attanasio et al., 2010; Zapata et al., 2011). On average, living conditions are better for recipients of non-beneficiary programme than the beneficiary programme.

Another variable reflecting the demographic structure of children within the household is the household size. The variable household size measures the household size as the number of people in the household; the mean household size is 4.7 individuals. A positive sign is expected on the coefficient of household size since the larger the family, the more children can engage in household chores and economic activities (Del Carpio et al., 2016; Edmonds & Schady, 2012).

The variable household asset ownership used in this thesis includes livestock or poultry and housing appliances such as television. The variable poultry captures household structural conditions, such as poor or non-poor, farm or non-farm. The variable poultry is measured in terms of a binary response, whether or not households own poultry. A positive sign on the coefficient of asset endowments, such as poultry, on child performing household chores and economic activities is expected (Del Carpio et al., 2016).

The empirical literature uses household consumption expenditure rather than income because data on expenditure are likely to be more accurate and the beneficiaries group has highly unstable income flows, thus current income is not seen as a good proxy for permanent income. Furthermore, household income is influenced by the labour force behaviour of the head of household. This variable expenditure is measured in terms of natural log of non-food expenditure. A positive sign on the coefficient of non-food expenditure on child engaging in household chores and economic activities is expected.

A variable to capture regional effect is included. This thesis considers two types of region characteristics: urban and rural areas. This variable takes on a value of one for a child who lives

in a rural area and zero if the child lives in an urban area. We expect a negative sign on rural because child work outside the home is more prevalent in the informal sector in urban areas.

4.3.2.4 Community-Level Characteristics

Child work does not only depend on family and child characteristics but also depends on community-level characteristics. Hence, we include three sub-district-level control variables. The first represents regional variation in the availability of local labour market conditions that might affect child work activities inside and outside the home, the second captures regional variation in the availability of schooling, and the third captures regional variation in the poverty alleviation programme.

The variable factory is a dichotomous covariate indicated with the value of one if the districts have a factory and zero otherwise. The presence of a school in the sub-districts is used to accommodate education supply-side factors. This variable captures the socio-economic conditions in the sub-districts, especially in rural areas, where schools are fewer and far between, or combined with a lack of roads and transportation. The community module provides information on participation in some other in-kind subsidy programme in sub-districts. The other relevant programmes operating under the Indonesian social safety net are the unconditional cash transfer, conditional cash transfer, rice subsidy and health insurance. This variable is used to identify and quantify the level of poverty in the sub-district. The highest level of poverty programme is in the sub-districts, thus the poorest of sub-districts. Suitable control variables such as household and community-level characteristics should be observable to deal with this source of endogeneity.

4.4 Theoretical Framework

In this section, we present a simple theoretical model behind the children work decision and the “unitary model” of the household where the head of the household is the decision-maker. The main purpose is to motivate the empirical exercise by exploring the working child decision-making process, relating it to child characteristics, household characteristics, community characteristics and external interventions such as the presence of a cash transfer programme evaluated in this thesis. Within this theoretical framework, we then investigate how income shocks affect school and work choices, and the role that cash transfers can play in mitigating these effects.

The model follows De Silva and Sumarto (2015); Ravallion and Wodon (2000); Rosati (2003) where the utility function of the representative household in the model is given by the following:

$$U = U(C, L, S : X) \quad (1)$$

where U is a concave utility function based on the household consumption (C), the child's schooling (S), the child's leisure (L), and the vector of exogenous individual, family and demographic characteristics (X), which parameterise the utility function.

The time constraint that maximises utility can be expressed as follows:

$$T = L + S + E, \quad (2)$$

The household head makes decisions about the allocation of the child's total time, since it must be divided between leisure (L), school attendance (S), and child's labour supply (E): where (E) is the time spent on paid or unpaid labour both economic and domestic activities. Equation (1) is subject to the restrictions of the child's time in Equation (2).

By equating adult exogenous household income Y and output from household production with cost of production and household consumption, the household budget constraint can be stated as follows:

$$P_c C + P_s S \leq Y + WE \quad (3)$$

where P_c , P_s and W are price of consumption, schooling and child labour. The household utility maximisation problem can be formally stated as follows:

$$\max_{C,L,S} U(C, L, S : X) \quad (4)$$

The government fiscal policies such as a cash transfer programme (G) can be introduced by simply rewriting a new budget constraint that maximises U as follows:

$$P_c C + P_s S \leq Y + WE + G \quad (5)$$

The solution to the maximisation problem is a function of prices of consumption, schooling, household income, wage rate for the child and a cash transfer given to households of enrolled children. In the context of a cash transfer, the cost of schooling can be reduced according to the

programme. Equation (5) assumes household income Y , adult labour supply and leisure to be exogenous, thus when parents become unemployed, it is not because of their choice but due to external market condition (De Silva & Sumarto, 2015).

A cash transfer programme (G) functions as income. Increases in income, including cash transfers, could reduce the addition of schooling cost, such as books, uniforms and transportation, hence this could increase the relative return to time in school (Edmonds & Schady, 2012). The programme can affect the behaviour of beneficiary households because vulnerable households are more likely to be affected by income constraints (de Hoop & Rosati, 2013). Cash transfers can increase child's schooling involvement and reduce the time spent by children working in both economic and domestic activities. Furthermore, cash transfers may reduce the probability and number of hours of child labour by providing the regular income that families need to survive, which in turn releases children from their economic responsibilities.

4.5 Econometric Methods: The Bivariate Probit Model with Endogenous Dummy

This thesis conducts empirical exercises that estimate the effect of participation in the cash transfer programme on working activities of children within households. The exercise is post-treatment evaluation of working child comparing beneficiaries and non-beneficiaries groups. This thesis carries out the same exercise for participation in different types of activities, as well as for the amounts of time spent in work as a robustness check. Both exercises are disaggregated into economic activities, household chores and any activity and use the same control variables. These consist of a set of individual, household and community characteristics that may have an independent effect on child's work as described by the literature.

This thesis evaluated the effect of cash transfer programme on child work by analysing the probability of participation in a particular type of activity of children within a bivariate Probit framework. The model estimated is a limited-dependent-variable model, where the dependent variable is binary; either the child is engaged in any of the different working activities or the child is not engaged in any activity. Meanwhile, the main independent variable is also binary; one if the children received a cash transfer and zero otherwise. In addition, the control variables are a set of children, household head, household and community-level characteristics. Thus, this thesis considers how to estimate the effect of endogenous binary variables in a binary response model.

The bivariate Probit model is frequently used for estimating the effect of an endogenous binary regressor (Angrist, 2001; Gitto, Santoro, & Sobbrío, 2006; Latif, 2009; Macdonald & Shields, 2004). To account for endogeneity of the cash transfer programme in the child performing household chores, economic activities and any activity, the paper uses a recursive bivariate Probit model. The bivariate Probit model provides a convenient setting for estimating the effect of an endogenous binary regressor CT_{ij} on a binary outcome variable W_{ij} in different activities, denoted j , which are economic, household chores and any activity. The standard model assumes a constant treatment effect, the presence of exclusion restriction and the absence of simultaneity (Greene, 2012). Formally, the structural model consists of two Probit equations:

$$W_{ij}^* = \alpha_1 + X_i\beta_1 + CT_{ij}\delta + \varepsilon_{1i} \quad (1)$$

$$CT_{ij}^* = \alpha_2 + X_i\beta_2 + Z_{ij}\gamma + \varepsilon_{2i} \quad (2)$$

$$W_{ij} = 1 \text{ if } W_{ij}^* > 0, CT_{ij} = 1 \text{ if } CT_{ij}^* > 0$$

Where:

$W_{ij} = 1$ if a child i is participating in activity j and a value of zero otherwise.

$CT_{ij} = 1$ if a child i in activity j received a cash transfer programme and a value of zero otherwise.

W_{ij}^* and CT_{ij}^* are unobserved latent variables that determine whether a child is engaged in different activities and being a beneficiary of a cash transfer for poor students respectively.

β_1, β_2, δ and γ are the unknown parameters of interest that we wish to estimate and $\varepsilon_1, \varepsilon_2$ are the error terms.

X_i is a vector of exogenous observable characteristics for children i , which are assumed to be predetermined to participate in different activities and the cash transfer programme.

Z_i is a vector of identifying restrictions that are assumed to influence the probability of beneficiary a cash transfer programme, but are orthogonal to ε_{1i} , and $E[\varepsilon_1] = E[\varepsilon_2] = 0$, $\text{var}[\varepsilon_1] = \text{var}[\varepsilon_2] = 1$ with $\text{cov}[\varepsilon_1\varepsilon_2] = \rho$.

