Heriot-Watt University

Accountancy, Economics, and Finance Working Papers

Working Paper 2024-03

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EVIDENCE FROM THE FAMILY HOPE PROGRAM IN INDONESIA

Romi Bhakti Hartarto & Philippe LeMay-Boucher

January 2024

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JEL: O10, O12, I22, I24

Impacts of Conditionality on Consumption: Evidence from the Family Hope Program in Indonesia

Authors

Romi Bhakti Hartarto

(Department of Economics, Universitas Muhammadiyah Yogyakarta, Bantul, Indonesia)

Philippe LeMay-Boucher

(Department of Economics, Heriot-Watt University, Edinburgh, UK)

Corresponding author: pl71@hw.ac.uk

Abstract (100 words)

Research has shown that the Indonesian Family Hope CCT Program aimed at improving children's health and education of poor households, has had significant impacts. Using different data, we assess whether it changed recipients' behaviour along other metrics. Despite checks and constraints on how transfers can be spent, low-income families can still spend some of their extra cash on frivolous goods, rather than health and education as intended. Our results show that the program leads recipients to mildly decrease their levels of frivolous consumption and increase their share of spending on education (not for health) when compared to non-participants.

Keywords: CCT, Indonesia, Consumption Allocation, Frivolous Goods

Acknowledgements: We would like to thank Claudia Aravena, Arnab Bhattacharjee, Rachel Forshaw, Sarmistha Pal and Catherine Porter for helpful comments and suggestions.

1. Introduction

Cash transfer programs enable their recipients to invest in productive activities and can alleviate poverty by relaxing liquidity constraints (Angelucci, Attanasio, and Di, 2012). In contrast to other forms of assistance, such as in-kind, cash transfers have lower delivery costs. Being fungible and non-distortionary, they are said to be more efficient (Haushofer and Shapiro, 2016). In principle, they can generate welfare gains for households by allowing recipients to spend on goods that best fit their needs (Hidrobo, Peterman, and Heise, 2016).

Around 60 countries have recently or are currently implementing conditional cash transfer (CCT) programs in the world (World Bank, 2018). Conditions attached to receiving transfers often relate to education and/or health components. Policymakers argue that attaching cash transfers to investments in human capital for children will help poor households escape from intergenerational poverty and render sustainable impacts (Kabeer and Waddington, 2015). The importance of conditionality in school enrolment can be seen in Mexico's *Progresa* program. For beneficiaries who received their payments conditional on school attendance, the odds of their children attending school and progressing to lower secondary school were higher (de Brauw and Hoddinott, 2011). An experiment in Malawi also confirmed that conditions attached to cash transfer programs are cost-effective in reducing dropouts and increasing school enrolment (Baird, McIntosh, and Ozler, 2011). Fiszbein and Schady (2009) conclude that most CCT programs are successful in achieving their explicit short-term goal. Furthermore, the effectiveness of CCT programs partly depends on whether conditions are being enforced. In a systematic review of the impacts of CCT programs, Baird, Ferreira, Ozler, and Woolcock (2014) found that having explicit conditions that were strictly

monitored and enforced improved the odds of school enrolment compared to similar programs with no schooling conditions or those with minimal monitoring and enforcement.

Indonesia, the fourth largest country in the world by population, rolled out its first CCT program named Family Hope Program (FHP or *Program Keluarga Harapan*) in 2007. At that time, around 17% of its 215 million population lived below the national poverty line set at IDR 166,697 (USD 20) per capita per month (Statistics Indonesia, 2007). FHP aimed to improve children's health and education through quarterly cash disbursement to poor households with pregnant women and/or school-age children. The transfer size was dependent on the number of children and their ages.

Triyana and Shankar (2017) revealed that the FHP has improved the coverage of antenatal care for women. Cahyadi et al. (2020) looked at the longitudinal impacts of FHP and found a negative impact on stunting and under-15 children school absenteeism. However, the authors found no evidence for a long-run transformative economic change in recipient households. The welfare effects of FHP were found to be more significant in rural rather than urban areas (Syukri, Arif, Rosfadhila, and Isdijoso, 2010). Hadna and Askar (2022) further added that households in the bottom quantile did not benefit from the FHP as their incomes dropped, suggesting that the program should be more generous to the poorest households in terms of cash amounts.

In terms of schooling outcomes, Hadna and Kartika (2017) reported that FHP was able to increase net school enrolment and participation for junior high school students, yet no such impact is detected at the primary school level. The authors also found that FHP has significantly improved the academic performances of junior high school students as measured by their national

examination scores. Furthermore, Hartarto and Wardani (2023) added that FHP has increased parental aspiration for children's education by around one schooling year. Hartarto and Wibowo (2023) argue that this can potentially delay child marriages for the beneficiary households.

Our work takes a different angle and investigates the impact of the Indonesian FHP on the consumption pattern of recipient households, and more precisely on the consumption of frivolous goods and education-related goods. Given data availability, we define frivolous expenses as the sum of expenditures on tobacco products units (including cigarettes) and meals out in restaurants. The consumption of frivolous goods (also termed 'temptation goods' in related studies) represents an unintended effect of cash transfer programs that is often neglected in the assessments of program effectiveness. Frivolous spending is likely to indicate a wasteful use of program transfers whereas an increase in spending on education-related goods would imply compliance with the conditions attached to the transfers.

We investigate to what extent recipients spend this additional income on frivolous and education goods. Thus, our work scrutinizes whether conditionality imposed on households' education and health decisions has a deterrence effect on frivolous consumption. Living in poverty is often associated with short-run impatience or present-biased preferences. Present-biased individuals tend to spend income on goods that benefit the present selves and neglect the future selves (O'Donoghue and Rabin, 1999) thus favouring frivolous goods over long-term investment in education. Furthermore, the assumption of declining temptations, which says that the fraction of the marginal dollar spent on temptation goods decreases with overall consumption, implies that the poor may invest insufficiently (Banerjee and Mullainathan, 2010) and spend disproportionately

on frivolous goods. Our investigation is particularly relevant in the Indonesian context where an important proportion of men, who traditionally act as household heads and thus likely control an important share of a household's spending portfolio, report that cigarettes are considered a necessity, or even a priority (Hossain, Brook, Garbarino, and Notosusanto, 2012).

Evans and Popova (2017) review the literature focusing on the impact of CCT on consumption patterns in developing countries. Using a range of studies and estimates, their report shows (with few exceptions) no significant impact or a significant negative impact of transfers on expenditures on alcohol and tobacco which they refer to as temptation goods. Their meta-analysis of those 19 studies shows that the impact of transfers on these two frivolous goods yields a negative, significant average effect. This is confirmed by several robustness checks.

Further work by Tutor (2014) investigates the impact of the *Pantawid Pamilyang Pilipino* program and reports no significant change in alcohol and tobacco consumption. The recipients respond to program conditionality by spending higher consumption shares on education, but no impact is found on health-related expenditures. Tutor (2014) adds that these impacts are more pronounced among the poorest fifth of households. Similar results are found in Peru with the *Juntos* program: overall levels of food expenditures increase but alcohol consumption is not significantly affected. Dasso and Fernandez (2014) argue that these outcomes are to be expected as women usually spend less on alcohol compared to men given that the grant was intentionally disbursed to women rather than men. Kamakura and Mazzon (2015) consider communications, recreation, and culture categories as 'superfluous consumption', and find that the recipients of *Bolsa Familia* in Brazil do

not spend much of the extra cash in these categories. The recipients are more likely to spend the additional income on essential goods, such as food.

More specifically related to Indonesia, the World Bank (2012) produces a midline impact evaluation of the FHP program, based on its own data, which shows that the recipients are not likely to misspend the additional funds on tobacco and alcohol. Bazzi, Sudarno, and Suryahadi (2012) focus on a different program which offered short-term unconditional cash transfers. They find that on average, participants who received two full transfers by early 2006 did not make significantly larger per capita spending on alcohol and tobacco than non-participants.

We contribute to this literature by confirming some of the findings cited above. Our article shows that the levels (not the share) of frivolous consumption (defined here as meals out and tobacco) decrease among the program recipients compared to our sample of non-participants. Recipients increase their allocation and spending (level and share) on education, most likely to help satisfy the program conditionality for the continuation of cash benefits. No such significant impact is detected for spending on health. Results from quantile regressions indicate that the increase in the share of education expenditures is significant for the two poorest quartiles.

