

# Empowered but burdened? Welfare impacts of small education cash transfers in Bangladesh\*

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## Abstract

Existing evidence on the effectiveness of conditional transfers leaves a number of open questions. In this study, we utilize the changes in the coverage of Bangladesh's Primary Education Stipend Program (PESP), a conditional small transfer to the mothers of eligible children, to investigate three of these open questions using longitudinal data from the Bangladesh Integrated Household Survey. First, we examine if a transfer as small as PESP, which is unlikely to make large distortions in decisions, can have a positive impact on household welfare. We find that the transfers improved education and health outcomes for the children and increased households' protein consumption. Second, motivated by the findings around the intra-household disparity in the effect of transfers, we focus on welfare outcomes for women alone. We find that the transfers improve female minor asset holdings, employment, and decision-making power, and reduce verbal abuse from intimate partners, countering narratives that express concern over increases in intimate partner violence. At the same time, we find an increase in domestic workload for women, reducing their measures of life satisfaction. Third, we compare the effect of receiving a transfer to that of losing the stipend. While largely symmetric, some effects of receiving the transfers on female empowerment remain when they no longer receive the stipend. Our findings affirm the potential for positive impacts even with small cash transfers but highlight the increased burden of targeting women as transfer recipients.

**Keywords:** conditional cash transfer, welfare, empowerment, burden, PESP, Bangladesh

**JEL Classifications:** H53, I15, I21, I38, J12, J13

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# 1 Introduction

Conditional cash transfer (CCT) programs are designed to encourage desirable behavior. Despite the large literature evaluating CCTs, there remain a number of open questions about their effectiveness.<sup>1</sup> This study aims to shed light on three such questions with evidence from Bangladesh’s Primary Education Stipend Program (PESP).

First, the size of the transfers evaluated in existing education CCT studies, ranging between 5 to 25 percent of household expenditure, are often large relative to universal government transfers in many developing countries ([Barrera-Osorio et al., 2008](#); [Fiszbein and Schady, 2009](#); [Baird et al., 2013](#); [Benhassine et al., 2015](#)). Large transfers can distort decision-making and lead to various unintended consequences. They can increase intimate partner violence ([Angelucci, 2008](#)), decrease mental health of beneficiaries ([Baird et al., 2013](#)), or induce negative selection into seasonal migration ([Bryan et al., 2021](#)). There is an encouragement-distortion trade-off linked to the income effect size of the transfers. Small conditional transfers, below 1% of household expenditure, operate primarily via nudges and may not have these unintended consequences. But if the transfers are trivial, they might fail to have any impact, making the interventions wasteful. There is a dearth of studies that have examined the overall effectiveness of small conditional transfers.<sup>2</sup> In this paper, we aim to contribute to addressing this gap in the cash transfer literature.

Second, a growing number of studies have raised concerns about the unintended consequences of the design features of these interventions on the welfare of women in the households ([Angelucci, 2008](#); [Baird et al., 2019](#)). On one hand, the transfer can improve the employment and decision-making of women within the household. But on the other, money paid directly to the woman may increase intra-household conflict and intimate partner violence. It could also increase their household work burden, reinforcing gender norms. The richness of the data we use, the nationally representative longitudinal Bangladesh Integrated Household Survey (BIHS), allows us to examine female welfare along a number of dimensions, from employment and decision-making to intimate partner violence and life satisfaction. Third, there is a severe dearth of studies that examine what happens to women and overall household welfare when a household loses a stipend. Temporary stipends can have long-term positive effects, especially on self-sustaining outcomes like employment and empowerment, but can also make the situation worse once they have ended. Since the stipends depended on the age of school-going children, we can compare the effects of gaining and losing a stipend on the outcomes of interest.

The evidence we present comes from the welfare impacts of a national CCT program in rural Bangladesh, the Primary Education Stipend Program (PESP). Three design features of the PESP make it particularly relevant. First, the payment size represents only a fraction of household total expendi-

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<sup>1</sup>See [Fiszbein and Schady \(2009\)](#), [Bastagli et al. \(2016\)](#), and [Molina-Millán et al. \(2019\)](#) for reviews, and [Garcia and Saavedra \(2017\)](#) for a meta-analysis, of cash transfer programs.

<sup>2</sup>Two notable studies that explore small transfers are [Celhay et al. \(2021\)](#) and [Benhassine et al. \(2015\)](#).

ture, equivalent to about 1.5% of food consumption. This is much smaller than most education CCT evaluations in the available literature. Second, the PESP targets mothers as recipients, making their welfare our primary outcome of interest. Third, the education conditionality of the PESP, primary school attendance and academic performance, means that most households receive the stipends for a set duration. With a sufficiently long nationally representative panel, we can explore the impacts when the households stop receiving the transfers. It is particularly important to assess how the mothers' welfare is impacted after losing access to the transfers. Providing evidence of welfare benefits and costs to small monetary incentives and deconstructing the relevant causal channels is not only policy-relevant but can also provide directions for more effective re-designing of CCTs.

The identifying variation we use is a major expansion of the PESP in 2016. In its third wave starting in 2016, the program became universal, targeting all primary students, and shifted to mobile payments as its mode of delivery.<sup>3</sup> We use three waves of the nationally-representative longitudinal Bangladesh Integrated Household Survey (BIHS), fielded before (2011 and 2015) and after (2019) the transition, to take advantage of the exogenous change in variation and study its impacts. However, the non-experimental nature and targeting of the program are likely to bias ordinary least squares (OLS) estimates, even after including fixed effects for time-invariant differences across households and for time-varying changes across villages. Other unobserved household-level changes, such as financial or emotional stress, could have affected the eligibility of children as well as our outcomes of interest. To estimate causal impacts we use an instrumental variable approach that takes advantage of the age-based eligibility of school-going children to predict household stipend recipient status. This leverages on the condition that a household could have received the stipend only if it had at least one child enrolled in school years one to five. Conditional on the fixed effects, a change in children's age-based eligibility status across time should not affect our outcomes of interest through channels other than a change in whether the household received the stipend.<sup>4</sup>

Our results show that even small conditional stipends can have impactful changes on a household and its beneficiaries. Receiving the PESP stipend increased students' progression to the next grade by 9% with a 14% reduction in dropout rates. This is consistent with previous findings (Yunus and Shahana, 2018). However, we find evidence for gendered allocation of resources invested in education. Stipend receiving households invested more in the education of male students and engaged them more in private coaching. This is potentially contributing to the prevailing academic performance gender gap in Bangladesh (Xu et al., 2019). Household food consumption increased by 5% among beneficiary households, with the largest increase behind meat and dairy. This potentially contributed to the small improvement we find in the health of children less than 2 years of age. While the stipend did not sig-

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<sup>3</sup>This expansion was primarily done to address leakages. See Appendix table A1 for a comprehensive list of changes. We discuss this in Section 2.1.