Finally, ρ is the correlation between ε_{1i} and ε_{2i} , which is assumed to follow a bivariate normal distribution (Wooldridge, 2010). The likelihood ratio test is used to determine whether ρ is significantly different from zero. If ε_1 , ε_2 are not independent due to endogeneity of cash transfer for poor students, then maximum likelihood estimation of equation (1) using a univariate Probit model will not provide consistent estimates of the impact of programme on child work. However, when ε_1 and ε_2 are not independent, estimating child's work and cash transfer programme jointly in a recursive bivariate Probit framework will yield consistent estimates. In addition, we run bivariate Probit regressions and clustering standard errors at the community level because some children in our sample are in the same households and some households will also have the same community-level characteristics. Because of this, standard errors of the coefficients have been corrected for clustering at the community level.

4.6 Robustness Check

In order to check the robustness of our results, we provide evidence based on two different identification strategies. First, we provide evidence on two dimensions of heterogeneity of impact based on gender and residence using data on children participation in different types of activity. Second, we provide evidence of the effect of the cash transfer programme using data on the number of hours worked. The impact of a cash transfer programme on child's work may differ between girls and boys because gender might play an important role in the decision to participate in various tasks. Thus, we estimate the model for the total sample of children and then separately by gender. The second aspect of heterogeneity that we consider is location of residence. Children may be engaged in different kinds of work depending on whether they live in a rural or an urban area. For example, most of those working in rural areas may be engaged in agriculture, while those who work in urban areas may be working in manufacturing fields. Therefore, we estimate the model for the total sample of children and then separately by rural and urban areas.

For the second robustness check, this thesis uses detailed number of hours worked with the programme to assess how the programme could affect the amount of time spent by children in economic, household chores and any activity. The number of hours worked is a count variable, non-negative integer, and ranges from zero to 56 hours. In this thesis, we propose an estimation method that is appropriate for dealing with endogenous participation effects when the dependent variable is a count. In conclusion, the second robustness check is using count data regression model with an endogenous participation effect. The next section of this thesis

extends the analysis of cash transfer in working activities to consider the children as the unit of analysis, in order to be controlled statistically, for additional characteristics of the child, head of household, household and community-level characteristics.

Chapter 5: Results and Discussions

This chapter presents the results and discusses the findings. This chapter is split into five sections: the first section presents the estimated effect of the cash transfer programme on children's participation in different working activities within households. The second section presents robustness tests based on the children's gender and residence. The third section presents another robustness check for the effect of the cash transfer programme on working hours. The fourth section discusses the limitations of this thesis. Finally, the last section summarises the important results.

5.1 Empirical Results: Bivariate Probit Model with Endogenous Dummy

This thesis explores the effects of cash transfer programmes on working activities of children within households. Using data from the Indonesian Family Life Survey (2014/2015), the model utilises a recursive bivariate Probit approach to take into account the potential endogeneity of cash transfer programmes in children engaging in different working activities. The dependent variables are the probability of a child engaged in household chores, economic activities, and any activity. In all exercises, this model uses the same control variables. These consist of a set of individual, head of household, household and community characteristics that may have an independent effect on the working activities of children within households.

The main results of interest from the bivariate Probit models are presented in Table 15, and the full estimates are provided in Tables A1 – A3 in the Appendix. The marginal effects of the explanatory variables are reported since these effects cannot be inferred directly from the regression coefficients. In addition, the average marginal effects in Table 16 are calculated as the change of the effect of the treatment on the treated, or the expected effect of the treatment on individuals with observed characteristic x who participated in the programme.

5.1.1 Coefficient Estimates

Table 15 presents coefficients of the bivariate Probit estimations, indicating the directions of the effect of the explanatory variables and controlling for other factors such as household and community characteristics that might influence these outcomes. Before turning to the variable of interests, the results on the control variables are briefly discussed.

Table 15. Estimation Results of Bivariate Probit Model

Independent Variables	Dependent Variable(s)					
	Household Chores (1)		Economic Activities (2)		Any Activity (3)	
	Coefficient	Std.error	Coefficient	Std.error	Coefficient	Std.error
Cash Transfer	-1.2922 ***	0.1243	-0.9946 ***	0.1910	-1.2927 ***	0.1868
Children Age	0.0780 ***	0.0096	0.1026 ***	0.0139	0.0856 ***	0.0153
Children Sex	-0.3576 ***	0.0564	0.0306	0.0542	-0.3114 ***	0.0711
Head HH Sex	-0.0647	0.0618	0.1128	0.0936	-0.0237	0.0709
Head HH Age	-0.0019	0.0024	-0.0087 ***	0.0032	-0.0030	0.0024
Head HH Education	-0.0139 *	0.0085	-0.0440 ***	0.0109	-0.1901 *	0.0095
HH Floor	-0.2727 ***	0.0592	-0.1842 **	0.0763	-0.2842 ***	0.0619
HH Wall	0.1197	0.0812	-0.9303	0.0872	0.1131	0.0794
HH Size	0.0256	0.0199	0.0660 ***	0.0221	0.0284	0.0240
HH Television	0.0234	0.0992	-0.1841	0.1535	-0.0045	0.1096
HH Poultry	0.0719	0.0597	0.0648	0.0786	0.0695	0.0610
HH Non-Food Exp	-0.0618 **	0.0270	-0.0660 *	0.0389	-0.0599 *	0.0328
Rural	0.0190	0.0752	-0.1239 *	0.0769	0.0046	0.0745
Comm Factory	0.0237	0.0661	-0.1083	0.0709	0.0126	0.0674
Comm Primary School	-0.0073	0.0047	-0.0195 ***	0.0063	-0.0083 *	0.0046
Comm Poverty Prog	0.2230	0.2346	0.6903 **	0.2839	0.2274	0.2488
Constant	0.1640	0.4971	-0.7300	0.7284	0.1890	0.6664
Number of observation	4,512		4,512		4,512	
Rho	0.9004 ***	0.0948	0.7081 ***	0.1055	0.9021 **	0.1484
Wald test of rho=0, chi ²	8.6680		17.4105		3.4641	

Source: Author's calculation from IFLS 5 (6 provinces on Java island).

Note: Robust standard errors are corrected for clustering at the communities' level.

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

Effect on Household Chores

Table 15 column 1 provides the results where the dependent variable is children engaged in household chores. The value of rho⁷ ρ is 0.90, with a standard error of 0.0948 and p -value of 0.003, hence significantly different from zero. Thus, children participating in household chore activities and being a beneficiary of a cash transfer programme are jointly determined or strongly correlated. On the basis of the Wald test⁸, the chi-squared value generated by the Wald test as well as the p -value associated with a chi-squared is 8.6680. The p -value is less than the generally used criterion of 0.05, so we are able to reject the null hypothesis $H_0 : \rho = 0$, indicating that the coefficients are not simultaneously equal to zero. This implies that the error

⁷ Rho is a correlation coefficient which is the correlation coefficient between the residuals of each of the two Probit equations.

⁸ The Wald statistics is the value of the regression coefficient divided by its associated standard error. The Wald test is commonly used to perform multiple degree of freedom tests on sets of dummy variables used to model categorical predictor variables in regression.

terms of the equations jointly estimated do not vary together. In other words, the bivariate Probit model fits the data better than the separate model.

In the equation where the dependent variable is children engaged in household chores, it is possible to observe a negative⁹ and significant correlation with a cash transfer programme. A negative correlation and statistical significance confirms that receiving cash transfer reduces the probability of engaging in household chores. In addition, the estimation results also confirm that both children's characteristics and parental education affect the probability of children being engaged in household chores. The coefficient on age of child is positive and statistically significant, confirming that the older a child, the higher the probability of involvement in household chores. Furthermore, the male child coefficient, which is negative and significant, also confirms that male children have a lower probability of engaging in household chores than female children. In addition, the education of the household head has a negative effect on the incidence of a child involved in household chores, confirming that higher education levels of household heads are associated with a lower probability of children engaging in household chores. Meanwhile, Table 15 also shows that the reduction in the probability of children engaging in household chores does not depend on the gender and age of the head of the households.

The estimation results also indicate that household characteristics also affect the probability of whether or not children engage in household chores. It can be seen from Table 15 that the HH floor coefficient has a significant negative effect, confirming that the children who live in households that have floors of ceramic, marble, granite, and terrazzo have a lower probability of participating in household chores, as these also indicate the affluence of households. Meanwhile, the per capita non-food expenditure coefficient, which is negative and significant, indicates that higher per capita non-food expenditure leads to lower probability of involvement in household chores. One possible explanation for this is a correlation between the households' wealth and participation of children in household chores. When the income from the family is high enough, they can afford to pay someone else such as maid or skilled labour to do household chores. The community-level characteristics appear not to be statistically related to child engagement in household chores.