To quantify the impact of FHP on consumption patterns, we use propensity score matching combined with difference-in-differences estimators based on the Indonesian Family Life Survey (IFLS), a large nationwide survey data which we describe in detail in Section 3. This dataset was not primarily designed to evaluate the impact of FHP. Nevertheless, it has detailed data on various items of consumption so that we can bring additional evidence related to the program from a

different source and angle. This allows us to complement previous studies (Cahyadi et al., 2020; Hadna and Kartika, 2017) on the impact of FHP which are based on the World Bank's impact evaluation data.

The remainder of this paper is structured as follows. Section 2 provides an overview of FHP and frivolous expenditures within our context. Section 3 presents the data and the framework of our empirical strategy. Section 4 discusses the findings, followed by a conclusion.

2. Context and Background

2.1 The Family Hope Program in Indonesia

The Government of Indonesia introduced the FHP in 2007. This program was managed by the Ministry of Social Affairs in coordination with the National Development Planning Agency and the Poverty Reduction Support Facilities. Its main objectives are to alleviate poverty and improve the quality of human capital among poor households. It provides cash transfers to poor households which meet at least one of the following criteria: a pregnant or lactating mother; children aged 0-15 years old; or children aged 16-18 years old who have not completed nine years of mandatory education. Six years of primary education with three years of junior secondary education combine into these nine years.

The program disburses quarterly cash transfers to the mother or another adult woman in the household either at a post office or an ATM. They must satisfy specific health and education requirements: (a) the mother must receive pre- and post-natal check-ups; (b) all children below the age of five years old in the household must receive recommended immunisation and regular health

check-ups; and (c) school-age children must be enrolled in a school for primary and secondary education with a minimum monthly attendance level of 85%. The program facilitators monitor participants every month accordingly. They then report to the management office of the program at the sub-district level. If the beneficiaries do not comply with the requirements, the cash transfers are discontinued after several warning notices from the program facilitators. Conditionality does not explicitly posit that a household must spend more on education (or health) rather where school attendance is monitored, successful attendance will trigger costs and other related expenses. The amount of cash transferred to each household depends, among others, on their financial situation and household composition. It ranges between IDR 600,000 (USD 62) and IDR 2,200,000 (USD 240) per year, which represents between 15 to 20% of households' total annual consumption.

The program selection of beneficiaries is based on a proxy-means test (PMT) approach with automatic enrolment (Alatas et al., 2016). This approach uses a list of criteria that relate to households' economic status such as the size of the house, housing materials, and ownership of a motorbike. Households are not required to apply to this program. From a list of potential beneficiaries drawn up by the central government, local government officials interview household members and automatically enrol households who pass the PMT through asset screening and verification by local community leaders. Households with a predicted score below the cut-off for each district are automatically included as beneficiaries. This verification system is meant to minimise leakage of the program to the non-targeted population (World Bank, 2017).

2.2 CCT and Frivolous Consumption

With more cash at hand, we expect a transfer to bring a positive income effect on the consumption of frivolous goods. However, several effects might offset this (Fiszbein and Schady, 2009). First, households face different incentives when making decisions between goods favoured by the program and goods that are not. CCT may lead to a substitution effect which makes the investment in goods sanctioned by a program (e.g., health and education) more valuable than other goods. There is also a possible substitution effect at the expense of a reduction in income from child labour if the program encourages more schooling and less labour from them. Thus, to sustain the benefits of the program, households will more likely consume goods related to the fulfilment of conditionality. Second, CCT sometimes promotes explicit restrictions through social messaging which encourages the recipients to spend their extra cash on program conditionality. For example, CCT program facilitators in Indonesia provide the recipients with suggestions and information about the importance of complying with the stipulations of the program so that the disbursement of cash support may not be terminated (World Bank, 2012). Households' expected response is then to spend more on education-related goods (e.g., school fees, school supplies such as stationeries) and health-related goods (e.g., clinic visits, medicine, vaccines), hence shifting their consumption away from frivolous goods. Third, CCT is mostly targeted at women based on the widely supported thesis that women are more inclined to invest in children than men. Besides, women may be constrained by social norms, making them less likely to make frivolous consumption than men. A study in Macedonia reveals that there is a significant decrease in the budget share spent on clothing, alcohol, and cigarettes when mothers receive the cash transfer (Armand and Carneiro, 2018). They tend to allocate higher shares of the household budget to food. Cash disbursement to women may deter spending on frivolous goods. Our context offers one potential exception to this. Many Indonesian women are reported to allow their husbands to buy cigarettes without which they claim

they could not work and experience significant loss in utility (Hossain, Brook, Garbarino, and Notosusanto, 2012).

The net effect of CCT on frivolous consumption can be ambiguous. Furthermore, the quality of health and education services also matters in determining any substitution effect. Low quality, irregularity or even unavailability of health and education services would restrict recipient spending on conditioned goods (Barrientos and de Jong, 2006).

Hartarto, Wardani, and Azizurrohman (2021) provide contextual evidence on the importance of the conditions and monitoring imposed by FHP. Through semi-structured in-depth interviews with participants and facilitators, they observe that: 1) requirements for regular parents' reports on their child's progress; 2) monthly monitoring from facilitators (at home and school) and 3) potential sanctions of transfer cut or postponement or program termination, play important roles and do significantly impact on consumption decisions. As one recipient (from Sanden in the district of Bantul) states: 'Sometimes I use the money to buy shoes, school supplies, books, or any school-related needs for children. I do not use the money for meals out since it is not advised'.

3. Data and Methods

This study is based on data from the Indonesian Family Life Survey (IFLS) – the only large-scale longitudinal survey which is publicly available for Indonesia (Strauss, Witoelar and Sikoki, 2016). The survey was conducted by RAND in collaboration with several public universities. The sample is representative of about 83% of the Indonesian population living in 13 out of 27 Indonesian provinces. The IFLS survey was not designed to measure the direct impact of FHP on education.

It lacks data on school enrolment and attainment. However, it contains detailed and relevant information on household characteristics and consumption collected over a prolonged period. Hence, it is useful for quasi-experimental designs. The IFLS consists of five waves: IFLS-1 conducted in 1993, IFLS-2 in 1997, IFLS-3 in 2000, IFLS-4 in 2007, and IFLS-5 in 2014.

We focus on the treated households: those participating in FHP in the IFLS-5. Information about participation in the CCT programs is available in the questionnaire based on self-reported responses. Although the initial phase of CCT was implemented in 2007, data of CCT participants from the IFLS-4 were not used as it included only a very small number of households (ten). These households were excluded to generate before-after measurements under a controlled environment required for difference-in-differences (DID). Gardner (2021) indicates that incorporating such a small subsample (ten) of treated observations in a staggered diff-in-diff analysis is not appropriate as it will be estimated with considerable imprecision and with an insignificant weight for that year.

We use DID to account for any time-fixed unobservable factors that may bias our estimates. In the DID analysis, the outcomes for both treated groups and the comparable group of non-treated need to follow a similar trend before the implementation of CCT programs. Thus, this study also relies on the data from the IFLS-3 (2000) to perform a placebo test which re-estimates the DID analysis prior to the CCT programs. This leaves us with 7,130 households in the final sample. 226 households or 3.2% of the total sample reported in the IFLS-5 are FHP recipients. Since the dataset does not include the eastern part of Indonesia, this proportion is lower than the actual coverage of FHP which represents 4.3% of the country's population in 2014 (Asian Development Bank, 2018).

3.1 Measuring Frivolous Consumption

IFLS records consumption data on both food and non-food expenditures. Consumption information is reported by the household head's spouse and retrieved through reflective questions on expenditures in the past week (for items such as food, tobacco, and alcohol), in the past month (for items such as household bills, utility, and personal hygiene), and in the past year (such as clothing, household furniture, medical costs, festival, taxes, electronics, and education). Using 2010 national prices as the baseline, real per capita expenditures are calculated to ensure comparability of households across regions and IFLS waves (Witoelar, 2009).