<sup>4</sup>One possible way we can think of is if the children's age-based eligibility condition is manipulated to receive the stipend by increasing household fertility. However, given the small nature of these transfers, we do not find evidence that the PESP influenced household fertility decisions. We elaborate further in Section 4. Another possibility is if the households intentionally misreport the child's age to receive the stipend. While this is unlikely given the small size of the transfers, unfortunately we cannot check for this using the available data.

nificantly impact overall non-food expenditures, expenditures on children’s clothing, cosmetics, and cooking equipment were increased, all areas of expenditure which are usually managed by women. Following [Aker et al. \(2016\)](#)’s suggestion we find that the impacts were significant for male-headed households only. This indicates that the stipends potentially improved the mothers’ intra-household bargaining power.

While the stipends did not induce employment, the monthly income of mothers increased by about 13%. We suspect this is driven by working mothers allocating the saved time from children being at school to work ([Alzúa et al., 2013](#)). Complementing this, ownership of minor assets by the mothers also increased. Taken together, since the expenditure increase we find is higher than the amount of stipend, we attribute this to the mothers’ increased bargaining and income. Unlike [Baird et al. \(2019\)](#)’s experiment in Malawi, we find evidence of increased empowerment for the female beneficiaries. We find increased female decision-making in expenditures behind education and housing durables, greater engagement with community groups, and increased confidence to bring positive changes to their communities. Similar to [Angelucci \(2008\)](#)’s study of Mexico’s *PROGRESA*, we find reduced verbal abuse faced by beneficiary mothers, although only significant for the PESP transition.

We find evidence that this empowerment from receiving the stipend, however, comes at the cost of an increased household work burden. This burden falls mainly on non-working mothers perhaps from an implied increase in responsibility of being the recipient of the transfer. Complementing this, we find that the stipend reduced the mothers’ subjective satisfaction scores on leisure time and household work distribution. Similar to [Buser et al. \(2017\)](#), we find almost equivalent reductions in both food and non-food expenditure when the households stopped receiving the stipend. Losing stipend access also impacted the beneficiary mothers and led to *partial* reductions in their income, ownership of minor assets, and empowerment indicators, but not their active community engagement. The asymmetric reductions suggest the presence of a degree of “empowerment stickiness”—the mothers’ empowerment does not fall back to previous levels when they stop receiving the transfers in the short run. Reassuringly, we do not find evidence that abuse faced by the mothers significantly increased when the transfers stopped. On the other hand, there is some suggestion of “responsibility stickiness” as well—losing the stipend had no significant impact on mothers’ time allocation behind household work and their subjective satisfaction scores. Once the beneficiary mothers took on additional responsibilities in the household, simply losing the stipend did not take away the increased burden.

The rest of the study is arranged as follows. Section 2 provides a brief background of the PESP program and how it differs from other CCTs evaluated in the existing literature. Section 3 describes the BIHS survey we use and assesses the PESP targeting performance, and Section 4 lays out our empirical strategy. We present the results in Section 5 and discuss their limitations in Section 6. Section 7 offers some concluding remarks.

## 2 Background

### 2.1 The Primary Education Stipend Project (PESP)

The PESP is a conditional cash transfer program by the government of Bangladesh (GoB) that aims to achieve universal primary education.<sup>5</sup> Initiated in 2002, the PESP succeeded the Food for Education (FFE) program that provided free monthly food grain ration to eligible poor households as an incentive for sending their children to primary school. The FFE program provided either 15kg of wheat or 12kg of rice to eligible households with one child attending primary school, and either 20kg of wheat or 16kg of rice to eligible households with more than one and all primary-school-age children attending primary school. The subsidy amount was equivalent to almost one-quarter of the monthly supply of cereal products for an average household (Meng and Ryan, 2010, p.417). While the FFE was successful in bolstering school enrolment (Alam et al., 1999) and participation (Meng and Ryan, 2010; Ahmed and Del Ninno, 2002; Ravallion and Wodon, 2000), the program was marred by considerable corruption and supply-side interruptions (Hossain and Osman, 2007).

Under the PESP program, primary school-going-age children from eligible households in rural unions attending government or government-supported schools received a stipend for attending school instead of a monthly food grain ration. To be eligible, similar to FFE, a household had to meet at least one of the following household criteria: (i) household owned less than half-acre of land; (ii) household head was a female; (iii) household head was a day laborer; (iv) household head was in a low-income occupation; and (v) household head was a sharecropping tenant. Households that received other forms of welfare payment could not receive the stipend. The stipend payment, Bangladesh Taka (BDT) 100/month for 1 child and BDT 125/month for 2 or more children, were made in cash to the mother of the child. To remain eligible, students had to maintain at least 85% school attendance and score at least 50% marks on the annual exam. To ensure that the poorest households received the stipend first, a rationing criteria of targeting at least the poorest 40% of students was enacted.

Since its inception, the PESP has undergone three phases in an attempt to improve targeting and increase outreach.<sup>6</sup> Appendix table A1 details the changes in the outreach, eligibility, and targeting criteria of the PESP in the three phases. The second phase of the PESP (hereafter, PESP2) began in 2009 and was similar to the first phase in almost all dimensions. Except, students with disabilities were included even if they came from households that did not meet any of the initial five household eligibility criteria. The condition that restricted households who received other forms of social safety from receiving the stipend were also removed.

By 2016, the program had disbursed payments to about 10 million registered mothers of 13 million children, amounting to USD 165 million per year or 3% of Bangladesh's social protection budget, and

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<sup>5</sup>All public primary schools are free in Bangladesh.

<sup>6</sup>Provision of social service delivery has historically been politically popular (Lewis and van Schendel, 2020; Mirza, 2013). Successive governments have expanded and reformed programs like the PESP as an effective tool to increase their legitimacy. See Hossain (2022) for a political economy analysis of the PESP program.

covered around 90% of all children in Bangladesh (GoB, 2017; DPE, 2019; Hossain, 2022). However, under this design, the front-line workers had considerable discretion in deciding who received the payment, leading to nepotism, red tape, and political coercion (Hossain, 2010).<sup>7</sup> It is, therefore, no surprise that studies have found that the first two phases of PESP had poor targeting with high inclusion and exclusion errors (Ahmed and Del Ninno, 2002; Ahmed et al., 2004, 2011; Baulch, 2011). The stipend amount received by the beneficiaries had also been noted to be lower than stipulated (Baulch, 2011; DPE, 2014).