⁹ Negative effect is the desired outcome as it implies a decreasing participation in household chores, economic activities, and any activity. Therefore, children can concentrate in school.

Effect on Economic Activities

Table 15 column 2 provides the result where the dependent variable is children engaged in economic activities. The value of rho ρ is 0.71, with a standard error of 0.1055 and p -value 0.000, hence significantly different from zero. Thus, children who participate in economic activities and being a beneficiary of a cash transfer programme are strongly correlated. On the basis of the Wald test, the chi-squared value generated by the Wald test as well as the p -value associated with a chi-squared is 17.4105. The p -value is less than the generally used criterion of 0.05, so for this model we can reject the null hypothesis $H_0 : \rho = 0$, indicating that the coefficients are not simultaneously equal to zero. This implies that the error terms of the equations jointly estimated do not vary together. In other words, the bivariate Probit model fits the data better than does the separate model. The positive sign of the correlation coefficient of rho implies that the unobserved factors that increase the probability of being a beneficiary of a cash transfer programme also increase children's involvement in economic activities.

Table 15 reveals that if the definition of child work considers only economic activities, there is a negative and significant correlation with a cash transfer programme. This confirms that children who benefitted from the programme have a lower probability of being engaged in economic activities. Furthermore, children's age has a positive and significant impact, implying that older children have a higher probability of working in economic activities than younger children. The gender of the child has different effects depending on the type of activities of children; girls are significantly more involved in household chores, while boys do more on economic activities. However, these result are not statistically significant.

The estimation results also indicate that household-head characteristics are associated with children's participation in economic activities. While the gender of the household head has no effect on the probability a child works, age does. The age of household head has a significant negative effect, indicating that the older the head of household the lower the probability of children participating in economic activities. The educational level of the household head measured in years carries a negative coefficient for economic activities, confirming that the higher the level of education of the household head, the lower the probability of children working. It means that household heads with more education tend to prevent young children from working, especially in economic activities. The effects of household head are consistent with previous results in the literature (Amin et al., 2004; Attanasio et al., 2010). Thus, it can be

concluded that the level of education of household heads is vital to decreasing the probability of children working.

The results also confirm that household characteristics affect the probability of a child being involved in economic activities. The indicator of wealth, such as the HH floor, has a negative and significant impact; this means that the wealth of a household points to a lower probability of children participating in income-generating activities. Meanwhile, the per capita non-food expenditure coefficient, which is negative and less significant, indicates that higher per capita non-food expenditure leads to lower probability of a household involving their children in income-generating activities. The household size carries a positive and significant coefficient for economic activities from wage, farm and/or non-farm business; the more people in the household, the higher the need for involvement or participation in economic activities because of the higher needs from larger households. The rural variable has a significant negative effect; this means that children living in rural areas are less likely to be in work than those in urban areas.

The community-level characteristics appear to be statistically related with children in economic activities. The higher the number of primary schools in the sub-district significantly decreases the probability of children being involved in economic activities. In addition, the higher the number of poverty programmes in the sub-districts increases the probability of children engaging in economic activities. The number of poverty alleviation programmes in the sub-district collected data about the recent public social safety net programme. These included two rice subsidy programmes: rice for the poor and market operations; health insurance subsidies; unconditional cash transfer, and conditional cash transfer. The more the poverty alleviation programmes that were implemented in the sub-district, the higher the probability of children engaging in income-generating activities. This is because the Government of Indonesia delivers a range of social assistance programmes prioritised for poor and vulnerable households. In other words, the sub-districts that have more poverty alleviation programmes show that the households in these sub-districts are poorer.

Effect on Any Activity

Table 15 column 3 provides the results where the dependent variable is children engaged in any activity. This category combines children who are engaged in household chores, economic activity and both activities. The value of rho ρ , or the correlation coefficient of the disturbances,

is positive and significant, hence significantly different from zero. Thus, children participating in any activity and being a beneficiary of a cash transfer programme are strongly correlated. On the basis of the Wald test, the chi-squared value generated by the Wald test as well as the p -value associated with a chi-squared is 3.4641. The p -value is less than the generally used criterion of 0.05, so for this model we are able to reject the null hypothesis $H_0 : \rho = 0$, indicating that the coefficients are not simultaneously equal to zero. This implies that the error terms of the equations jointly estimated do not vary together; in other words, the bivariate Probit model fits the data better than a separate model.

The estimation results confirm that the cash transfer programme has a significant negative effect on children engaging in any activity. Furthermore, the estimation results also confirm that children's characteristics and parental education affect the probability of children engaging in any activity. The coefficient of the age of child variable is significant and positive, confirming that the older a child is, the higher the probability of involvement in any activity. Furthermore, the male child coefficient, which is negative and significant, also confirms that male children have a lower probability of being engaged in any activity than female children. It is possible that these results can be explained by the variation of the definition of any activity that include household chores, when for this activity the majority involved are girls. Furthermore, gender and age differences in child work are expected to be observed because boys and girls have different returns from education (Ravallion & Wodon, 2000; Rosati, 2003).

In terms of the characteristics of the household head, the years of schooling is significant and shows a negative sign; this is consistent with the underlying hypothesis that more years of parent's education reduces the probability of children being involved in any activity. In terms of household characteristics, only the variables HH floor and HH non-food expenditure show a negative and significant probability of children being involved in any activity. In terms of community-level characteristics, the number of primary schools has a negative and lower statistically significant effect, confirming that the more primary schools in the districts there are, the lower the probability of children being engaged in any activity.

Results of the bivariate Probit regression analysis for the full sample of children are presented in Table 15, which reports the coefficient of each variable, its standard error and statistical significance. As Table 15 indicates, the value of rho is statistically significant and positive for three estimated equations. Overall, these results indicate that the positive sign of the correlation coefficient of rho in three estimates implies that the unobserved factors that increase the

probability of being a beneficiary of a cash transfer also increase children involvement in household chores, economic activities and any activity. The regression results provide some evidence that the cash transfer programme has a negative effect on the probability of different activities of children within households. The incentive will lead children to allocate more time to studying. If students stay in school and progress, they could accumulate more human capital and enjoy higher future incomes (Baez & Camacho, 2011). Furthermore, a full set of control variables included in the regression shows that child male gender, child's age, age and education of household heads, household's floor, household size, per capita non-food expenditure, household living in rural area, and community characteristics, such as number of primary schools and level of poverty programmes in the districts, have significant impact on working activities of children.

5.1.2 Estimates of Marginal Effects

Table 16 presents average marginal effects of all explanatory variables on the probability that beneficiary children are engaged in different activities. The results drawn from Table 16 is that the cash transfer programme implemented in six provinces on Java Island had the overall impact of reducing the probability of work activities of children within households. There is a statistically significant decrease or significant impact on the probability of engaging in household chores. For a child receiving a cash transfer, the probability of doing chores is lower by about 34 percentage points. In addition, it is evident from the results that the cash transfer programme given to children was enough to decrease the probability of a child working in economic activities by 38 percentage points. The effect of the programme on participation in economic activities is slightly larger than in household chores. The results also show a significant effect of the programme on participation in any form of working activities of children within households. Children in the programme are 32 percentage points less likely to perform any activity within households. The present findings seem to be consistent with other research in Mexico (Skoufias & Parker, 2001), Nicaragua (Maluccio & Flores, 2005), Ecuador (Edmonds & Schady, 2012) and Honduras (Galiani & McEwan, 2013). On the other hand, these results differ from Colombia CCTs in the 2010 estimate of impact of cash transfer that participation in income-generating work remained largely unaffected (Attanasio et al., 2010).

For household chores, other coefficients, such as the children's age and gender, education of the head of households, household size, and household non-food expenditure, jointly determine the probability of participants of cash transfer programme and engagement in household chores.

The marginal effect of children's age on the probability of engaging in household chores is 0.0204; this means that a one-year increase in age will add about 2 percentage points to the probability that a child will be involved in household chores. The marginal effect of the dummy variable for a male child is -0.0914, meaning that, on average, a boy's probability of being engaged in household chores is 9 percentage points lower than girls. The marginal effect of parental education is -0.0063; this means that having more years of education for household heads lowers the probability of children being involved in household chores; each additional year of education of household heads decreases the probability by about 0.6 percentage points.

Table 16 also shows that the reduction in the probability of a child's work does not depend on the gender and age of the head of the household. Household size is negative and statistically less significant on probability of involvement in household chores. The probability that a child will engage in household chores decreases by 1 percentage point for a one-person increase in family size. Children with more siblings might be less engaged in household chores. In other words, more siblings might also mean more helping hands, which allows for a division of tasks at home (Webbink et al., 2013). The marginal effect of household non-food expenditure is -0.0178, which means that each additional 1 per cent increase in non-food expenditure reduces the probability of engaging in household chores by 0.02 percentage points.