The main outcome variable, frivolous consumption consists of two expenditure categories: tobacco products (including cigarettes) and meals in restaurants (dining out, including food stalls locally known as *warung*). Spending on these, even made at small levels could be avoided or substituted in many instances by food prepared at home which would be cheaper. What matters is not the size of spending on one stop at a *warung* or a cigarette (though repeated can amount to sizable spending for poor households) but rather that it can be considered wasteful in the context of a household with limited resources and could be re-allocated to more important items. Expenditure on these goods is likely to increase present utility for their users despite representing less-pressing needs. In the context of Indonesia where the social influence of Islam prohibits the consumption of alcohol, it becomes less relevant to include this item in the basket of frivolous goods. Indeed, we expect alcohol consumption to be misreported in our data.

The selection of these categories is motivated by data availability and their potential link to present-biased preferences discussed in the literature. Empirical evidence indicates that individuals show a high degree of present bias for these goods (Gruber and Koszegi, 2001; Levy, 2010; Sadoff,

Samek, and Sprenger, 2020). These two categories of goods are also widely considered frivolous in various studies on savings in developing contexts (Bonan, LeMay-Boucher, McNabb, and Tomavo, 2019). This is confirmed by Evans and Popova (2017) in their review of the literature on cash transfers. Notably, Aker (2013) includes doughnuts (from food stalls) in the context of the Democratic Republic of Congo and Dasso and Fernandez (2014) include soft drinks and take-away food based on Peruvian data. In the context of Indonesia, Roth (2015) uses data from the FHP dataset collected in 2007 and 2009 to test the impact of peer effects on various items of spending where meals out, including in food stalls and drive-throughs, are used in a similar fashion to this study.

3.2 Quasi Experimental Design

The main objective of this study is to estimate the net impact of FHP on various consumption items. This requires us to compare the outcome of the program to that of a counterfactual. We use survey data that were not specifically collected for the impact evaluation of this program. Yet this data is suitable given its longitudinal nature covering extensive details on various socio-economic characteristics that can be used as statistical controls.

In principle, randomisation is the best method to construct valid counterfactuals because it enables the assignment to program status (treatment) to be randomised and monitored by the researcher. It ensures the similarity of characteristics between participants (treatment) and non-participants (control). The distribution of observables and unobservables between both groups can thus be considered statistically similar on average prior to intervention. Then, the difference in outcomes between them is a measure of the program's impact.

Given our data, quasi-randomisation is the most relevant approach to use for measuring the impact of the program. FHP eligibility is based on the observable economic conditions of the households as verified by the program administrators. We use propensity score matching (PSM), which exploits variation across sample units in observable characteristics, of non-beneficiary households. This way, a statistically similar counterfactual group to the recipients can be drawn from non-participants. With the two latest waves of the IFLS dataset (2007 and 2014), we combine PSM with difference-in-differences (DID) estimators. This longitudinal household survey makes it possible to identify the dynamic relationship between cash transfer programs and consumption.

3.3 Propensity Score Matching

A sample of 226 households or around 3.2% of the total sample reported in the IFLS-5 are FHP recipients. PSM allows us to identify a valid control group. The control group is constructed from households that are not reported as CCT participants in the dataset, but are similar in observable characteristics. To improve comparability, propensity scores are estimated, and our sample is trimmed to ensure that covariates balance between the treated and control groups, hence satisfying the overlap condition (Heckman, Ichimura, and Todd, 1998; Imbens and Rubin, 2015).

As the treatment effect is heterogeneous across individuals, it is generally measured by the average for the population of interest. The population of interest in this case are households that are eligible to be FHP recipients. To measure the impact of the program on eligible households who are actual recipients, we estimate the average treatment effect on the treated (ATT). In carrying out PSM, it is necessary to balance pre-treatment observable factors given their propensity scores.

Observations with similar propensity scores must have a similar distribution of observable characteristics independent of the assignment of treatment. This property implies that the assignment to treatment is random for a given propensity score, resulting in similar treated and control units on average. In calculating the propensity score, the selection of variables included in the model is important (Caliendo and Kopeinig, 2008).

For model selection with binary treatment, either a probit or logit model can be used. We opt for a probit regression to explain program participation as a function of a series of observable covariates. Program participation is determined by the eligibility criteria of the households and a set of indicators in the proxy means test (PMT). These measure a household's economic status. Prior to the program, eligible households must have at least one infant or school-age child. Economic status can be observed from housing conditions and household welfare indicators as specified below.

Housing conditions include the household density, floor, roof and wall materials, type of cooking fuel, ownership of refrigerator, television, toilet facilities, and access to electricity and drinkable water. Household welfare indicators include per capita expenditure and the ownership of a 'letter of poor status'. These letters (*Surat Keterangan Tanda Miskin*) are provided by sub-district leaders, asserting that the household is poor and hence eligible for health and subsidised public service benefits.

In addition, household head's characteristics, such as gender, age, marital status, and education level are used to estimate the propensity score. Location variables are also included: a dummy

variable for urban residence and whether the households live in Java. A probit regression, with sampling weights, is then estimated as follows,

$$Pr\{D_i = 1|X_i\} = \Phi(\beta^T X_i) \quad (1)$$

Where D_i is whether households are the recipients of FHP (D = 1 for the beneficiary households and D = 0 for non-beneficiaries); X_i is a series of observable covariates and $\Phi(.)$ Is the standard normal cumulative distribution function. By using information from non-beneficiary households, a statistically similar counterfactual group can be drawn for the program participants. Predictions from the estimated probit model provide estimated propensity scores which are then used for matching.

The second necessary assumption, common support, asserts the possibility of finding the counterfactual of each treated unit in the control group. This condition implies that the probabilities of program participants and non-participants must be similar. This assumption can be shown from a region of support in which the distribution of probabilities for participants and non-participants overlaps. Any observations with a lower or higher probability of participation than the minimum or maximum of other groups will be excluded as they fall outside of the common support region.

Program participants and non-participants are then matched based on the proximity of their propensity scores. There are several matching techniques. They vary in the way the weights are imposed to adjust for the relative distance between non-participant matches and a participant being matched. First, kernel matching uses a weighted average of all non-participants as the counterfactual. These weights are inversely proportional to the distance between the propensity score of participants and non-participants. The closer the estimated propensities, the greater the

weights assigned (Heckman, Ichimura, and Todd, 1998). Compared to other matching techniques, kernel matching has the advantage of efficiency or lower variance. It is favourable for estimation with a smaller number of treated units as all related observations are included while estimating the counterfactual outcome (Dehejia and Wahba, 2002). In kernel matching, numerous types of kernel functions can be used, while the more critical decision is the selection of bandwidth parameters as it involves a bias-variance trade-off. Higher bandwidth leads to lower variance but increases bias. Here, biweight kernel function, following Tutor (2014), is implemented with a bandwidth of 0.01.

We also use nearest neighbour matching and radius matching (Caliendo and Kopeinig, 2008). In nearest neighbour matching, each unit in the treatment group is matched to non-treated units with zero weights except for the closest. Radius matching sets a tolerance limit on the distance between the propensity score of the treated and non-treated groups. For radius matching, all non-treated groups whose propensity score falls into the limit of tolerance are included. The advantage of this technique is that it uses only the number of comparable units within a predetermined radius, hence enabling extra units when there are good matches available and fewer units otherwise (Dehejia and Wahba, 2002). However, it is difficult to know a priori what radius is reasonable. According to Stuart (2010) if the standard deviation of propensity score among participants is larger than that among non-participants (which is the case here: standard deviation of Pr(x) is 0.075 for CCT participants and 0.041 for non-participants), a smaller caliper is advisable. Here, we use the standard and arbitrary value of 0.001. The counterfactual outcome is a weighted average of the outcomes of the selected non-treated matches, while the weights are determined by how many times a non-treated unit is used as a match.

Furthermore, to evaluate the adequacy of the matching procedure, it is advised to use means comparison before and after matching for all matching techniques. There should be no significant differences in covariate means between the two groups. This study uses t-tests for means comparison as suggested by Rosenbaum and Rubin (1983). Another common approach to evaluate matching quality is comparison of Pseudo-R^2 and LR-statistic before and after matching. Considerable reduction in pseudo-R^2 after matching indicates that covariates no longer explain the variation in program participation. The LR-statistic after matching should also demonstrate that null hypothesis cannot be rejected.