The third phase of the PESP (hereafter, PESP3) attempted to address many of these criticisms. Initiated in 2016 as a part of the National Social Security Strategy (GED, 2015), it involved the bold move to universalize stipend access by removing all household targeting and to digitalize stipend payments through mobile money disbursements. The expansion aimed to remove the front-line workers' discretion over participant selection, limiting the scope for nepotism and political influence.<sup>8</sup> PESP3 also increased the stipend amount to BDT 200 for two children and BDT 250 for three children. But as we discuss in Section 3.1 and show in Appendix table A3, this was not well executed. The stipend amount for a single child remained the same across the three phases.

The payment, in principle, is still made to the mother with the explicit objective of financial inclusion of rural women (Ghosh and Bhattacharya, 2021). Beneficiaries receive prepaid mobile phone cards and registered mobile money accounts with *SureCash*, a private mobile money service provider that is a subsidiary of the government-owned *Rupali Bank* (Chiampo and Roest, 2018).<sup>9</sup> *SureCash* uses the mobile phone numbers to identify beneficiaries. Mothers of eligible children receive text messages in the local *Bangla* language when they can visit a *SureCash* agent, show them the text, and claim the stipend money. In practice, women are less likely than men to own phones or visit markets where *SureCash* agents are present, and men sometimes claim the stipend instead. However, evidence indicates this is minimal. Based on focus group discussions, Hossain (2022, p.196) notes that “there was strong consensus that the money should go to mothers because ‘they understand their children’s needs best’.” Moreover, the distribution of the phone SIM cards for registered beneficiaries was an attempt by PESP3 to amend such a possibility. Further, Gelb et al. (2019) notes that in their survey site in *Chuadanga* district it was still the mothers who were receiving the stipend.

Similar to PESP2, PESP3 disburses stipends twice a year. Under the old system, the stipend disbursement was conducted by state-owned banks at local branches or schools. Hossain (2022, p.195) notes that this “was notoriously onerous, as mothers had to travel to set locations and queue for hours

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<sup>7</sup>School management committees (SMC) were in charge of selecting the beneficiaries. The selection had to be reviewed and approved by the Upazila Education Officer and the Upazila Nirbahi Officer. But as Hossain (2022, p.190) notes, “Local community and political leaders were also previously involved in participant selection processes, either through their formal role within SMCs or informally using their social and political influence to get favoured names ‘on the list’.”

<sup>8</sup>School teachers are still involved in the creation of the profile database of beneficiaries for the mobile money service provider but can no longer address grievances from beneficiaries. Upazila Education Officers upload the student information based on which the stipends are disbursed.

<sup>9</sup>In 2021, the mobile money service provider was changed to *Nagad*, another state-owned entity (DT, 2021b).

twice a year” and sometimes missed the dates or were unable to attend. Provision via mobile money also introduced a new gendered dimension to the program, with ownership of mobile phones and ‘SMS literacy’ now playing a more important role. [Gelb et al. \(2019\)](#), in their survey in *Chuadanga* district, found that mothers preferred mobile money transfers when they had easy access to a *SureCash* agent and could understand the SMS texts. In their survey, 60 percent of the mothers had mobile phones, while the rest mostly relied on mobile phones owned by their husbands to access the stipend. But PESP3 was not without its share of criticisms as well. There were complaints of scarcity of *SureCash* agents in rural areas that allowed agents to extract illegal rent from rural women “as much as BDT 40 out of the BDT 600 standardly disbursed” ([Hossain, 2022](#), p.197). Further, there were reports of misappropriation of money ([DT, 2021a](#)) and complaints of mass exclusions due to digitization ([GoB, 2017](#); [Kashem, 2021](#)).

Despite the shortcomings, the program is considered a success ([Tietjen, 2003](#); [Raynor et al., 2006](#)). For example, [Behrman \(2015\)](#) reports that stipend programs helped to reduce gender enrolment gaps in the early 2000s and [Yunus and Shahana \(2018\)](#) show that PESP stipend receiving students on average obtained about 9% higher scores in annual examinations and attended about 10% more school days compared to non-stipend receiving students during PESP2.<sup>10</sup>

## 2.2 How PESP differs from other CCTs

The PESP was modelled after successful programs like *PROGRESA* in Mexico, the *Red de Protección Social* in Nicaragua, the *Programa de Asignación Familiar-II* in Honduras, as well as *Familias en Acción* in Colombia ([Glewwe and Olinto, 2004](#); [Attanasio et al., 2005](#); [Maluccio and Flores, 2005](#); [Levy, 2007](#)). It is, therefore, no surprise that it had a positive effect on school enrolments ([Ahmed, 2005](#)) and other investments in children ([Yunus and Shahana, 2018](#)). The PESP also differed from these CCTs in important ways that could have affected households via other pathways.

The stipend amount under PESP, about USD 1.2/month for a single child, is quite small when compared to other CCTs. The monthly education stipend under Mexico’s *PROGRESA* ranged “from USD 9.50 in the third grade of primary to about USD 53 for boys and USD 60 for girls in the third year of senior high school” ([Parker and Todd, 2017](#), p.870). By grade 12, the grant amount was equal to about two-thirds of a minimum wage. The amount of education stipend provided by [Barrera-Osorio et al. \(2008\)](#) in Colombia was USD 15/month (in the basic intervention), and that by [Baird et al. \(2013\)](#) in Malawi was at least USD 4/month. The rural primary education stipend in Morocco, *Tayssir*, the average annual transfer per household was about 5 percent of the average household’s annual expenditures ([Benhassine et al., 2015](#)). In other countries, they range “from 6 to 25 percent of household expenditures” ([Benhassine et al., 2015](#), p.88). In comparison, the average annual PESP transfer per

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<sup>10</sup>It is worth mentioning that throughout the FFE and PESP periods, the Female Secondary School Stipend Project (FSSSP), initiated in 1982, was active to increase the enrollment of girls in secondary schools, with the aim to subsequently delay marriage and childbearing ([Hahn et al., 2018](#); [Sara and Priyanka, 2022](#)). Enrollment decisions of female students in primary schools may thus also be partly influenced by the additional stipend program at the secondary level.

household is only about 1.5 percent of annual household food expenditure.