Table 16. Marginal Effect after Bivariate Probit Estimation

Independent Variables	Dependent Variable(s)							
	Household Chores		Economic Activities		Any Activity			
	Average Marginal Effect	Std. error	Average Marginal Effect	Std. error	Average Marginal Effect	Std. error		
Cash Transfer	-0.3388 ***	0.0980	-0.3779 ***	0.1453	-0.3219 **	0.1496		
Children Age	0.0204 **	0.0099	0.0390 ***	0.0057	0.0214	0.0166		
Children Sex	-0.0914 *	0.0503	0.0117	0.0208	-0.0760	0.0645		
Head HH Sex	0.0225	0.0163	0.0793 ***	0.0312	0.0327	0.0261		
Head HH Age	0.0009	0.0006	-0.0018 *	0.0011	0.0006	0.0005		
Head HH Educ	-0.0063 *	0.0035	-0.0056	0.0039	0.0047	0.0039		
HH Floor	-0.0067	0.0121	-0.0018	0.0254	-0.0094	0.0140		
HH Wall	0.0281	0.0236	-0.0399	0.0363	0.0244	0.0279		
HH Size	-0.0141 *	0.0077	0.0028	0.0065	-0.0126	0.0101		
HH Television	0.0067	0.0218	-0.0716	0.0581	0.0006	0.0206		
HH Poultry	0.0064	0.0117	0.0089	0.0253	0.0057	0.0118		
HH Non-Food Exp	-0.0178 **	0.0087	0.0121	0.0119	0.0172	0.0130		
Rural	-0.0014	0.0146	-0.0506 **	0.0241	-0.0057	0.0143		
Comm Factory	-0.0124	0.0152	-0.0636 ***	0.0243	-0.0151	0.0189		
Comm Primary School	-0.0012	0.0011	-0.0064 ***	0.0022	-0.0015	0.0014		
Comm Poverty Prog	-0.0643	0.0544	0.1240	0.0970	-0.0584	0.0694		

Source: Author's calculation from IFLS 5 (6 provinces on Java island).

Note: Robust standard errors are corrected for clustering at the communities' level.

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

For economic activities, the result of particular interest is the positive sign on the coefficient for children's age. The older the child, the greater the probability the child works; each additional year adds 4 percentage points to the probability of working in economic activities. In addition, there are also different impacts based on whether or not the child is living with a male head of household and/or an older head of household. Having a male head of household decreases the probability of a child working in income activities by 8 percentage points. The older the male head of household is, the greater the decrease in the probability of the child working. The marginal effect of the rural variable is -0.0506; this means that living in a rural area decreases the probability of a child working in economic activities by 5 percentage points.

In terms of community characteristics, the presence of an additional factory and primary school decreases the probability of a working child. The number of primary schools in the sub-district significantly decreases the probability of child working in economic activities by 0.6 percentage point for a one-primary school increase in the sub-districts. A possible explanation for these

results may be the lack of adequate primary schools, especially in rural areas. These results indicate that increased infrastructure of school buildings will increase household demand for schooling, raise the enrolment rate and thereby decrease the probability of children working. Furthermore, the availability of primary schools also decreases the distance of the children to get to the school to receive education.

This finding has important implications for developing countries that increase the number of schools, particularly in rural areas, and the introduction of social programmes, such as income transfer to poor students, with the condition that the child should enrol and attend school. This can also explain changes in children's participation in economic activities. In addition, the presence of a factory in the sub-district also significantly decreases the probability of child working by 6 percentage points for a one-factory increase in the sub-districts. This result may be explained by the fact that a new factory in a sub-district creates a high demand for skilled labour, thus reducing child work. Also, because members of households have better employment prospects, so income is supplemented. For the outcome of any activity, there are no other explanatory variables that have a significant impact on determining whether participation in the cash transfer programme affects working activities of children.

In summary, this thesis aims to analyse the role that a cash transfer programme plays in participation in different work activities of children within households of Indonesian families in six provinces on Java Island. A bivariate Probit model is used to estimate work participation of individuals aged six to 14. The bivariate Probit estimations indicate that the programme has a significant impact on child participation in different working activities. The estimations represent the average marginal effects of a child receiving a cash transfer on the probability of being involved in household chores, economic activities and any activity. Compared with non-beneficiaries, children who participated in the programme experienced a 32 – 38 percentage points decrease in working participation inside and outside the home.

It can be seen that the probability of children working in household chores and economic activities increases with a child's age, and becoming an adult leads to increased work activity. Boys are less frequently involved in domestic work activities compared with girls but are more likely to participate in economic activities. Thus, the model has indicated that the age and gender of the child are important determinants of activities of children. Other factors, such as the age and education of household heads, are important predictors of children's work. The level of household non-food expenditure, number of household size and residence of

households also appear to play a role in children's activities. In terms of community-level characteristics, the presence of factories and primary schools appears to decrease the likelihood of children participating in economic work. Furthermore, more accessible and better quality schools are important because they affect the returns from schooling and reduce child work.

This thesis provides evidence that increasing household income through a cash transfer programme reduces the probability of child work activities among school-age children so they can spend more time on school-related activities. Giving more opportunities for a child to go to school can also reduce the probability of that child working. Policies such as cash transfer for poor students that reduce the cost of education and improve the quality of education can also effectively decrease the occurrence of working children.

These findings are consistent with several previous studies examining the effect of cash transfers on child work among children in poor households in other settings (Del Carpio et al., 2016; Edmonds & Schady, 2012; Maluccio & Flores, 2005; Miller & Tsoka, 2012; Skoufias & Parker, 2001). On the other hand, this thesis is contrary to the study by Triningsih and Ichihashi (2010) who found that the school subsidy programme in Indonesia is not significantly effective in reducing child work. The reason for this is because the government gives subsidies to schools to fund their operational fees and thereby releases students from tuition fees. This school subsidy programme has provided a small proportion to release a household from economic shocks.

To check the robustness of our results, we provide evidence using two identification strategies: first, separate analysis based on child's gender and residence using working participation of children within households; second, regression analysis based on hours worked.

5.2 Robustness Checks Based on Gender and Residence

In order to investigate the robustness of the results, this thesis estimated separate bivariate Probit models based on gender: boys and girls, and residence: urban and rural. Table 17 shows the marginal effects of the cash transfer to poor students on participation in different activities based on gender and residence to test for heterogeneous effects of the programme. We report the full set of results of Table 17 in the Appendix. The main results show that the programme has different impacts on children with different observable characteristics. From the analysis based on gender, the estimates show that boys who have benefitted from the cash transfer programme experienced a negative statistically significant impact on the probability of

engaging in all activities compared to girls. Further, the estimates also show that girls experienced a negative impact of the cash transfer programme only on household chores. Cash transfer programmes seem to reduce the pressure for girls to work in household chores by around 34 percentage points, but the greatest improvements were among boys. The effects of the programme are generally largest for boys whose participation in household chores decreased by around 40 percentage points. The results are strongly significant in statistical terms at the one and five per cent levels respectively. The analysis by gender uncovers clear differences in the magnitude of effects of the cash transfer programme for working participation of boys and girls. A possible explanation for this might be the common findings in rural areas where girls traditionally lag behind boys for school enrolment. An incentive programme like *Progresa* in Mexico, provided larger transfers or stronger incentives to households with girls as a strategy to reduce the sex gap in school enrolment and substitute schooling for work (Skoufias & Parker, 2001).

Table 17. The Effects of Cash Transfer by Child Attributes

Sub-Samples	Dependent Variable(s)								
	Household Chores		Economic Activities		Any Activity				
	Average Marginal Effect	Std.error	Average Marginal Effect	Std.error	Average Marginal Effect	Std.error			
Boys	-0.3990	***	0.1003	-0.4436	**	0.1804	-0.3335	**	0.1347
Girls	-0.3446	***	0.0157	-0.3430		0.2665	-0.2818		0.5990
Rural	-0.4174	***	0.0527	-0.3343		0.5685	-0.4003	***	0.0865
Urban	-0.2652	**	0.1325	-0.3065	**	0.1442	-0.2889		0.4745

Source: Author's calculation from IFLS 5 (6 provinces on Java island).

Note: Robust standard errors are corrected for clustering at the communities' level. Each of these comparisons is based on a regression with a main effect, for example, a main effect for girls. Additional regressors included but not reported.