3.4 Difference-in-Differences

Using the two latest waves of the IFLS, PSM can be combined with a difference-in-differences (DID) estimator. This combination can produce a more accurate estimate of Average Treatment of the Treated (ATT) by sweeping out the fixed component of unobservable characteristics, such as individual-specific heterogeneity and common macroeconomic effects (Smith and Todd, 2005). ATT is then estimated by taking into account the difference between the outcome indicators in 2007 and 2014.

$$ATT = E(\Delta Y_1 - \Delta Y_0) = E(\Delta Y_D | D = 1) - E(\Delta Y_D | D = 0)$$

$$ATT = E\left(Y_{1,2014} - Y_{1,2007}\right) - E\left(Y_{0,2014} - Y_{0,2007}\right) \quad (2)$$

The ATT in equation (2) is the so-called DID estimator. The first part of the equation refers to the mean difference in outcome indicators for the treated group before and after the program. The second part refers to the matched control group before and after the program. The PSM-DID estimator in this study can be expressed as:

$$ATT_{PSM}^{DD} = \frac{1}{N^T}[\sum_{h\epsilon T}(Y_{h,2014}^{T} - Y_{h,2007}^{T}) - \sum_{h\epsilon C}\pi_h(Y_{h,2014}^{C} - Y_{h,2007}^{C})] \quad (3)$$

Where N^T is the number of observations in the treatment group, namely the CCT participants. *T* and *C* are the sets of households in the treated group and the PSM matched control group respectively. $Y_{h,t}^{T}$ and $Y_{h,t}^{C}$ are the outcome indicators, which are expenditure levels and shares, at time *t* for households in the treated and control group, respectively, while π_h is a weight attached to each household in the control group.

One limitation of the PSM-DID estimator is that selection bias is not fully eliminated as the time-varying component of the unobservable characteristics still exists, which may influence different groups of population differently (Bertrand, Duflo, and Mullainathan, 2004). In relation to DID estimation, there is a well-known assumption that outcome indicators in the treated and control units would have followed a similar trend over time in the absence of treatment (Abadie, 2005). This is referred to as the parallel trend assumption. Practically, it must be ensured that prior to the CCT program being implemented, the differences between the treated and matched control groups are constant. Hence, the differences after the CCT implementation are driven by the differential impact of the program itself. Otherwise, violation of the parallel trend assumption could lead to overestimation (or underestimation) of causal effect using DID. The parallel trend assumption is not directly testable. However, Erlangga, Ali, and Bloor (2019) run a placebo test to indicate whether the assumption is likely to hold by estimating the impact of CCT programs on the DID estimates from pre-treatment periods between IFLS-3 (2000) and IFLS-4 (2007). In this case, the parallel trend assumption is verified if CCT as the treatment variable does not have any significant impact on past outcomes. We expand on this in Section 4.3.

4. Results and Discussion

Table 1 reports summary statistics of variables used as covariates in the propensity score matching estimation. It describes program eligibility, household head's characteristics, household's socio-economic status and location in the pre-treatment period of 2007. There are 7,130 households in the dataset. The proportion of urban households and those living in Java is 40% and 74%, respectively. On average a household lives in a house with an area of around 26 meter-square per person. Around 36% of households have pre-school kids and 65% of households have school aged children. Only 19% of the households are headed by a female, and the household head's average age is around 49 years. The majority of household heads are married. Around 61% of household heads have only primary education or below. In relation to housing characteristics, most of the households have access to electricity and clean water, own television and private toilet, have semi-permanent roof, floor and walls built of thick material, and use firewood, kerosene, or charcoal as cooking fuel, while only a few households own a refrigerator. On average households spend around IDR 600,000 (USD 66) per month. Only 11% of the households hold a "letter of poor status".

Table 2 reports that prior to cash transfer, that is in 2007, total household expenditure per person per month was IDR 322,314.2 (USD 36) on average. Around 63% was spent on food, followed by frivolous goods. As the poor households spend almost 8% on frivolous goods in 2007, the summary statistics indicate that the poor already engaged in frivolous consumption even when their income was at the subsistence level. This frivolous consumption share was higher than combined expenditure share in health and education, which accounted for around 7%. Seven years later, in 2014, total household expenditure increased substantially to IDR 562,349 (USD 62). Even

though all expenditure categories evidence increases in real per capita value, shares of food to total expenditure declined by up to 10%. At first sight, it is apparent that typical households shifted their consumption budget by spending higher shares in education.

4.1 Propensity Score Matching Estimation

We report in Table 3 estimates for our probability model of receiving conditional cash transfers. To satisfy the exogeneity assumption, all selected variables are characteristics observed in the pre-treatment period so in 2007 (Caliendo and Kopeinig, 2008). Beneficiary households are more likely to live in a smaller house area per person with a semi-permanent roof. Owning a television and refrigerator is also significant in predicting non-participation in the CCT program as seen by the negative sign on these variables. Proxy indicators of household welfare are significant in predicting program participation. Individuals who have lower per capita expenditure and hold 'letter of poor' are more likely to be participants. Also, having children within the age range eligible for the CCT is significant in predicting program participation. Households with children under five years and of schooling age (between six to fifteen years) have a higher probability of being enrolled in the program. Education level of the head of household is significant in explaining program participation since those with primary education level or below tend to be in the program. Meanwhile, household heads being married, gender, and age also strongly predict program participation. Location also matters as living in Java increases the probability of being a recipient.

Figure 1 shows the density plot of propensity scores among CCT and non-CCT households from an unmatched sample. Propensity scores of non-CCT recipients converge at the lower end of the range. There are good indications of overlap such that there are recipients and non-recipients across the distribution, no breaks within the distribution, and no observations predicted as either $Pr(x) =$

0 or $Pr(x) = 1$. To compare propensity scores of CCT and non-CCT households, samples need to be restricted to the common support region. By imposing this condition, the estimated ATTs are more likely to be free of selection bias from observed characteristics. There seems to be very few, if no such observations outside the common support.

After calculating the propensity score, both matched samples need to satisfy the balancing property (Becker and Ichino, 2002). Covariates which are the main predictors of the treatment status need to be balanced. Balance tests are performed on the distribution of covariates among CCT and non-CCT recipients conditional on the propensity score for each matching technique. Table 4 presents the full results of covariate balance tests. All matching techniques are successful in balancing covariate distribution between the two groups. Covariate means are significantly different between treated and non-treated groups before matching. This can be seen in column 1 for which no matching is done. These differences become statistically non-significant after matching is complete and this for all techniques shown in columns two to four. The LR-statistics for these columns show that both the treated and non-treated matched samples are on average not significantly different.

4.2 Difference-in-Difference Estimation

Table 5 Panel A reports the impact of receiving cash transfers on the first difference of expenditure and its various components, both in levels and shares. All prices are adjusted to 2010 levels. This table presents the ATT estimates of the CCT program using various matching methods mentioned in the previous section. Although the coefficients are negative, the program detects no statistically significant impacts on total household expenditures. This indicates that the program does not have

a poverty reduction effect for the beneficiary households. This is consistent with Cahyadi et al. (2020) and the permanent income hypothesis, which predicts no changes in consumption as the cash transfers are already anticipated by the beneficiary households. As we mentioned above, transfers to households account for between 15 to 20% of the consumption of poor households. This may not be sufficient to raise significantly total expenditures. It may also be associated, for some recipients, with a reduction in work and earned income for parents and school-age children who would otherwise contribute to household income.

The estimates show that expenditures on frivolous goods decrease in terms of monthly per capita level by about IDR 9,600 (USD 1.1) to IDR 13,300 (USD 1.5). It is significant at a 10% level across all matching techniques. Overall, there are no significant impacts on frivolous expenditures as shares of total expenditure (except mildly in column 2 when NN matching is used for meals out only). The non-significant results associated with tobacco were to be expected. In Indonesia, there is a strong negative cultural stigma associated with women smoking (Barraclough, 1999). A potential concern that the husband wrests the money from the wife to buy cigarettes is not supported empirically. These results seem to confirm overall that there is no significant (nor widespread) FHP money spent on frivolous consumption by recipients.

Monthly education expenditure per capita increased by IDR 13,000 (USD 1.4) to IDR 16,000 (USD 1.8) per month and these estimates are statistically significant across all matching techniques. Similar patterns can also be found in expenditure shares. For the beneficiaries, the extra cash raises the share of education in total expenditure by around 3 percentage points. This is comparable to *Bolsa Familia* in Brazil with a 3.4 percentage points (Kamakura and Mazzon, 2015), but much larger compared to *Pantawid Pamilyang* in the Philippines with a 0.3 percentage point

increase (Tutor, 2014). This signals that the program's recipients understand the logic of the program and spend the cash transfers on goods monitored for program compliance.