While there is a large literature examining the effect of large cash transfers on household welfare, there is little on the welfare effects of small conditional transfers. Small and large transfers may have vastly different effects for a variety of reasons. Large transfers may have unintended distortions, like changes in the labor supply of household adults, that may sometimes outweigh or negate the benefits (Banerjee et al., 2017; Ervin et al., 2017; Bosch and Schady, 2019).<sup>11</sup> Small transfers are less likely to trigger big decisions. As Benhassine et al. (2015, p.87) points out, small transfers provide a gentle “nudge [that] may be sufficient to significantly increase human capital investment.” But at the same time, if the transfers are trivial, they might fail to have any impact, rendering the entire program an inefficient allocation of public resources. The PESP provides a unique opportunity to explore whether such exceptionally small education stipends can have meaningful effects and on which outcomes.

The contextual and design differences between PESP and other large CCT programs also have implications for the choice of outcome variables. The stipend was paid to mothers of eligible children. Women in rural Bangladesh tend to have low average incomes. Despite being a small sum of money, the annual PESP transfer for a single child is equivalent to about 15% of the annual income of mothers in our sample (Ahmed and Maitra, 2010, 2015). Cash transfers to women have been known to improve their empowerment (Angelucci, 2008; Bobonis et al., 2013; Hidrobo and Fernald, 2013; Bobonis et al., 2015; Rodríguez, 2015; Haushofer and Shapiro, 2016; Pettifor et al., 2016; Roy et al., 2019). This sizable boost to the relative income of women due to PESP could have had effects on their level of confidence, sense of empowerment, and decision-making power. The Directorate of Primary Education (DPE) of Bangladesh, in a qualitative study, identified ‘women’s empowerment’ to be one of the key ‘spillover effects’ of the PESP (DPE, 2014, p.29). In fact, such is the acknowledged positive effect of the program that it has acquired the moniker “*Mayer Hashi*”, which translates to “Mothers’ Smile.”

At the same time, transfers to women have been found to impact their sense of responsibility, affecting their time allocation between work and care activities (Molyneux, 2007; Benderly, 2011; De Brauw et al., 2015; Ervin et al., 2017; Bosch and Schady, 2019; Doepke and Tertilt, 2019; El-Enbaby et al., 2019; Prifti et al., 2019).<sup>12</sup> These can have implications for their emotional well-being and life satisfaction. For example, Baird et al. (2013) show that increasing the size of education stipend in Malawi made some female students the primary breadwinner of the household, negatively affecting their mental health. Depending on the extent to which the stipend in the hands of the women becomes a source or object of intra-household conflict, it can increase or decrease intimate partner violence (Fakir et al., 2016; Buller et al., 2018; Fakir and Abedin, 2021). Despite the multiple pathways

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<sup>11</sup>Bryan et al. (2021) provided conditional cash transfers to people who moved from rural West Timor in Indonesia during the lean agricultural season and looked for work at the destination. Increasing the size of the transfer beyond the transportation cost, the authors observed, induced additional people to migrate, not all of whom found work at the destination.

<sup>12</sup>Admittedly, a reduction in labour hours can also come from the income effect of the extra income.



through which PESP might have impacted the welfare of recipient mothers, we are unaware of any quantitative investigations that consider all these potential effects of a particular program. The BIHS surveys, with rich information on female well-being, are well-suited to examine these questions.

Another important difference is that the mode of delivery of the stipend changed from cash-in-hand to mobile money between PESP2 and PESP3. PESP stipend via mobile money necessitated that the women beneficiaries have a mobile phone. Studies suggest mobile phone ownership has a strong effect on female empowerment in Bangladesh (Aminuzzaman et al., 2003; Alam et al., 2009; Hultberg, 2008) and elsewhere in the developing world (Chew et al., 2015; Svensson and Wamala Larsson, 2016). Receiving money via mobile phones, depending on who owns the mobile phone, could increase or decrease the women's ability to hide the stipend from other members of the household. For example, Aker et al. (2016), in a randomized controlled trial in Niger, compares female beneficiaries receiving *unconditional* mobile transfers and cash transfers. The authors find that the mobile transfer group had an increase in food expenditure with more dietary diversity and an additional one-third of a meal for children, relative to the cash transfer group. They attribute the change to increased bargaining power for women and saved time in obtaining the transfers. In particular, the beneficiaries found that the mobile transfer “was less obvious to other household members, thereby allowing them to temporarily conceal the arrival of the transfer” (Aker et al., 2016, p.4). There can also be broader implications for development and household welfare with greater access to informal private transfers (Jack and Suri, 2014; Blumenstock et al., 2016) and by acting as an alternative savings mechanism (Mbiti and Weil, 2015; Mas and Mayer, 2011) leading to consumption smoothing (Masino and Niño-Zarazúa, 2014).

But while mobile money is effective in small trials where the disbursement is closely monitored, the empirical evidence on their large-scale effectiveness is scarce and mixed at best (Pénicaud, 2013; Evans and Pirchio, 2014; Banerjee et al., 2015). There are several reasons, many that also apply to the PESP program. For example, effective implementation of mobile money transfers requires mothers to own a mobile phone, have the know-how to use the technology, and have access to mobile money agents to convert the mobile transfer into cash (Blumenstock et al., 2015; MacAuslan, 2010). In the absence of mobile money agents, the implementation of mobile money transfers may increase costs for beneficiaries. Depending on the distance between the agent and who owns the mobile phone, this could also reduce female mobility and the opportunity to interact with people outside the household. In areas with few agents to disburse the money, it may increase leakages due to monopsony power with the agents (Hossain, 2022). Moreover, receiving the money directly could also increase conflicts in situations where their husband suspect that the women may be hiding money from them. This further motivates us to examine the effect of the program on female welfare measures. Since we do not have data on when different households moved from the cash-in-hand to mobile payments, it is difficult for us to examine the causal effect of mobile money. Instead, we investigate whether the welfare effects differ by mobile phone ownership, presence of mobile money agents, and literacy to read mobile messages to better identify the sub-samples driving our results.