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

For economic activities, the effects of the programme were generally larger for boys, whose participation in economic activities decreased by around 44 percentage points, but girls' participation in economic activities remained largely unaffected. The reason for this may be partly because of the lower sample size of girls, therefore resulting in a decrease in precision. In addition, programme participation is significantly associated with a decrease of 33 percentage points in the probability of working in any activities for boys who were aged six to 14 during the 2014/2015 school year. These findings support other previous research that boys experience particular decreases in economic activities, whereas girls experience such decreases in household chores (Galiani & McEwan, 2013; Miller & Tsoka, 2012; Skoufias & Parker,

2001). These results agree with the findings of other studies in which programme impact of cash transfer may differ between girls and boys because of gender difference in types of working activity, opportunity costs of schooling and returns to education.

The fact that the cash transfer has a negative effect on child work for boys and girls shows that household decision on time allocation is partly driven by income effects. However, it seems that the magnitude of the effect is larger for boys than for girls on household chores. One possible reason is that, although the participation of boys in chores and economic activities are mainly due to income constraints and can be alleviated by cash transfer, the participation of girls in chores may be due to cultural norms¹⁰ and income transfer will have a smaller effect in the case of the latter. Comparing with the other cash transfer programmes such as *Progresa* in Mexico, this programme has relatively larger declines in the probability of child work for girls because the programme adjusted the subsidy amount and differentiated by gender. In other words, girls received higher amounts of subsidy.

To further analyse residence differences, this thesis estimated disaggregated regressions using data for rural and urban areas, shown in Table 17. The distribution of impacts on the probability of child work varies with the location of programme beneficiaries as well. It can be clearly seen that the cash transfer programme has demonstrated a negative effect on the probability of children participating in household chores both in the rural and urban areas. The programme decreased the probability of children participating in household chores in both urban and rural by 27 and 42 percentage points respectively. The greatest reduction in household chores is for children in rural areas, by 42 percentage points. This thesis also found a negative significant effect on economic activities in urban areas, by 31 percentage points. One possible explanation of this is because economic activities has a higher prevalence in urban areas because of labour market supply and higher opportunity in urban areas. Meanwhile, there is no significant effect for children participating in economic activities in rural areas. It shows that participation of children in economic activities responds less to the programme in rural than in urban areas. However, the results show significant effects of the programme on participation in any form of child work in rural areas. Children in the programme who are living in a rural area are 40 percentage points less likely to be involved any activity within households.

¹⁰ Previous studies show that in most developing countries girls are more likely than boys to do chores with the perception that it will teach them special skills and prepare them for adult life (Webbink et al., 2013; Zapata et al., 2011).

The main robustness results show that impact estimates vary among the children beneficiaries. Overall, the effects of the cash transfer for poor students programme seem to favour boys over girls. From the analysis on subgroups, the estimates show that boys who participate in the programme experienced a negative impact on the probability of engaging in household chores, economic activities, and any activity. In addition, boys tend to experience a larger reduction in participation in economic activity. The probability of working decreases by 33 to 44 percentage points for participant or beneficiary children. Meanwhile, girls who participate in the programme experience a negative impact on the probability of engaging only in household chores. Furthermore, girls experienced relatively larger reduction of involvement in household chores. Thus, there are differences in impact of programme in children's work activities by sex, suggesting that gender considerations play an important role in the assignment of children's work responsibilities in Indonesia. It is important to note that the cash transfer for poor students does not provide a higher incentive for girls in school as in *Progres*a in Mexico.

The estimates also show that children from beneficiary households in urban areas experienced a smaller impact of the programme on participation in activities inside and outside the home than rural children. This could be attributable to the facts that the number of vulnerable households are mostly in rural areas and children in rural areas need more assistance than those in urban areas. In addition, poor and vulnerable households in rural sub-district areas are typically more vulnerable to economic shocks. Thus, the result shows that the targeting mechanism of the programme is efficient because of the largest effect on children living in impoverished localities and who come from a lower socio-economic background. To summarise, these results show that the impact of cash transfer programme is robust to different specifications and persists when children are disaggregated by sex and residence. We will discuss further the robustness of our results in the next section.

5.3 Robustness Checks Based on Work Hours

A third phase of the analysis explores the robustness of the estimates of programme effects on number of work hours. We carry out the same exercise for participation in different types of work, as well as for the amounts of time spent in different activities. The dependent variable in this thesis is the number of hours children are involved in household chores, economic activities, and any activity or total hours after the programme had been implemented. In addition, the number of hours worked is non-negative and it is a count variable, thus we also

fitted a Poisson regression. In this case, the count variable for the number of hours will include zero¹¹ for children who do not work.

The main independent variable is the treatment variable: one if the child received the cash transfer programme and zero otherwise. A model specification we are particularly interested in is that of a simultaneous model with a count and a binary variable as endogenous regressors. Endogenous treatment effects on number of hours describes the behaviour of children with and without cash transfer programmes. In treatment effects, the endogenous binary-variable model fit by Poisson regression is a nonlinear potential-outcome model that allows for a specific correlation structure between the unobservable factors that affect the treatment and the unobservable factors that affect the potential outcomes.

Table 18 shows the impact of the cash transfer programme on weekly hours worked. This model allows for unobserved heterogeneity and endogeneity in the covariates using the endogenous Poisson regression model. The final endogenous Poisson shows statistically significant rho parameters, which supports the adequacy of the endogenous Poisson specification. It is evident from the results in Table 18 that the cash transfer programme given to children was effective at reducing the amount of time spent in household chores, economic activities and any activity, thus allowing children to spend more time on school-related activities. The Wald test is highly significant, indicating a good model fit and we can reject the null hypothesis of no correlation between the treatment errors and the outcome errors. The effect of cash transfer on number of hours turns out to be statistically significant and negative, as in the bivariate Probit model. The results are indeed consistent with previous research which has shown that transfer programmes reduced hours worked (Attanasio et al., 2010; Del Carpio et al., 2016; Edmonds & Schady, 2012; Maluccio & Flores, 2005). Although, this finding is different from *Bolsa Familia* in Brazil, for children who are currently working, as their weekly working hours do not necessarily decrease (Pais et al., 2017).

From the model estimation, it is clear that the number of hours in household chores is affected by multiple explanatory variables, such as age and gender of children and type of household floor. The other explanatory variables that emerge as statistically significant determinants on the number of hours in economic activity are the following: children's age, which has a positive effect on the number of hours worked; children's gender in any models, which has a significant

¹¹ There are more zeros in the data. The motivation for this robustness check is to handle the endogeneity of the cash transfer, not to handle the excess of zeros.

positive effect; and some variables in household characteristics and community-level characteristics. The results for the other explanatory variables show consistency with previous studies.

Table 18. Parameter Estimates Obtained with Endogenous Poisson-Quasi Maximum Likelihood

Independent Variables	Dependent Variable(s) (Number of Hours)					
	Household Chores (1)		Economic Activities (2)		Total Hours (3)	
	Coefficient	Std.error	Coefficient	Std.error	Coefficient	Std.error
Cash Transfer	-0.8768 ***	0.2385	-1.9424 ***	0.1584	-0.5374 ***	0.0769
Children Age	0.2925 ***	0.0254	0.4751 ***	0.0235	0.3270 ***	0.0151
Children Sex	-1.1906 ***	0.1651	-2.2637 ***	0.1255	-0.9035 ***	0.0667
Head HH Sex	-0.0296	0.2937	-0.1657	0.1465	0.3744 ***	0.0891
Head HH Age	-0.0037	0.0097	-0.0401 ***	0.0042	-0.0110 ***	0.0032
Head HH Education	-0.0033	0.0182	-0.0731 ***	0.0156	-0.0258 **	0.0102
HH Floor	-0.6884 **	0.3097	-0.1818	0.1278	-0.7837 ***	0.0874
HH Wall	0.2513	0.3207	-0.7599 ***	0.1712	0.0735	0.0996
HH Size	-0.1009	0.0882	-0.1197 ***	0.0206	0.0496 **	0.0189
HH Television	-0.0040	0.4089	-0.8565 ***	0.1597	1.8666 ***	0.1300
HH Poultry	0.1948	0.1035	0.5889	0.1755	0.2276 ***	0.0785
HH Non-Food Exp	-0.0372	0.1292	0.0064	0.0834	0.0579 **	0.0292
Rural	-0.3083	0.2889	-0.0573	0.1171	-0.5539	0.0872
Comm Factory	-0.0430	0.3679	0.0821	0.0971	-0.2578 ***	0.0656
Comm Primary School	-0.0202	0.0196	-0.0242 *	0.0095	-0.1031 ***	0.0063
Comm Poverty Prog	0.2747	0.7708	2.3596 ***	0.5796	0.7779 ***	0.2631
Constant	-2.6655	1.9923	-5.9731 ***	1.4788	-6.2765 ***	0.4830
Number of observation	4,512		4,512		4,512	
Rho	0.3309	0.0667	0.3275	0.0403	0.2274	0.03647
Wald test of rho=0, chi ²	21.4	***	56.79	***	36.22	***

Source: Author's calculation from IFLS 5 (6 provinces on Java island).