Hartarto, Wardani and Azizurrohman (2021) provide a qualitative study in Yogyakarta based on interviews with 30 FHP recipients located in five municipalities. They document that this increase is driven by several factors. First, the role of parents: their interviews with FHP recipients and facilitators reveal that parents are highly aware of their children's education and are willing to prioritise it. Second, the size of transfers is large enough to ease parents' burden to fund their children's education. Third, program facilitators enforce compliance. Facilitators usually visit schools once a month. They organise monthly group meetings during which parents are required to report on their children's progress at school. Simultaneously, children's attendance in class is recorded and they are required to attend unless excused. Fourth, this increase is driven by the threat of sanctions which include postponement and cuts in cash transfers and ultimately termination of recipient status. The monthly group meeting held by program facilitators usually offers a family development session. Program participants receive a manual on how to raise and educate children. They are also taught by program facilitators how to allocate the cash transfer. The facilitators give the recipients a book to report their monthly expenditures for further monitoring. Although there are no explicit requirements on how to use the funds, program participants are advised to spend the money on school-related items and student allowances so that the children become more disciplined and enthusiastic to attend school. Empirically, this can be seen in Panel B of Table 5. The beneficiary households mainly spend and allocate more on school supplies and children's stipends. Such direct monitoring may explain why the beneficiaries are deterred from misusing funds for frivolous consumption and opt to increase the spending on children's education.

FHP transfers' impacts on health expenditure are not statistically significant, both in per capita levels and shares to total expenditure. Health conditionality monitored for the program includes only the utilisation of public health services, such as prenatal care for pregnant mothers, check-ups, and immunisation for children under the age of five. Typically, health-related goods, such as clinic visits, medicine and vaccines are already provided free of charge to everyone eligible. As Cahyadi et al. (2020) show, more granular data on health expenditures would have been needed to detect any specific significant effects. Overall, our results may indicate that declining per capita levels of expenditure in frivolous goods is related to the conditionality imposed on education rather than health.

Our results need to be looked at with some caution. The consumption data are gathered at the household level; hence this study cannot analyse consumption patterns within-household. The consumption data are collected during interviews rather than noted by the participants regularly in a detailed diary. This standard issue, which is a feature of large-scale surveys such as the IFLS, may result in either over-reported or under-reported consumption. Additionally, observations on consumption are obtained from female respondents, which may lead to some underreported consumption of frivolous goods. They may not be fully aware of some purchases made by male household members.

We investigate whether the effects we observe can be attributed to a particular subsample. To do so, we run quantile regressions based on the variable of total per capita monthly expenditures. Table 6 shows that an increase in the share of education expenditures is significant and more

pronounced for the two poorest quartiles. There is also some evidence that frivolous expenditures (tobacco and meal out) are reduced both in level and share terms for the richest quartile.

Our sample of 226 treated households allows us to look at other relevant dimensions for heterogeneous effects with enough variation. As can be seen in Table A1 (in Appendix A), households in urban environments (not in rural) see a decrease in their frivolous expenditures through significant reductions of expenditures in meals out both when measured with per capita monthly expenditure or share of total expenditures. This may be due to cities' more diverse and abundant offerings of options for a meal out. Spending on education is significantly increased as a share of total expenditures for both rural and urban environments. No clear pattern emerges when we focus on households with children aged 0-5 years (Table A2). Comparatively and intuitively, households with children aged between 6 and 15 years (of schooling age) experience significant increases in expenditures in education when measured both with per capita monthly expenditure and share of total expenditures. This pattern is confirmed when we focus, in Table A3, on household heads with a low level of education (primary or lower). Such households also mildly reduce their monthly per capita spending on meals out.

4.3 Robustness Checks

An important assumption of DID estimations is that the average pre-treatment time trend is similar between the treated and control groups. To check the trend assumption, we conduct a placebo test by using data from the IFLS-3 and IFLS-4 as periods before the program implementation. The validity of parallel trend assumption is confirmed if our treatment variable is not significantly impacting the outcomes. Columns 3 to 8 in Table 7 show that none of the coefficients is significant,

confirming that no significant impact can be detected on our outcome variables. We can infer with some confidence that the parallel trend assumption holds for the outcome variables with the matched samples. When we use the unmatched samples (columns 1 and 2), we see that the treatment variable has a significant impact on some outcomes indicating that the parallel trend assumption is unlikely to hold.

It is widely acknowledged that results from matching techniques can be volatile and depend on the set of selected variables included in the propensity score estimation. We produce an alternate set of covariates for matching to check if the results we display above in Table 5 are robust. Instead of using the full list of covariates shown in Table 3, we focus on the ones which are found significant in determining CCT program participation in the previous estimation of propensity score. These include whether the households have kids either aged 0-5 years or 6-15 years, household head characteristics (sex, marital status, age, and education), housing conditions (household density, owning television, fridge, and roof type), household's welfare measure (real per capita expenditure and owning letter of poor), and whether the households live in Java.

Our results shown in Table 8 indicate that the estimations of the impacts of the CCT are in line with the main results we displayed previously. Per capita levels and shares of education expenditure have significantly increased between 2007 and 2014. No significant impact on health expenditures (either at per capita level or share) is found. Frivolous expenditures in terms of per capita level expenditure are significantly reduced and this effect appears to be coming from reductions in the 'meal out' item. No significant reduction is detected at the share of consumption level.

5. Conclusion

Households included in our study were spending on average close to 8% of their budget on frivolous goods prior to participating in the CCT program. This proportion was larger than the sum of investment in their children's health and education. This study measures the impact of the CCT program using a PSM-DID estimation strategy: before and after the program implementation for beneficiary households and non-beneficiary households. We find a sufficient pattern of results suggesting that the per capita level of consumption of frivolous goods (through meals out) decreases among program participants. This finding suggests that conditionality and checks on recipients appear sufficient to deter an increase in the level of frivolous consumption. In fact, beneficiaries tend to increase expenditure (per capita levels and share) in education-related goods. Our study complements the existing literature on impact evaluation of CCT programs in Indonesia (World Bank, 2012) and Evans and Popova (2014). In the context of FHP, compliance with conditionality cannot be disentangled from the awareness of the program participants, enforcement of program conditionality and support from the program facilitators.

Like other quasi-experimental studies of similar nature, our work suffers from limitations. First, the data allows us to investigate only two types of frivolous goods: tobacco and meals out, while other items for which data are not disaggregated would also qualify as such. Consumption data are gathered at the household level, hence this study cannot analyse consumption patterns within-household at a more granular spouse-level. This study also uses consumption data that are collected in interviews, rather than in a detailed diary, which may result in more imprecise consumption data. Furthermore, information on consumption is obtained from female respondents. This may

further accentuate any misreporting issue. Wives may not be fully aware of all purchases made by male household members, specifically related to tobacco. Such mismeasurement can influence the precision of parameter estimation. Moreover, CCT recipient status is self-reported. Finally, the results obtained from DID (with the parallel trend assumption seemingly satisfied) cannot completely rule out that the estimated impacts of the CCT program are partially driven by time-varying unobserved differences between the treated group and control group.

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Tables

Table 1: Summary statistics of the 2007 covariates used for matching in overall sample

Variable	Mean	S.D.
Program eligibility		
Have kids aged 0-5 years	0.36	0.48
Have kids aged 6-15 years	0.65	0.48
Household head's characteristics		
Male	0.81	0.39
Marital status (single = 1, others = 0)	0.82	0.38
Age (years)	48.7	13.5
Education (primary school or below = 1, others = 0)	0.61	0.49
Housing characteristics		
Household density (m^2/person)	25.9	66.9
Access to electricity	0.96	0.19
Own television	0.75	0.43
Own fridge	0.23	0.42
Floor type (bamboo/wood/dirt=0, others = 1)	0.80	0.40
Roof type (shingle/asbestos/foliage=0, others = 1)	0.19	0.39
Wall type (brick = 1, others = 0)	0.72	0.45
Own private toilet	0.72	0.45
Access to clean water	0.64	0.48
Cooking fuel (firewood/kerosene/charcoal=1, others=0)	0.86	0.35
Household's welfare measure		
Real per capita expenditure (IDR 2010)	589,850	538,200
Own "letter of poor status"	0.11	0.31
Location		
Urban	0.40	0.49
Java	0.74	0.44
Number of obs	7130	

Notes: Data source: IFLS-4 (2007); Sampling weights are used.