Finally, despite the large literature on cash transfers, not much work has been done on welfare impacts when households stop receiving the transfer. In a systematic review of cash transfers, [Bastagli et al. \(2016, p.270\)](#) identifies this as a major gap in the literature mentioning that “further research on the longevity of impacts in the years after households stop receiving transfers would be of value.” Since many CCTs target women as beneficiaries, understanding the impacts of losing a stipend on the welfare of women is particularly important. [Baird et al. \(2019\)](#) using an experimental setup in Malawi finds insignificant impacts on the empowerment of beneficiary adolescent female students both from gaining and losing education CCTs. [Buser et al. \(2017\)](#), on the other hand, finds households that stop receiving transfers can experience serious difficulties. Studying Ecuador’s unconditional *Bono Desarrollo Humano*, the authors find that two years after losing the transfers, which households had been receiving for seven years, young children are more likely to be stunted than young children in households that kept receiving the transfers. The authors suggest a reduction in food expenditures to be the main mechanism. It is a priori unclear if the effect of losing the PESP stipend would mirror the effect of receiving the stipend. Women may lose their decision-making power and confidence when the small but meaningful amount of money they regularly received is no longer available. At the same time, temporary benefits can have permanent effects on empowerment measures if, for example, they trigger a virtuous cycle where stipend leads to positive changes in labour supply decisions. We will compare the effect of gaining a stipend with the effect of losing a stipend to examine these possibilities.

### 3 Data

We use data from the three waves of the longitudinal Bangladesh Integrated Household Survey (BIHS) conducted by the International Food Policy Research Institute (IFPRI). The BIHS is representative of *rural* Bangladesh at the national level and interviewed respondents in 325 randomly selected primary sampling units (PSUs) across seven divisions (strata). The number of interviewed households from different PSUs was proportional to the PSU’s population. The first (2011) wave, conducted between November 2011 to March 2012, started with a total of 6,503 households. Of these, 6,438 households were re-interviewed in January 2015 and June 2015, an attrition rate of around 1%. The third (2019) wave, between January 2019 to June 2019, re-interviewed 5,605 households. The first two waves were fielded during PESP2, while the third wave was fielded three years after the transition to PESP3. The longitudinal information, therefore, allows us to empirically evaluate the impact of the changes to the PESP program on household welfare.

The BIHS provides detailed data on several household welfare indicators, including household food consumption, non-food expenditure, anthropometric health, women’s employment and empowerment indicators, intimate partner violence, time allocation, and subjective satisfaction along several dimensions. It also contains information on the educational attainment of the children in the household and the investments made behind their education. Importantly, the survey collects information on whether the household receives the PESP educational stipend.

### 3.1 PESP targeting performance

The BIHS surveys contain detailed information on household-level characteristics that we use to identify targeted beneficiaries of the cash-transfer program. In the first and second waves of the BIHS that overlap with PESP2, we identify targeted households that fulfill at least one of the government-mandated household targeting criteria outlined in Appendix table A1 with at least one child in primary education not repeating the school year. In the third wave of BIHS that overlaps with PESP3, as the program went universal, households with at least one child in pre-primary to class VIII not repeating the school year are deemed targeted by the program.<sup>13</sup> Appendix table A2 provides the targeting performance of PESP in each of the BIHS waves, where we extend the targeting performance tables of PESP1 from Baulch (2011, p.251). This gives us an overview of targeting performance between 2003 to 2019.

The poor targeting performance of PESP1 and PESP2, as raised by multiple authors (Ahmed, 2005; Al-Samarrai, 2009; Baulch, 2011; Behrman, 2015; Ahmed, 2015), are reflected in the table. The inclusion error, non-targeted households but still receiving the stipend, in the first two waves of the BIHS is 36%, on average, which is about 9% higher than that reported by Baulch (2011) for 2006, indicating worsening performance from PESP1 to PESP2. The exclusion error, targeted households not receiving the stipend, however, went down from 31.6% in 2006 to 25%, on average, in the first two waves of BIHS. As PESP3 universalized stipend access we see a massive reduction in inclusion error in 2019 with only 2.1% of non-targeted households still getting the stipend.<sup>14</sup> This is indicative that the move to remove household-level targeting was reaching its intended purpose. Further, as the targeting performance by poverty line in columns (4)-(6) indicates, the household targeting criteria were not reliably identifying those under poverty. However, we still do see high exclusion errors of almost 32% in PESP3 in 2019, similar to PESP2 levels in 2006. At least some of this may be attributed to the initial problems faced during the PESP3 rollout, discussed in Section 2.1.

In our dataset, 1,647, 1,291 and 1,451 mothers in the first, second and third waves, respectively, received PESP transfers, with a monthly average of Bangladeshi Taka (BDT) 88 within the past year.

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<sup>13</sup>Note that we make three assumptions in this identification. First, we do not have attendance data so we cannot identify households with children who fulfill the 85% attendance rate condition. However, as Hossain (2020) points out, this was a criterion seldom adhered to and poorly understood by parents of the children. Rather, “the promise of the stipend created an ‘enthusiasm for school’, with siblings and schoolmates exerting peer pressure on each other to attend and work hard, so as to be sure of getting the stipend” (Hossain, 2020, p.19). Second, during PESP2 the cutoff mark for annual examinations was 50%, reduced to simply passing (about 33%) in PESP3. Since we do not have data on the performance of the students in their annual examinations, repeating a grade instead is used as a proxy. Third, we do not have school-level information so we cannot identify which of the private primary schools were registered with the government. However, Ahmed (2011) reports that even in 2010 up to 95% of all primary schools in Bangladesh were either government schools, registered non-government schools, or registered *ebtedayee* madrasas (religious educational institutions) eligible for participating in PESP. Further, Sabur and Ahmed (2010, p.7) report that “community schools, non-registered non-government schools and formal schools run by NGOs combined serve around 4 percent of enrolled students.” The presence of non-registered non-government schools is also likely to be higher in urban areas rather than rural areas. As such, we assume all primary schools to be PESP-eligible in the BIHS dataset. While these assumptions are likely to introduce some measurement errors, based on the qualitative surveys by Hossain (2020) and other reports, we believe them to be comparatively low.

<sup>14</sup>These are households with students outside of the allocated class range or those that repeated a class but are still receiving the stipend.

As mentioned above, one of the other notable changes between PESP2 and PESP3 was the monetary amount for more than one eligible child. However, as Appendix table A3 shows this was not implemented well. Only 2.1% households in our sample received stipends for more than one child across the three waves, even though about 11% of households had more than one eligible child.<sup>15</sup> Households that received the PESP transfers had an average monthly income of BDT 9,923.45 (from employment, self-employment, remittance, and other income sources). In comparison to the total household monthly expenditure, the PESP transfers were very small in magnitude (< 1%). However, women in these households often do not have decision-making power over household income. Among those who received PESP transfers, about 66% of women earn some monthly income, and only about 38% of the women among those who earn have the sole decision-making autonomy to spend the money she earns. Since the PESP transferred money directly to the women, a more relevant comparison is with the income earned by the women. The stipend receiving mothers have an average monthly income of only BDT 582. Thus, the PESP transfer amounts to about 15% of the average mother's monthly earnings. This is potentially large to induce benefits for the transfer receiving women.