Note: Robust standard errors are corrected for clustering at the communities' level. Number of hours for the sample, includes that report zero hours on each activity.

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

Poisson treatment regression estimates the parameters of a Poisson regression model that includes an endogenous binary-treatment variable. The dependent variable must be a Poisson distributed count. The parameter estimates from a Poisson regression with endogenous treatment effects can be used to estimate the average treatment effect (ATE), the average difference of the beneficiaries and non-beneficiaries potential outcomes and the average treatment effect on the treated (ATET). In this model, the ATE and ATET will only coincide

when there is no correlation between the treatment errors and outcome errors and the exogenous covariates x have the same distribution in the general children and participant children.

The average treatment effect is the average difference of the beneficiaries and non-beneficiaries potential outcomes. The ATE estimation of the cash transfer on the number of hours in household chores is 1.12 hours. There will be a 1.12-hours reduction in household chores when the average child receives a cash transfer programme. The ATE estimated of the cash transfer on the number of hours in economic activities is 0.98. This means that there will be a reduction of 0.98 hours in economic activities when an average child receives money from the cash transfer programme to poor students. The ATE estimated the cash transfer on the number of hours in any activity is 0.99. This means that there is a reduction of 0.99 hours in any activity when an average child receives money from the cash transfer programme to poor students.

The average treatment effect on the treated (ATET) is the average difference of the beneficiaries' and non-beneficiaries' potential outcomes in the treated population. The estimated ATET of cash transfer on the number of hours working in household chores is 2.57 hours. Thus, the participant children in the programme will have 2.57 less hours of work when they receive the cash transfer for poor students. The number is higher than the ATE. The estimated ATET of cash transfer on the number of hours work in economic activities 3.02, thus, participant children will have 3.02 less hours work on economic activities. The estimated ATET of cash transfer on the number of hours work in any activity 1.96, thus, children in the programme will have 1.96 less hours work on any activity. In conclusion, children in the programme experience larger reductions in time spent in household chores, economic activities, and any activity.

These findings further support the idea that income transfers can reduce the number of hours a child will engage in work activities. This income assistance is also expected to reduce the pressure for participant children to work so they can spend more time on school-related activities. The present findings seem to be consistent with other research found in Nicaragua (Gee, 2010). However, these results contrast with the results reported in the *Progresa* study, in which there was no statistically significant effect of a cash transfer programme on a child's work hours (Skoufias & Parker, 2001).

5.4 Limitations

The findings in this thesis are subject to three limitations. First, this thesis made use of a non-experimental research design since the programme was already in progress when the research began, thus making it difficult to test for differences between children at the pre-programme time. Ideally, programme effects would have been measured by a random assignment of students to beneficiaries and non-beneficiaries groups before the programme was implemented. Second, the study used only post-programme data, and there is no information about baseline characteristics of households, and we do not know for how long children were in the programme. Third, the results may not be generalised to children from different provinces outside of Java because of different supply-side of education in terms of access, distance and number of schools.

5.5 Summary

The findings of our analysis can be summarised into three points. The first major finding is that the cash transfer for poor students led to a reduction in the probability of a child engaging in work as a consequence of cash transfer programmes. The results show that taking endogeneity into account has important consequences for the estimated effect of the cash transfer programme on a working child; failing to take endogeneity into account may result in substantially biased results. The second finding is that the cash transfer programme had varying effects on different types of activity and different by gender and residence. The third finding is cash transfer to poor students reduced time spent by children in the programme in different working activities. These results are consistent with a growing literature that documents that cash transfers can reduce child work. In addition, the estimated effects of certain control variables at the individual level of analysis should clarify for policymakers what household and community factors are currently important constraints on working probabilities of children aged six to 14 from disadvantaged family backgrounds. The next chapter discusses the conclusion and policy recommendations.

Chapter 6: Conclusion

The purpose of this thesis is to assess how the cash transfer for poor students programme has affected the work involvement of children within households. The programme is designed to cover indirect costs associated with education, for instance, transportation costs, uniforms and school equipment. Continuation in the programme was conditional on enrolment, attendance and passing grade at the end of the school year. This programme seems to be an effective way for reducing child work. For this purpose, child work outcome models were constructed where the main explanatory variable is the status of a child's participation in the cash transfer programme.

This thesis improves upon previous research by combining a series of features only partially present in those studies: it employs data to assess the effect of child's work on participation and hours of work to identify differences in outcomes according to the nature of children's work. This outcome includes working in economic activities as well as involving in household chores as a category of work. In addition, this data provides a more comprehensive picture of child work in terms of younger-aged working children. Finally, this thesis examines the effectiveness of the programme based on gender: boys and girls, and residence: urban and rural.

In this thesis, we develop a bivariate Probit model and estimate it using data from six provinces on Java Island. We define work as a dummy variable that takes the value of one if a child is participating in household chores, economic activities, as well as any activity, and a value of zero otherwise. In addition, we add child, head of households, households and community level-characteristics to our model. In order to check the robustness of our results, we provide evidence using two identification strategies. First, we separate analysis based on child's gender and residence using working participation of children within households. Second, regression analysis is based on hours worked.

In this thesis, we use a micro-econometric model and non-experimental data to estimate the effects of cash transfer programme on working activities of children within households. The results support our contention that receipt of cash transfer programme should be considered a potential endogenous explanatory variable because the recipients of the cash transfer programme were not assigned randomly; instead, students from poor households were specifically targeted. When we correct for endogeneity, we find evidence that the cash transfer programme can lead to a reduction in child's work participation as well as number of hours

worked. Thus, being a beneficiary leads to a substantial reduction in the probability of working and length of working time.

The estimations confirmed previous findings that, in practice, cash transfer interventions decrease child's work. This thesis has found that the cash transfer programme for poor students significantly reduced the probability of working activities of children within households. The programme's impact is quite large. It was estimated to have reduced the probability of engagement in household chores, economic activities, and any activity by 32 – 38 percentage points. In addition, the main robustness results show that the impact estimated varied among the children beneficiaries. The effects of the cash transfer for poor students programme seemed to favour boys over girls. The estimation analysis also showed that children from beneficiary households in urban areas experienced a smaller impact of the programme on participation in activities inside and outside the home than rural children. There will be 1.12-hour, 0.98-hour and 0.99-hour reductions in household chores, economic activities and any activity respectively when the average child receives a cash transfer programme. Finally, there will be a 2.57-hour, 3.02-hour and 1.96-hour reductions in household chores, economic activities and any activity respectively for children as beneficiaries. Thus, the findings of this thesis suggest that the programme features in cash transfer for poor students can promote schooling and reduce the probability of child work.

The results in this thesis also contributed to an ongoing discussion about the extent of the effects of cash transfer programme on child's work as a result of the income effects or the transfer conditions to poor households. Both the Indonesian and Latin American experiences showed poverty remains a core factor contributing to child work. The reduction in child work due to a cash transfer programme offer has the potential to break the intergenerational cycle of poverty, pushing many children living in vulnerable families out of child work and potentially pulling them into educational activities, such as schooling, that can benefit their overall future development of human capital and welfare (Edmonds & Schady, 2012).

With evidence that the cash transfer programme helps to reduce working activities of children within households, there are several factors that could limit the applicability and usefulness of our results for cash transfer programme analysis. First, the effect of cash transfer programme on activities of children is estimated for a sample of children who live on Java Island. The result cannot present the effect of cash transfer programme for the mass majority of families in Indonesia because provinces outside of Java have different supply-side characteristics of

education such as number of schools and access to education. The quality of schooling may vary depending on the province of the country. Further research might explore or investigate national data. Second, the effect is only at one time point in 2014, so it cannot account for the duration of the cash transfer in children receiving benefits from the programme. Further research is needed to account for the varying time and duration effects.

Cash transfer is a relatively safe policy instrument to improve child welfare. Over the past ten years, Indonesia has made major progress in reducing the number of children involved in child work. It has done so primarily by expanding education provision to increase the time children spend in school and reduce the time children allocate to work. This progress has been supported by the implementation of poverty alleviation programmes providing income support to vulnerable families. On the other hand, there are still many children at the primary and junior school levels who do not receive cash transfers as their financial support. These children are not registered at the basic education level. It could be because they are categorised as street children, helping their parents to earn money or their parents are not interested in sending their children to school because they live in remote areas.

Given the findings of this thesis, policies are needed to ensure that the programme can effectively reach the poorest children who are out of school. Many students who have dropped out of school are not eligible to receive the programme, many of whom come from poor households who would need financial assistance. Thus, the programme should be expanded to benefit children who have dropped out of school.