Table 2: Summary statistics of household expenditure among recipients

Variable	Treated			Matched control (NN)		
	2007	**2014**	**Diff**	**2007**	**2014**	**Diff**
Per capita monthly expenditures						
Total expenditure	322,314.2	562,349.4	240,035.2***	323,770.4	591,484	267,713.6***
	(206,036.3)	(411,377.3)		(179,952.6)	(423,069.3)	
Frivolous goods	29,312.9	44,731.4	15,418.5***	23,083.4	49,378.4	26,295***
	(54,515.4)	(53,348.5)		(28,584.1)	(76,782.6)	
Education	20,230.8	58,841.7	38,610.9***	20,770.9	40,989.2	20,218.3***
	(30,176.9)	(88,913.5)		(28,631.7)	(53,775.2)	
Health	4,578.9	10.196.4	5,617.5**	5,606.3	10,503.0	4,896.7***
	(10,417.4)	(34,601.1)		(13,238.9)	(22,916.6)	
Food	198,941.5	293,133.5	94,192.0***	192,057	322,002.4	129,945.4***
	(119,339.2)	(203,873.6)		(110,041.2)	(268,049.9)	
Shares to total expenditure (%)						
Frivolous goods	7.8	7.9	0.1	6.9	7.7	0.8
	(8.0)	(7.4)		(6.9)	(8.4)	
Education	6.1	11.2	5.1***	6.3	8.0	1.7**
	(6.2)	(10.3)		(6.9)	(8.6)	
Health	1.5	1.8	0.3	1.5	1.7	0.2
	(3.6)	(4.2)		(2.9)	(3.1)	
Food	63.5	53.8	-9.7***	60.6	54.1	-6.5***
	(14.4)	(14.8)		(13.3)	(14.2)	
Number of observations	226	226		226	226	

Notes: The DID computed between treated and non-treated for shares of total expenditures: frivolous goods: 0.1 is significantly smaller than 0.8 at 1% level; Education: 5.1 is significantly larger than 1.7 at 1% level; Health: 0.3 is not significantly different than 0.2 (at 10% level); Food: -9.7 is significantly smaller than -6.5 at 1% level. The matching technique used is Nearest Neighbor (N=1); ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively.

Table 3: Propensity Score Model

Variable	Coefficient	95% CI
Program eligibility		
Have kids aged 0-5 years	0.231***	[0.073 0.390]
Have kids aged 6-15 years	0.200**	[0.028 0.372]
Household head's characteristics		
Male	-0.241**	[-0.470 -0.012]
Marital status	0.272**	[0.011 0.532]
Age	-0.011***	[-0.017 -0.005]
Education	0.259***	[0.069 0.448]
Housing characteristics		
Household density	-0.017***	[-0.026 -0.008]
Access to electricity	-0.056	[-0.341 0.229]
Own television	-0.146*	[-0.312 0.020]
Own fridge	-0.519***	[-0.829 -0.209]
Floor type	-0.127	[-0.328 0.074]
Roof type	-0.311***	[-0.504 -0.117]
Wall type	-0.148	[-0.339 0.043]
Own private toilet	-0.035	[-0.189 0.118]
Access to clean water	0.021	[-0.140 0.182]
Cooking fuel	0.277	[-0.066 0.621]
Household's welfare measure		
Real per capita expenditure	-0.313***	[-0.455 -0.171]
Own "letter of poor status"	0.191**	[0.011 0.370]
Location		
Urban	0.082	[-0.080 0.244]
Java	0.230***	[0.062 0.397]
Constant	2.494**	[0.577 4.411]
Number of observations	7,130	
Wald chi2 (19)	200.24	
Prob. > chi2	0.000	
Pseudo R2	0.168	

Notes: ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively.

Table 4: Covariate balance results

Variables	Unmatched sample			Nearest Neighbour N=1			Radius cal (0.001)			Kernel biweight, bw = 0.01		
	CCT	Non-CCT	p-value	CCT	Non-CCT	p-value	CCT	Non-CCT	p-value	CCT	Non-CCT	p-value
Kids aged ≤ 5	0.606	0.357	0.000	0.606	0.553	0.254	0.586	0.577	0.846	0.606	0.585	0.644
Kids aged 6-15	0.823	0.644	0.000	0.823	0.832	0.804	0.814	0.817	0.938	0.823	0.816	0.842
HH head male	0.845	0.819	0.311	0.845	0.805	0.266	0.851	0820	0.380	0.845	0.827	0.603
HH head marital status	0.894	0.818	0.004	0.894	0.876	0.556	0.888	0.879	0.768	0.894	0.890	0.896
HH head age	43.55	48.93	0.000	43.55	44.49	0.437	43.79	44.19	0.743	43.55	43.79	0.838
HH head education	0.796	0.602	0.000	0.796	0.823	0.473	0.786	0.798	0.752	0.796	0.803	0.871
Household density	12.79	24.47	0.002	12.79	13.08	0.743	13.03	13.61	0.604	12.79	13.71	0.516
Electricity	0.889	0.962	0.000	0.889	0.894	0.880	0.893	0.902	0.763	0.889	0.894	0.865
Television	0.553	0.766	0.000	0.553	0.571	0.705	0.581	0.571	0.826	0.553	0.561	0.873
Fridge	0.035	0.266	0.000	0.035	0.049	0.483	0.037	0.043	0.764	0.035	0.048	0.507
Floor	0.650	0.790	0.001	0.650	0.633	0.696	0.660	0.637	0.618	0.650	0.618	0.470
Roof	0.159	0.253	0.000	0.159	0.102	0.071	0.163	0.144	0.585	0.159	0.141	0.583
Wall	0.553	0.712	0.000	0.553	0.535	0.706	0.567	0.549	0.701	0.553	0.527	0.584
Private toilet	0.504	0.740	0.000	0.504	0.491	0.778	0.526	0.541	0.748	0.504	0.533	0.549
Clean water	0.465	0.657	0.000	0.465	0.513	0.302	0.479	0.495	0.737	0.465	0.492	0.554
Cooking fuel	0.969	0.836	0.000	0.969	0.960	0.612	0.967	0.963	0.814	0.969	0.960	0.615
Log PCE	12.54	13.12	0.000	12.54	12.54	0.952	12.58	12.59	0.847	12.54	12.56	0.714
Letter of poor	0.226	0.118	0.000	0.226	0.212	0.734	0.219	0.229	0.803	0.226	0.229	0.943
Urban	0.389	0.477	0.009	0.389	0.398	0.848	0.391	0.382	0.854	0.389	0.362	0.545
Java	0.628	0.578	0.129	0.628	0.646	0.696	0.628	0.634	0.902	0.628	0.646	0.697
Observation	226	6,904		226	226		215	6,904		226	6,904	
Pseudo R^2		0.172			0.015			0.005			0.006	
LR chi^2		344.16			9.46			2.84			3.94	
p>chi^2		0.000			0.977			1.000			1.000	

Notes: Kernel matching: the closer the treated and non-treated observations are, based on the propensity score, the larger weight is given to the non-treated observation. The whole sample of 6904 non-treated is used. Radius: all non-treated observations within the specified radius of the treated observations are used and all receive the same weight (regardless of how close they are to the treated observations value). Only 215 observations of the treated sample are used because the propensity scores of the excluded observations are off supp