Appendix table A4 provides some descriptive statistics of household characteristics for the entire sample and separately by waves and by beneficiary status. The final column provides the *p*-value from a *t*-test comparing beneficiary and non-beneficiary means. Expectantly, given the household targeting criteria in PESP2, beneficiaries and non-beneficiaries are significantly different across almost all the variables except for the household head's primary level of education and the number of children aged less than 6 in the household. This is consistent for the full sample, wave I, and wave II in panels A, B, and C, respectively. In wave III, when the household targeting criteria were removed in PESP3, we see many of the variables turn insignificant in panel D. However, the households remain significantly different by household head's age, mother's age, marital status of the mother, household size, size of land owned, and household head being employed in waged labor. As one would expect, this indicates that the beneficiaries are still a selected sample in PESP3 with relatively "young" households.

## 3.2 Outcome variables

The BIHS is rich on a range of welfare indicators that we use as our outcomes. What makes BIHS unique is its recording of individual data for the mothers alongside household aggregates. Appendix table A5 provides the summary statistics of the indicators that we use for the entire sample and separately by beneficiary status. The selection of indicators is based on previous cash transfer studies discussed in Section 2.2 and the conceptual framework in Bastagli et al. (2016) and Buller et al. (2018). The indicators can be grouped into the following: children's education outcomes, household food consumption expenditure and dietary diversity, household non-food expenditure, children's anthropometric health and mother's body mass index (BMI), mother's employment, asset ownership and

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<sup>15</sup>The small sample of households receiving stipends for more than one child in each wave makes explorations of the change in the monetary amount of stipends difficult and low-powered. Since the households received the same monetary amount of stipend for a single child across the waves, which dominate the sample, we restrict the stipend impacts for a single child in our analysis. This is further elaborated in Section 4.

savings, and mother's empowerment indicators including decision-making power, community involvement, intimate partner violence, time allocation, and subjective satisfaction along several dimensions. The majority of the outcomes are significantly different between PESP stipend beneficiaries and non-beneficiaries as shown in the final column in table A5. Here we point out some of the notable statistics and relegate the construction of each outcome to the captions of the respective results table.

The mean dropout and repeat rate of the children during primary school years in our sample are 19% and 7% respectively. These are close to officially reported estimates in the Annual Primary School Census by the DPE. DPE (2021) reports an average of 21.45% in dropout and 6.67% in repeat in primary education over the years 2011 to 2019. The progress rate is thus an average of 74% in primary education in our sample. Households, on average, spend about BDT 1,600/week behind food consumption with the highest behind cereals and the lowest behind pulses.<sup>16</sup> The average dietary diversity score is about 5 (out of 10 food groups), reflecting the low dietary diversity prevalent in rural Bangladesh (Sinharoy et al., 2018). Average household non-food expenditure is BDT 6,650/month where the highest expenditure is behind household fuel (firewood, cow dung, agriculture by-products, gas/LPG, electricity, etc.) and the lowest behind cooking equipment. About 61% of mothers are engaged in some form of income generation, while the average income is only BDT 533/month. This increases to BDT 875/month among mothers who are engaged in income generation, 77% of whom work at home only. The average female to male income ratio is only 0.16 which increases to 0.26 for mothers who are engaged in income generation. Only about 35% of all mothers solely own a mobile phone, however, this hides considerable heterogeneity over the waves. Mobile phone ownership of mothers ranged from 10.8%, 42.4%, to 54.8% in 2011, 2015, and 2019, respectively.

To further understand the mother's potential change in bargaining power, we first explore a range of indicators that depict her decision-making power within the household and her engagement in the community. We use joint decision-making by herself alone or with her husband, following Hidrobo et al. (2014), in exploring the mother's joint household spending decisions. On average, about 70% of mothers felt jointly empowered in spending decisions behind food, housing-related expenses, health, and clothing, while only 58% of mothers felt jointly empowered in spending decisions behind education. However, there is a large difference for the latter between the beneficiary and non-beneficiary mothers. While 75% of beneficiary mothers felt jointly empowered in spending decisions behind education, only 53% of non-beneficiary mothers felt the same. There are similar differences in mothers' active engagement in community groups, although not as large. BIHS also collected information on verbal and physical abuse faced by the mothers in the twelve months preceding the date of the survey. Across the three waves, about 32% and 9% of mothers reported facing verbal and physical abuse, respectively, from the husband or another household member, while about 5% of mothers reported being threatened by their husband.<sup>17</sup> The final set of empowerment indicators explores the mothers'

<sup>16</sup>The low expenditure behind pulses likely reflects the relatively low cost of lentils (average of BDT 70/kg reported in wave III), the most important pulse in the diet of a typical household.

<sup>17</sup>It is worth noting that the single question on domestic violence that BIHS uses can often lead to under-reporting relative to the standard of multiple questions on specific acts. For example, the domestic violence module in Demographic

time allocation in the previous 24 hours from the date of the survey and subjective satisfaction scores (out of 10) across a range of dimensions. On average, outside of leisure, mothers spent the most time behind domestic work and the least on traveling. Finally, and perhaps slightly contradictory, the mothers are on average most satisfied with the household work distribution while least satisfied regarding their leisure time. We elaborate on this further when we discuss the results in Section 5.

## 4 Empirical specification

Our object of interest is the effect of the education stipend on a range of household-level outcomes.

$$Y_{ht} = \alpha + \beta \text{Beneficiary}_{ht} + \gamma_h + \delta_{vt} + \mathbf{X}_{it} + \mathbf{Z}_{ht} + \epsilon_{ht}. \quad (1)$$

Here,  $Y_{ht}$  represents the outcome of interest for household  $h$  measured in survey wave  $t$ .  $\text{Beneficiary}_{ht}$  is an indicator variable that takes a value of ‘1’ if a child in the household receives the stipend. Whether a household had a child who is eligible for the stipend depended, among other things, on the age of the child. Households that had younger eligible children could have been different from households with older ineligible children in ways that could have affected the outcome variables of interest. We control for these time-invariant differences across households, like the birth year of the children eligible for PESP at any point during the 2011-2019 period, with household fixed effects,  $\gamma_h$ . Time-varying changes, like elections at the village or district level and local development policies, could have also affected who receives the stipend and domestic violence. We account for these possibilities with village-wave fixed effects,  $\delta_{vt}$ . In addition, we control for potentially time-variant observable variables on which beneficiary and non-beneficiary households are systematically different across the waves (see Appendix table A4). We include the following individual-level,  $\mathbf{X}_{it}$ , and household-level,  $\mathbf{Z}_{ht}$ , controls: Household size, female-headed households (binary), mother’s marital status (binary), age of stipend-receiving child<sup>18</sup>, household head’s occupation as waged labor/low-income/sharecropping tenant (category fixed effects), and the amount of land owned by the household (in decimals). Therefore, equation (1) identifies the association between a household’s beneficiary status and the outcomes of interest from changes in the beneficiary status of the same household across the three waves of the survey. Since the beneficiary status changes at the household level, unless otherwise noted, we cluster standard errors at the household level.