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Appendix

Table A1. Estimation Results Bivariate Probit Model for Household Chores

Variable	Coefficient		Std.error
Equation Household Chores			
Cash Transfer	-1.2922	***	0.1243
Children Age	0.0780	***	0.0096
Children Sex	-0.3576	***	0.0564
Head HH Sex	-0.0647		0.0618
Head HH Age	-0.0019		0.0024
Head HH Educ	-0.0139	*	0.0085
HH Floor	-0.2727	***	0.0592
HH Wall	0.1197		0.0812
HH Size	0.0256		0.0199
HH Television	0.0234		0.0992
HH Poultry	0.0719		0.0597
HH Non-Food Expenditure	-0.0618	**	0.0270
Rural	0.0190		0.0752
Comm Factory	0.0237		0.0661
Comm Primary School	-0.0073		0.0047
Comm Poverty Programme	0.2230		0.2346
Const	0.1640		0.4971
Equation Cash Transfer			
Head HH Sex	-0.2042	**	0.0849
Head HH Age	-0.0075	***	0.0027
Head HH Educ	-0.0519	***	0.0094
HH Floor	-0.3423	***	0.0726
HH Wall	0.0241		0.1038
HH Size	0.1092	***	0.0233
HH Television	-0.0027		0.1226
HH Poultry	0.0650		0.0673
HH Non-Food Expenditure	-0.1783	***	0.0297
Rural	0.0337		0.0784
Comm Factory	0.0979		0.0702
Comm Primary School	-0.0038		0.0050
Comm Poverty Programme	0.6432	**	0.3013
Const	2.1262	***	0.4656

Note: Robust standard errors are corrected for clustering at the communities' level.

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

Table A2. Estimation Results Bivariate Probit Model for Economic Activities

Variable	Coefficient		Std.error
Equation Economic Activities			
Cash Transfer	-0.9946	***	0.1910
Children Age	0.1026	***	0.0139
Children Sex	0.0306		0.0542
Head HH Sex	0.1128		0.0937
Head HH Age	-0.0087	***	0.0032
Head HH Educ	-0.0440	***	0.0109
HH Floor	-0.1842	**	0.0763
HH Wall	-0.0930		0.0872
HH Size	0.0661	***	0.0222
HH Television	-0.1841		0.1535
HH Poultry	0.0648		0.0786
HH Non-Food Expenditure	-0.0660	*	0.0389
Rural	-0.1239	*	0.0770
Comm Factory	-0.1083		0.0709
Comm Primary School	0.0195	***	0.0063
Comm Poverty Programme	0.6903	**	0.2839
Const	-0.7300		0.7284
Equation Cash Transfer			
Head HH Sex	-0.2019	**	0.0863
Head HH Age	-0.0072	***	0.0028
Head HH Educ	-0.0543	***	0.0096
HH Floor	-0.3377	***	0.0729
HH Wall	0.0179		0.1057
HH Size	0.1085	***	0.0242
HH Television	-0.0065		0.1285
HH Poultry	0.0770		0.0683
HH Non-Food Expenditure	-0.1812	***	0.0310
Rural	0.0213		0.0810
Comm Factory	0.1036		0.0730
Comm Primary School	-0.0048		0.0055
Comm Poverty Programme	0.6738	**	0.3141
Const	2.1640	***	0.4787

Note: Robust standard errors are corrected for clustering at the communities' level.

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

Table A3. Estimation Results Bivariate Probit Model for Any Activity

Variable	Coefficient		Std.error
Equation Any Activity			
Cash Transfer	-1.2927	***	0.1868
Children Age	0.0859	***	0.0154
Children Sex	-0.3114	***	0.0712
Head HH Sex	-0.0237		0.0709
Head HH Age	-0.0030		0.0024
Head HH Educ	-0.0190	*	0.0095
HH Floor	-0.2842	***	0.0619
HH Wall	0.1131		0.0794
HH Size	0.0284		0.0240
HH Television	-0.0045		0.1096
HH Poultry	0.0695		0.0610
HH Non-Food expenditure	-0.0599	*	0.0328
Rural	0.0046		0.0745
Comm Factory	0.0126		0.0675
Comm Primary School	-0.0083	*	0.0046
Comm Poverty Programme	0.2274		0.2488
Const	0.1890		0.6664
Equation Cash Transfer			
Head HH Sex	-0.2043	**	0.0850
Head HH Age	-0.0075	**	0.0027
Head HH Educ	-0.0522	***	0.0094
HH Floor	-0.3408	***	0.0724
HH Wall	0.0262		0.1053
HH Size	0.1083	***	0.0232
HH Television	-0.0095		0.1231
HH Poultry	0.0636		0.0673
HH Non-Food Expenditure	-0.1771	***	0.0297
Rural	0.0375		0.0783
Comm Factory	0.1014		0.0713
Comm Primary School	-0.0034		0.0050
Comm Poverty Programme	0.6344	**	0.3077
Const	2.1207	***	0.4674

Note: Robust standard errors are corrected for clustering at the communities' level.

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

Table A4. The Effect of Cash Transfer by Child Attributes (Boys)

Independent Variables	Dependent Variable(s)								
	Household chores			Economic Activities			Any Activity		
	Average Marginal Effect	Std.error		Average Marginal Effect	Std.error		Average Marginal Effect	Std.error	
Cash Transfer	-0.3988	***	0.1003	-0.4436	**	0.1804	-0.3335	**	0.1347
Children Age	0.0225	**	0.0101	0.0443	***	0.0066	0.0206	*	0.0123
Children Sex									
Head Sex	0.0280		0.0245	0.1174	**	0.0493	0.0370		0.0278
Head Age	0.0011		0.0009	-0.0024		0.0016	0.0004		0.0006
Head Educ	0.0089	*	0.0047	-0.0077		0.0056	0.0051		0.0040
HH Floor	-0.0157		0.0235	-0.0032		0.0371	-0.0155		0.0198
HH Wall	0.0168		0.0272	-0.0061		0.0475	0.0144		0.0212
HH Size	-0.1929	**	0.0099	-0.0061		0.0092	-0.0143		0.0099
HH Television	0.0510		0.0549	-0.0013		0.0795	0.0358		0.0452
HH Poultry	-0.0075		0.0170	-0.0101		0.0324	-0.0064		0.0135
HH Non-Food Expenditure	0.0249	**	0.0103	0.0083		0.0156	0.0193	*	0.0113
Rural	-0.0041		0.0227	-0.0477		0.0394	-0.0093		0.0184
Comm Factory	-0.0078		0.0191	-0.0713	**	0.0321	-0.0100		0.0168
Comm Elementary School	-0.0021		0.0020	-0.0092	***	0.0030	-0.0022		0.0021
Comm Poverty Programme	-0.0966		0.0683	0.1833		0.1433	-0.0676		0.0614

Note: Robust standard errors are corrected for clustering at the communities' level.

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

Table A5. The Effect of Cash Transfer by Child Attributes (Girls)

Independent variables	Dependent variable(s)					
	Household Chores		Economic Activities		Any Activity	
	Average Marginal Effect	Std.error	Average Marginal Effect	Std.error	Average Marginal Effect	Std.error
Cash Transfer	-0.3446 ***	0.0157	-0.3430	0.2665	-0.2818	0.5991
Children Age	0.0301	0.0569	0.0343 ***	0.0095	0.0416	0.0367
Children Sex						
Head HH Sex	0.0222	0.0351	0.0614	0.0477	0.0382	0.3275
Head HH Age	0.0011	0.0013	-0.0013	0.0015	0.0010	0.0011
Head HH Educ	0.0063	0.0078	-0.0030	0.0048	0.0057	0.0042
HH Floor	-0.0078	0.0510	-0.0010	0.0358	-0.0234	0.0693
HH Wall	0.0602	0.1309	-0.0567	0.0472	0.0752	0.0913
HH Size	-0.0157	0.0192	0.0111	0.0095	-0.0152 **	0.0077
HH Television	-0.0286	0.0690	-0.1229 *	0.0731	-0.0601	0.0794
HH Poultry	0.0291	0.0541	0.0296	0.0332	0.0366	0.0393
HH Non-Food Expenditure	0.0175	0.0162	0.0154	0.0154	0.0194	0.0151
Rural	0.0008	0.0249	-0.0606 *	0.0350	-0.0001	0.0307
Comm Factory	-0.0245	0.0443	-0.0528	0.0332	-0.0344	0.0306
Comm Primary School	-0.0006	0.0023	-0.0043	0.0029	-0.0011	0.0029
Comm Poverty Programme	-0.0606	0.1149	0.0618	0.1086	-0.0774	0.1044

Note: Robust standard errors are corrected for clustering at the communities' level.