Table 5: Impact of Family Hope Program on household consumption

Outcome variables	Kernel		NN		Radius	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Panel A: all items						
Per capita per month expenditure						
Total expenditure	-41,675	(34,715)	-46,080	(39,561)	-27,030	(37,661)
Frivolous consumption	-9,595.5*	(5,511.5)	-13,300*	(7,056.1)	-10,254*	(5,946.2)
Tobacco	-1,648.0	(3,669.6)	-4,527.3	(5,071.5)	-1,890.1	(3,949.8)
Meal out	-7,947.5**	(3,574.2)	-8,773.4**	(4,060.8)	-8,364**	(3,875.9)
Health	-1,503.6	(3,440.6)	1,269.7	(3,027.8)	-1,268.0	(3,744.6)
Education	13,518**	(6,373.7)	15,917**	(7,084.9)	13,027*	(6,754.4)
Shares to total expenditure						
Frivolous consumption	-0.410	(0.674)	-0.956	(0.930)	-0.942	(0.697)
Tobacco	0.079	(0.533)	-0.103	(0.785)	-0.344	(0.544)
Meal out	-0.489	(0.370)	-0.853*	(0.459)	-0.598	(0.393)
Health	-0.062	(0.411)	0.257	(0.484)	0.022	(0.433)
Education	3.063***	(0.771)	3.155***	(1.056)	2.782***	(0.804)
Panel B: Education						
Per capita per month expenditure						
Tuition fee	2,561.4	(2,580.9)	3,833.4	(2,626.9)	2,677.1	(2,794.6)
School supplies	2,241***	(836.8)	3,228.8***	(984.2)	2,413.2***	(893.3)
Children's allowances	8,714.8*	(4,711.6)	8,855.2*	(5,327.0)	7,936.9	(4,927.9)
Shares to total expenditure						
Tuition fee	0.830**	(0.340)	0.970**	(0.461)	0.811**	(0.360)
School supplies	0.373**	(0.155)	0.641***	(0.204)	0.401**	(0.164)
Children's allowances	1.860***	(0.549)	1.544**	(0.739)	1.571***	(0.561)
Observations						
Treated	226		226		215	
Matched control	6,904		226		6,904	

Notes: ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively; prices are adjusted to 2010 level; See notes at bottom of Table 4 for details on the matching techniques used.

Table 6: Impact of Family Hope Program on household consumption: Regressions per Quartile

Outcome variables	Q1		Q2		Q3		Q4	
	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.	Coef.	S.E.
Per capita per month expenditure								
Total expenditure	-11,652	(21,900)	-23,507	(35,657)	-33,087	(31,267)	-41,246	(104,909)
Frivolous consumption	3,124.9	(5,198.8)	-11,570	(8,848.7)	5,128.1	(8,046.8)	-40,414*	(21,556)
Tobacco	3,359.2	(4,856.4)	-4,486.2	(7,051.7)	1,432.7	(7,802.6)	-12,209	(13,743)
Meal out	-234.37	(1,731.3)	-7,084.8**	(3,045.0)	3,695.4	(3,802.7)	-28,205*	(14,311)
Health	-770.02	(-1,923.9)	1,146.3	(4,128.8)	-1,215.1	(3,478.6)	3,777.6	(10,163)
Education	9,236.4*	(5,283.3)	6,505.3	(7,938.9)	10,650	(10,585)	47,632**	(22,844)
Shares to total expenditure								
Frivolous consumption	1.815	(1.644)	-2.040	(1.881)	1.041	(1.565)	-3.393*	(1.925)
Tobacco	1.959	(1.529)	-0.452	(1.578)	0.165	(1.423)	-1.585	(1.380)
Meal out	-0.144	(0.604)	-1.588**	(0.700)	0.877	(0.787)	-1.808	(1.254)
Health	-0.006	(0.743)	-0.333	(1.115)	-0.191	(0.729)	0.863	(1.085)
Education	3.648*	(1.863)	3.148*	(1.726)	2.902	(1.954)	3.875	(2.432)
Observations	113		113		113		113	

Notes: ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively;
Prices are adjusted to 2010 level; The nearest neighbour NN (N=1) is used for matching.

Table 7: Placebo test for parallel trend assumption (Period: 2007-2000)

Outcome variables ($Y_{2007} - Y_{2000}$)	Unmatched		Kernel		NN		Radius	
	Diff	S.E.	ATT	S.E.	ATT	S.E.	ATT	S.E.
Per capita per month expenditure								
Total expenditure	-104,914**	(50,595)	13,432	(26,816)	11,843	(26,438)	11,416	(29,610)
Frivolous consumption	-1,336.2	(7,391.6)	7,038.4	(4,678.1)	7,621.9	(5,059.9)	6,550.1	(5,069.7)
Tobacco	-4,493.0	(4,100.5)	2,522.0	(2,638.3)	3,005.0	(3,477.4)	2,530.0	(2,816.6)
Meal out	3,156.9	(5,812.9)	4,516.4	(3,582.1)	4,616.8	(3,138.2)	4,020.1	(3,915.4)
Health	-7,633.2	(5,120.7)	-3,132.8	(3,307.2)	-1,511.5	(3,436.9)	-3,044.3	(3,604.3)
Education	1,467.7	(5,011.7)	2,876.6	(2,930.0)	0.549	(2,990.8)	3,715.3	(3,201.7)
Shares to total expenditure								
Frivolous consumption	-0.188	(0.712)	0.386	(0.710)	0.344	(0.939)	0.337	(0.749)
Tobacco	-0.418	(0.562)	-0.012	(0.580)	-0.197	(0.819)	-0.070	(0.608)
Meal out	0.230	(0.441)	0.398	(0.435)	0.542	(0.494)	0.407	(0.463)
Health	-0.641	(0.443)	-0.469	(0.527)	-0.291	(0.625)	-0.585	(0.558)
Education	1.927***	(0.597)	0.489	(0.540)	-0.162	(0.722)	0.761	(0.564)
Observations								
Treated	226		226		226		215	
Matched control	6,904		6,904		226		6,904	

Notes: ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively; prices are adjusted to 2010 level.

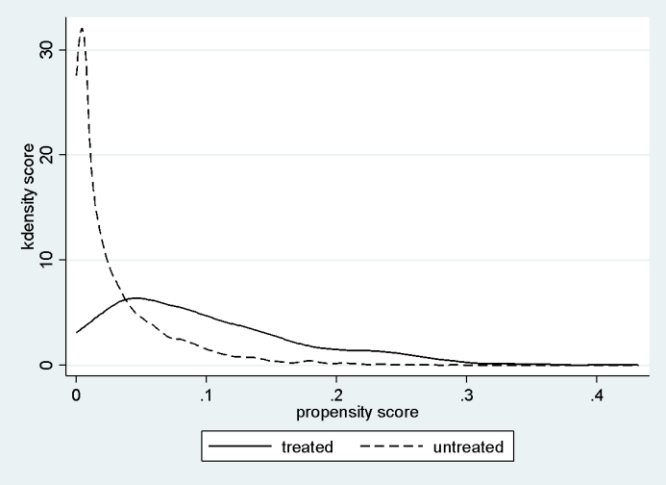
Table 8: Robustness check for the impact of Family Hope Program

Outcome variables	Kernel		NN		Radius	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Per capita per month expenditure						
Total expenditure	-44,449	(34,019)	-2,924.6	(35,890)	-57,026	(38,803)
Frivolous consumption	-10,154.9*	(5,412.8)	-8,057.5	(6,895.9)	-13,494**	(6,105.2)
Tobacco	-1,347.3	(3,601.6)	-4,251.2	(4,621.0)	-4,053.3	(4,048.8)
Meal out	-8,807.7**	(3,503.0)	-3,806.3	(4,324.2)	-9,441.2**	(3,986.5)
Health	-1,422.4	(3,325.9)	-3,161.2	(3,677.5)	-1,405.2	(3,954.3)
Education	12,203*	(6,353.5)	17,674***	(6,649.5)	12,640*	(6,824.5)
Shares to total expenditure						
Frivolous consumption	-0.556	(0.665)	-0.600	(0.897)	-0.920	(0.709)
Tobacco	0.043	(0.521)	-0.394	(0.751)	-0.204	(0.553)
Meal out	-0.600	(0.369)	-0.206	(0.475)	-0.717*	(0.400)
Health	-0.050	(0.410)	-0.526	(0.539)	-0.071	(0.446)
Education	2.905***	(0.772)	2.601***	(0.995)	2.894***	(0.811)
Observations						
Treated	226		226		215	
Matched control	6,904		226		6,904	

Notes: ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively;
The following variables found to have no significant effect on CCT participation (as per Table 3) where excluded from the estimations in this table: access to electricity, cooking fuel, wall, floor, clean water, private toilet, urban; prices are adjusted to 2010 level.