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and Health Surveys (DHS) asks about multiple types of physical abuse (ever pushed, ever slapped, ever punched, ever kicked, etc.) faced in the respondent’s lifetime. However, as the last round of the Bangladesh DHS that contained the “Domestic Violence” module was in 2007, it is not possible to compare the reported prevalence of domestic violence across BIHS and DHS contemporaneously. As such, if under-reporting is present, our results should be taken as simply lower-bound estimates. Further, only the third wave of the BIHS disentangles the perpetrator on whether the mothers were verbally or physically abused by their husband or other males or females in the household. In wave III, about 41% and 7% of women reported facing verbal and physical abuse from their husbands, respectively, 2% and 0.0002% from other male household members, and 4% and 0.001% from other female household members. The abusers, especially in incidents of physical abuse, are extremely likely to be the husband of the mothers. Thus, although the previous waves of BIHS did not collect data on who within the family perpetrated the verbal or physical abuse, it is reasonable to assume that husbands were responsible for an overwhelming proportion of the reported abuse.

<sup>18</sup>Or the age of the youngest child for households that were not receiving the stipend.

We estimate equation (1) first with data from all three waves of the BIHS and then separately for the first two and the last two waves of the BIHS.<sup>19</sup> As indicated in Table A1, the PESP changed along a number of dimensions between PESP2 and PESP3. Most important among these were the increase in coverage to all children of eligible age, instead of targeting children in vulnerable households, and the change in the mode of delivery from in-person cash payments to mobile money. The monetary amount households received for a single eligible child did not change during this period. An average annual inflation rate of around five percent meant that the real value of the stipend deteriorated over time. While the wave fixed effect will control for some of it, the loss in real value could have different implications for different types of households. A change in a household's beneficiary status, therefore, could have had different effects over time. Examining the relationship between the education stipend and the outcomes of interest separately for the first two and the last two waves of BIHS allows us to understand if these changes over time made a significant difference to the effect of the stipend.

Even with household fixed effects, other unobserved household-level changes could have affected whether the children in the household received the stipend as well as other outcomes of interest. For example, financial or emotional stress could have caused children to drop out of school and lose their education stipends. They could also affect household expenditure on different commodities, the likelihood of women working, their decision-making power, and subjective well-being. Similarly, the stipend might have allowed households to make higher investments in the education of the eligible children, reducing school absences and improving performance on the annual exams. This would have affected their eligibility to receive the stipend. As a result, the association coefficients from equation (1) are likely to be biased estimates of the effect of receiving the stipend on the outcomes of interest.

We use an instrumental variable approach to address these issues. Recall that a household could have received the stipend only if it had at least one child enrolled in school years one to five. Under PESP3, the requirement was relaxed to include children attending any school year from pre-primary to year 8. This translates to ages four to thirteen under PESP1 and PESP2 and three to sixteen under PESP3. We use child-level information from the BIHS to construct a household eligibility variable that takes a value of '1' if the household had a school-going child of eligible age at the time of the survey, and '0' otherwise. Figure 1 presents the correlation between households' eligibility and beneficiary status. Not all eligible households received the stipend. Until 2015, the program targeted vulnerable households. Households that did not meet any of the targeting criteria listed in Appendix table A1 were not supposed to receive the stipend.<sup>20</sup> But even after the program was made universal in 2016, significant levels of exclusion error remained, as shown in Appendix table A2. The data suggests a good number of ineligible households might also have received the stipend. In fact, the inclusion and exclusion errors in targeting were the primary motivators behind extending the program's coverage

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<sup>19</sup>To ensure homogeneous effects of the stipend, not exaggerated by monetary amount, we exclude households that received the stipend for more than one child. As discussed in Section 3.1 and shown in Appendix table A3, this is only 2.1% of our sample. However, our results remain consistent even after including this 2.1% sample, albeit with slightly different magnitudes.

<sup>20</sup>As Baulch (2011) and Hossain (2020) report, this did not prevent many ineligible households from receiving the stipend.

to all households with eligible children. We use the changes in a household’s eligibility to receive the stipend between the waves to predict the likelihood of the household receiving the stipend:

$$\text{1st stage: Beneficiary}_{ht} = a + b \text{ Eligible}_{ht} + \omega_h + \tau_{vt} + \mathbf{M}_i t + \mathbf{W}_h t + \varepsilon_{ht} \quad (2)$$

We then use the predicted value of  $\text{Beneficiary}_{ht}$  in Equation (1). A second advantage of using the instrumental variable (IV) approach, in this case, is that it yields unbiased estimates even in the presence of measurement errors (Pischke, 2007). Information on whether a household receives the stipend is self-reported. Households may deliberately or unknowingly misreport their beneficiary status. The IV approach addresses this issue.

The validity of the IV approach depends on whether the excluded instrument satisfies the exclusion restriction. Conditional on the fixed effects included, a change in a household’s eligibility status across time should not have affected the outcomes of interest through channels other than a change in whether the household received the stipend. While we cannot directly test the exclusion restriction, the setting suggests it might hold. According to our definition, a household’s eligibility to receive the stipend changes only if the household’s children move in or out of the stipend-eligible school years. Note that eligibility does not change strictly monotonically with the age of a child. A child who is in school year one in 2015 and school year five in 2019 is eligible for the stipend in both waves 2 and 3. However, a household might also have multiple children. One child could become eligible for the program while another child exits the program.<sup>21</sup> These variations allow us to identify the effect of the stipend using changes in eligibility.