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

Table A6. The Effect of Cash Transfer by Child Attributes (Rural Areas)

Independent Variables	Dependent Variable(s)					
	Household Chores		Economic Activities		Any Activity	
	Average Marginal Effect	Std.error	Average Marginal Effect	Std.error	Average Marginal Effect	Std.error
Cash Transfer	-0.4175 ***	0.0527	-0.3343	0.5685	-0.4003 ***	0.0865
Children Age	0.0327 **	0.0144	0.0417 **	0.0225	0.0354	0.0255
Children Sex	-0.1342 **	0.0609	0.0308	0.0352	-0.1120	0.0831
Head HH Sex	-0.0465	0.0350	0.1188	0.0729	-0.0275	0.0316
Head HH Age	0.0015	0.0010	0.0002	0.0017	0.0013	0.0010
Head HH Educ	0.0090 *	0.0047	-0.0034	0.0068	0.0069	0.0055
HH Floor	-0.0424	0.0310	-0.0011	0.0364	-0.0420	0.0446
HH Wall	0.0352	0.0292	0.0124	0.0418	0.0298	0.0315
HH Size	-0.0078	0.0069	-0.0588	0.0131	-0.0073	0.0068
HH Television	0.0251	0.0347	-0.0133	0.0804	0.0187	0.0370
HH Poultry	0.0174	0.0235	0.0116	0.0462	0.0075	0.0232
HH Non-Food Expenditure	0.0278 **	0.0109		0.0194	0.0266 *	0.0155
Rural						
Comm Factory	-0.2876	0.0344	-0.0867	0.0561	-0.0409	0.0471
Comm Primary School	0.0031	0.0025	-0.0068	0.0046	0.0019	0.0025
Comm Poverty Programme	-0.1284	0.1303	0.0653	0.1666	-0.0936	0.1380

Note: Robust standard errors are corrected for clustering at the communities' level.

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

Table A7. The Effect of Cash Transfer by Child Attributes (Urban Areas)

Independent Variables	Dependent Variable(s)					
	Household Chores		Economic Activities		Any Activity	
	Average Marginal Effect	Std.error	Average Marginal Effect	Std.error	Average Marginal Effect	Std.error
Cash Transfer	-0.2652 **	0.1325	-0.3065 **	0.1442	-0.2889	0.4745
Children Age	0.0135	0.0091	0.0345 ***	0.0067	0.0169	0.0426
Children Sex	-0.0672	0.0502	0.0002	0.0237	-0.0687	0.1823
Head HH Sex	0.0359	0.0282	0.0511	0.0363	0.0497	0.1254
Head HH Age	0.0007	0.0006	-0.0030 **	0.0013	0.0004	0.0008
Head HH Educ	0.0048	0.0040	-0.0060	0.0039	0.0045	0.0109
HH Floor	0.0087	0.0129	-0.0020	0.0319	0.0063	0.0165
HH Wall	0.0210	0.0252	-0.0260	0.0521	0.0238	0.0813
HH Size	-0.0117	0.0100	0.0006	0.0076	-0.0127	0.0338
HH Television	0.0168	0.0288	-0.0593	0.0800	0.0102	0.0462
HH Poultry	-0.0001	0.0107	0.0189	0.0283	0.0031	0.0173
HH Non-Food Expenditure	0.0106	0.0094	0.0115	0.0127	0.0130	0.0325
Rural						
Comm Factory	-0.0034	0.0121	-0.0404	0.0289	-0.0043	0.0161
Comm Primary School	-0.0015	0.0013	-0.0060 **	0.0025	-0.0019	0.0048
Comm Poverty Programme	-0.0484	0.0532	0.1500	0.1077	-0.0567	0.1589

Note: Robust standard errors are corrected for clustering at the communities' level.

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

Table A8. Estimation Results Endogenous Poisson-Quasi Maximum Likelihood for Household Chores

Variable	Coefficient		Std.error
Equation Household Chores			
Cash Transfer	-0.8768	***	0.2385
Children Age	0.2925	***	0.2925
Children Sex	-1.1906	***	0.1651
Head Sex	-0.0296		0.2937
Head Age	-0.0037		0.0097
Head Educ	-0.0033		0.0182
HH Floor	-0.6884	**	0.3097
HH Wall	0.2513		0.3207
HH Size	-0.1009		0.0882
HH Television	-0.0040		0.4089
HH Poultry	0.1948		0.1035
HH Non-Food Expenditure	-0.0372		0.1292
Rural	-0.3083		0.2889
Comm Factory	-0.0400		0.3679
Comm Elementary school	-0.0202		0.0196
Comm Poverty Prog	0.2747		0.7708
Const	-2.6655		1.9923
Equation Cash Transfer			
Head Sex	-0.2194	**	0.0908
Head Age	-0.0075	**	0.0027
Head Educ	-0.0550	***	0.0097
HH Floor	-0.3558	***	0.0769
HH Wall	0.0155		0.1041
HH Size	0.1067	***	0.0248
HH Television	-0.0184		0.1323
HH Poultry	0.0914		0.0667
HH Non-Food Expenditure	-0.1816	***	0.0333
Rural	-0.0104		0.0840
Comm Factory	0.1160		0.0760
Comm Elementary school	-0.0054		0.0056
Comm Poverty Programme	0.7112	**	0.3175
Const	2.2460	***	0.5108

Note: Robust standard errors are corrected for clustering at the communities' level.
 *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A9. Estimation Results Endogenous Poisson-Quasi Maximum Likelihood for Economic Activities

Variable	Coefficient		Std.error
Equation Economic Activities			
Cash Transfer	-1.9424	***	0.1584
Children Age	0.4751	***	0.1255
Children Sex	-2.2637	***	0.0235
Head HH Sex	-0.1657		0.1465
Head HH Age	-0.0401	***	0.0042
Head HH Educ	-0.0731	***	0.0156
HH Floor	-0.1819		0.1278
HH Wall	-0.7599	***	0.1712
HH Size	-0.1197	***	0.0206
HH Television	-0.8566	***	0.1597
HH Poultry	0.5889		0.1755
HH Non-Food Expenditure	0.0064		0.0834
Rural	-0.0574		0.1171
Comm Factory	0.0821		0.0971
Comm Primary School	-0.0242	*	0.0095
Comm Poverty Programme	2.3596	***	0.5769
Const	-5.9732	***	1.4788
Equation Cash Transfer			
Head HH Sex	-0.2220	**	0.0854
Head HH Age	-0.0074	**	0.0028
Head HH Educ	-0.0536	***	0.0096
HH Floor	-0.3390	***	0.0719
HH Wall	0.0156		0.1073
HH Size	0.1022	***	0.0238
HH Television	-0.0183		0.1283
HH Poultry	0.0579		0.0684
HH Non-Food Expenditure	-0.1807	***	0.0304
Rural	0.0290		0.0811
Comm Factory	0.1222	*	0.0723
Comm Primary School	-0.0046		0.0055
Comm Poverty Programme	0.6756	**	0.3131
Const	2.2173	***	0.4685

Note: Robust standard errors are corrected for clustering at the communities' level.
 *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A10. Estimation Result Endogenous Poisson-Quasi Maximum Likelihood for Any Activity (Total Hours)

Variable	Coefficient		Std.error
Equation Any Activity			
Cash Transfer	-0.5374	***	0.0769
Children Age	0.3270	***	0.0151
Children Sex	-0.9035	***	0.0667
Head HH Sex	0.3744	***	0.0891
Head HH Age	-0.0110	***	0.0032
Head HH Educ	-0.0258	**	0.0102
HH Floor	-0.7837	***	0.0874
HH Wall	0.0735		0.0996
HH Size	0.0496	**	0.0189
HH Television	1.8666	***	0.1300
HH Poultry	0.2276	***	0.7847
HH Non-Food Expenditure	0.0579	**	0.0292
Rural	-0.5539		0.0872
Comm Factory	-0.2579	***	0.0656
Comm Primary School	-0.1031	***	0.0063
Comm Poverty Programme	0.7779	***	0.2631
Const	-6.2765	***	0.4830
Equation Cash Transfer			
Head HH Sex	-0.1977	**	0.0873
Head HH Age	-0.0076	**	0.0027
Head HH Educ	-0.0557	***	0.0095
HH Floor	-0.3582	***	0.0728
HH Wall	0.0119		0.1052
HH Size	0.1123	***	0.0242
HH Television	0.0778		0.1325
HH Poultry	0.0853		0.0669
HH Non-Food Expenditure	-0.1768	***	0.0305
Rural	-0.5766		0.0844
Comm Factory	0.0995		0.0701
Comm Primary School	-0.0092	*	0.0056
Comm Poverty Programme	0.7152	**	0.3096
Const	2.0610	***	0.4710

Note: Robust standard errors are corrected for clustering at the communities' level.
 *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$