Figures

Figure 1: Propensity score distribution of unmatched sample



Appendix A

Table A1: Heterogeneity Analysis: Urban and Rural subsamples

Urban

Outcome variables	Kernel		NN		Radius	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Per capita per month expenditure						
Total expenditure	-999,997	(71,689)	10,148	(55,670)	-120,464*	(69,488)
Frivolous consumption	-23,630**	(11,620)	-3,669	(10,581)	-20,072	(12,834)
Tobacco	-3,227	(7,055)	8,989	(6,924)	-1,532	(7,755
Meal out	-20,402**	(8,336)	-12,659*	(7,331)	-18,539**	(9,136)
Health	-5,675	(5,936)	-1,824	(3,168)	-9,075	(5,709)
Education	21,232	(13,984)	13,758	(16,479)	24,083	(16,344)
Shares to total expenditure						
Frivolous consumption	-2.263**	(1.156)	-0.821	(1.625)	-2.021	(1.134)
Tobacco	-0.404	(0.780)	0.642	(1.120)	-0.596	(0.879)
Meal out	-1.859**	(0.755)	-1.463	(1.099)	-1.425*	(0.858)
Health	-0.835	(0.681)	-0.647	(0.653)	-1.259	(0.796)
Education	3.912***	(1.354)	2.333	(1.809)	4.476***	(1.553)
Observations						
Treated	85		88		71	
Matched control	3,293		3,293		3,293	

Notes: ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively.

Rural

Outcome variables	Kernel		NN		Radius	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Per capita per month expenditure						
Total expenditure	-22,859	(53,994)	-17,032	(121,141)	-24,727	(60,371)
Frivolous consumption	-2,085	(5,601)	-3,329	(6,958)	-583.36	(6,348)
Tobacco	-892.597	(4,230)	-2,883	(5,846)	161.06	(4,866)
Meal out	-1.192	(2,865)	-445.93	(2,881)	-744.43	(3,192)
Health	1.963	(4,362)	-1.267	(4,997)	223.49	(4,913)
Education	8.257	(6,028)	4,938	(7,321)	6,106	(6,68)
Shares to total expenditure						
Frivolous consumption	0.503	(0.841)	0.318	(0.999)	0.546	(0.872)
Tobacco	0.223	(0.708)	0.0229	(0.902)	0.135	(0.756)
Meal out	0.280	(0.384)	0.2958	(0.465)	0.410	(0.416)

Health	0.465	(0.529)	-0.1612	(0.730)	0.148	(0.569)
Education	2.465***	(0.957)	2.097*	(1.281)	1.981**	(1.002)
Observations						
Treated	137		138		132	
Matched control	3,611		3,611		3,6111	

Notes: ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively.

Table A2: Heterogeneity Analysis: Children age (0-5 years) vs (6-11 years)

Have kids aged 6-15 years

Outcome variables	Kernel		NN		Radius	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Per capita per month expenditure						
Total expenditure	-23,398	(48.421)	-3,491.1	(54,129)	-1,152	(51,763)
Frivolous consumption	-5,375.1	(5,865.7)	-5,054.8	(8,384.8)	-6,615.6	(6,304.7)
Tobacco	825.03	(3,984.7)	1,557.4	(4,996.7)	194.50	(4,197.9)
Meal out	-6,200.1	(3,876.2)	-6,612.3	(7,036.5)	-6,810.1	(4,206.7)
Health	-822.92	(3,698.6)	-443.93	(4,122.2)	-45.16	(4,029.7)
Education	15.384**	(7,640.2)	18,963**	(7,868.5)	14,621*	(8,144.7)
Shares to total expenditure						
Frivolous consumption	-0.202	(0.693)	0.007	(0.894)	-0.429	(0.728)
Tobacco	-0.065	(0.568)	0.097	(0.786)	-0.148	(0.600)
Meal out	-0.136	(0.395)	-0.090	(0.555)	-0.291	(0.427)
Health	-0.102	(0.476)	0.046	(0.625)	0.075	(0.505)
Education	3.356***	(0.905)	3.304***	(1.147)	2.653***	(0.952)
Observations						
Treated	183		186		176	
Matched control	4,448		4,448		4,448	

Notes: ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively.

Have kids aged 0-5 years

Outcome variables	Kernel		NN		Radius	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Per capita per month expenditure						
Total expenditure	-23,699	(51,957)	15,977	(60,681)	-3,707.5	(66,175)
Frivolous consumption	-2,637.4	(7,504.4)	-4,993.6	(11.809)	-12,413	(10,015)
Tobacco	2,772.9	(5,232.7)	6,522.4	(5,928.8)	1,817.1	(6,446.1)
Meal out	5,410.4	(4,411.3)	-11,516	(9,150.7)	-14,230	(6,718.0)

Health	3,425.0	(6,597.9)	-5,080.1	(6,658.0)	3,350.8	(7,566.0)
Education	14,051	(12,649)	17,248	(13,256)	14,142**	(14,187)
Shares to total expenditure						
Frivolous consumption	0.401	(1.082)	0.327	(1.627)	-0.938	(1.243)
Tobacco	0.580	(0.914)	1.427	(1.183)	0.321	(1.028)
Meal out	-0.179	(0.512)	-1.099	(1.017)	-1.259**	(0.623)
Health	0.513	(0.739)	0.788	(0.759)	0.413	(0.835)
Education	2.326*	(1.271)	2.694	(1.719)	2.162	(1.404)
Observations						
Treated	85		87		80	
Matched control	2,024		2,024		2,024	

Notes: ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively.

Table A3: Heterogeneity Analysis: Head Education (primary school or lower vs above primary school)

Head Education (Primary school or below)

Outcome variables	Kernel		NN		Radius	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Per capita per month expenditure						
Total expenditure	878.15	(46,774)	40,546.3	(52,113)	-5,178.2	(47,480)
Frivolous consumption	-6,162.7	(6,253.9)	-6,145.3	(9,088.9)	-7,920.8	(6,600.0)
Tobacco	1,054.9	(4,046.0)	4,477.6	(5,190.6)	257.15	(4,262.7)
Meal out	-7,217.6*	(4,168.1)	-10,622.6	(6,942.9)	-8.178.0*	(4,430.1)
Health	-3,430.8	(3,062.3)	-1,553.3	(3,095.6)	-3,594.5	(3,247.6)
Education	16,533***	(5,501.7)	20,936***	(6,135.6)	15,979**	(15,475)
Shares to total expenditure						
Frivolous consumption	-0.187	(0.756)	-0.509	(1.149)	-0.378	(0.783)
Tobacco	-0.225	(0.589)	0.289	(1.886)	0.107	(0.602)
Meal out	-0.413	(0.449)	-0.798	(1.703)	-0.485	(0.474)
Health	-0.326	(0.434)	-0.421	(0.717)	-0.444	(0.458)
Education	3.200***	(0.883)	3.700***	(1.129)	3.609***	(0.915)
Observations						
Treated	178		180		169	
Matched control	4,153		4,153		4,153	

Notes: ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively.

Head Education (Above primary school)

Outcome variables	Kernel		NN		Radius	
	ATT	S.E.	ATT	S.E.	ATT	S.E.
Per capita per month expenditure						
Total expenditure	-223,174**	(95.202)	-154,395*	(84,627)	-210,718**	(102,503)
Frivolous consumption	-13,424	(12.805)	-17,351	(12,122)	-14,668	(14,114)
Tobacco	-4,733.5	(9,727.2)	-9,691.3	(10,207)	-3,781.3	(10,921)
Meal out	-8,691.1	(6,646.2)	-7,659.8	(4,764.5)	-10,887	(6,901.6)
Health	7,409.0	(12,181)	6,273.4	(11,376)	6,726.8	(12,995)
Education	5,078.2	(22,569)	18,536	(23,625)	9,052.6	(26,095)
Shares to total expenditure						
Frivolous consumption	-0.283	(1.659)	-1.740	(1.905)	-0.676	(1,810)
Tobacco	0.228	(1.379)	-1.031	(1.710)	0.257	(1.502)
Meal out	-0.512	(0.618)	-0.709	(6.632)	-0.933	(0.678)
Health	0.992	(1.186)	0.410	(1.259)	0.740	(1.323)
Education	2.915*	(1.694)	4.682*	(2.242)	3.153**	(1.719)
Observations						
Treated	46		46		41	
Matched control	2,751		2,751		2,751	

Notes: ***, ** and * denotes significance at 1, 5 and 10 percent level, respectively.