A natural concern is households might change their fertility in response to the stipend program. The PESP is unlikely to have had such an effect. The monthly education stipend of BDT 100 (1.2 USD), which is about the amount an average Bangladeshi household spends on edible oil in a week, is too small to have impacted fertility decisions.<sup>22</sup> In fact, with a little extra to invest in the education of children, the quantity-quality model would imply a reduction in fertility (Becker and Lewis, 1973; Hahn et al., 2018). Also, recall that the program was extended to all households in 2016. Until 2015, households that were not targeted would have no incentive to increase their fertility as a response to the program. While the government’s decision to increase the coverage in 2016 was in response to the exclusion and inclusion errors during the program’s targeted phases, it is unlikely that non-targeted households could have predicted the government’s intention to extend coverage and respond by increasing their fertility.<sup>23</sup> We test the impact of PESP eligibility on changes in fertility between waves in Appendix table A6 and find no significant effect. Finally, it is important to note that the stipend was conditional on good performance and attendance, and repeating class automatically disqualified

<sup>21</sup>Note that, as mentioned earlier, we exclude households that receive stipend for more than one child, about 2.1% of the BIHS sample.

<sup>22</sup>Multiple studies show that households do not change their fertility decisions in response to welfare programs that provide such small stipends (Moffitt, 1998; Banerjee and Duflo, 2019).

<sup>23</sup>But even when we limit our attention to the non-targeted households that received the stipend in 2019, we find effect sizes that are similar to our overall estimates.



students. This alleviates some concerns around deliberate delays in graduation from primary school. Thus, it is difficult to think of channels other than a change in stipend beneficiary status through which a change in a household’s eligibility could have affected outcomes.

We also present the instrument variable estimates first with data from all three waves of the BIHS and then separately for the first two and the last two waves of the BIHS. It is, however, important to note that the local average treatment effect (LATE) estimates from the first two and the last two waves are difficult to directly compare because the compliers, those who were induced to take up the program because of their change in age eligibility, are likely to be different. Given the expansion in eligibility in PESP3, the compliers in the first two periods, given the rules of the first two phases, are likely more vulnerable households than the compliers in the second two periods. We discuss this further when presenting the results in section 5.1.

## 5 Results

### 5.1 Education

We begin by exploring the impact of the stipend on education investment and outcomes. Table 1 provides the results. Panel A first presents the associations for all three BIHS waves. Column (1) examines the association between receiving the stipend and the log of total household expenditure behind education.<sup>24</sup> To ensure comparability, the sample is restricted to households with at least one school-going child. Columns (2), (3), and (4) respectively present the association between receiving the stipend and the child progressing to the next grade in the survey year, dropping out from school in the survey year, and repeating a class in the survey year, respectively. Interestingly, the associations indicate that household expenditure on education did not change between the beneficiary and non-beneficiary households. However, receiving the stipend is associated with a 4% increase in the progress of the child to the next grade. This is mostly driven by an equal reduction in the dropout rate with no change in the rate of repeating a grade.

The households receiving the PESP stipend are not randomly selected. The OLS coefficients are likely to be biased estimates due to endogeneity. Panel B presents the results from the instrumental variable approach following equation 2 in Section 4 to address the endogeneity.<sup>25</sup> Household expenditure behind education and grade repeat rates, in columns (1) and (4) respectively, between the beneficiary and non-beneficiary households, although now positive, remain statistically insignificant. We find a strong positive impact of receiving the stipend on grade progression. Beneficiary students have a 9% greater and a 14% lower likelihood to progress to the next grade and dropout, in columns (2) and (3) respectively, compared to non-beneficiaries students. The estimates are smaller than those

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<sup>24</sup>While it would have been ideal to know the monetary amount spent on each child attending school, BIHS does not provide that level of segregation.

<sup>25</sup>Appendix table A7 presents the corresponding first-stage results that indicate that our instrument performs well at predicting the beneficiary status of households.

reported by [Yunus and Shahana \(2018\)](#) who report an average non-causal difference of about 20% in both grade progression and dropout rates between the beneficiary and non-beneficiary students in PESP2. The results also contradict that from [Baulch \(2011\)](#) who had found a negative impact on grade progression for beneficiary students during PESP1. It would seem that it took some time for the education stipend to have its intended impact.

There were a number of changes in PESP3, as discussed in Section 2.1, that can have potentially differential impacts. To explore this, we split the sample to include BIHS waves I and II for the years 2011-15 in Panel C which overlaps with PESP2, and BIHS waves II and III for the years 2015-19 in Panel D which explores the transition from PESP2 to PESP3. Since we exclude the small number of households that received the stipend for more than one child,<sup>26</sup> Panel D estimates are the combined effect of an increase in coverage *and* the change in the mode of delivery to mobile payments. Henceforth, we refer to Panel C as the ‘PESP2 impact’ and to Panel D as the ‘transition impact’ to distinguish them throughout the paper. We find a significant transition impact of an increase in monthly household education expenditure by 15% among beneficiary households compared to non-beneficiary households. Given that the mean beneficiary household education expenditure in wave II was about BDT 415/month, this indicates an additional BDT 62/month spent behind education.<sup>27</sup> Almost two-thirds of the stipend gets invested into education. This is expected from the stipend conditionality and supports the premise that mothers who wished to keep receiving the stipend likely made greater investments into the education of their children to help them perform better. BIHS waves II and III also collected data on whether the child attended any additional private coaching outside of school. We find beneficiary students to be 11% more likely to in private coaching in column (5). While the transition impact on dropout remains significant, that on progress is insignificant. Differences in effects between Panels C and D are, however, significantly insignificant.

Although girls, on average, have greater enrollment than boys in Bangladesh, [Xu et al. \(2019\)](#) show that gender gaps in academic performance and intra-household allocation of education resources are still prevalent. We explore this by segregating the sample by the gender of the stipend-receiving child in Appendix table A8. Panel A shows that the stipend significantly helped to boost the grade progression of male students compared to female students. This is a good balancing act since the dropout rate for boys is greater than that for girls in primary schools in Bangladesh ([DPE, 2021](#), p.105). The result is consistent in Panel B when looking at PESP2 only. In the transition impact in Panel C, we find a significant increase in household education expenditure and in private coaching when the stipend is received by a male student. While there is no significant difference in household education expenditure by stipend-recipient gender, the difference in private coaching is significant. Receiving the stipend did not increase private coaching for female students.<sup>28</sup> This suggests a gendered

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<sup>26</sup>Our results remain qualitatively consistent with slightly different magnitudes even if we include the households that received the stipend for more than one child.

<sup>27</sup>The additional education expenditure may be invested on any household member currently studying.

<sup>28</sup>One possible reason for this may be a lack of single-sex private coaching that cater to only female students in rural Bangladesh. In the patriarchal social setting of rural Bangladesh where traditionally gendered norms are often upheld, parents may not be as willing to send their daughters to co-educational private coaching, where, unlike in schools, the

intra-household allocation of education resources. Since the availing of private coaching is normally to boost academic performance, this may be one of the contributory reasons to the gender gap in academic performance identified by [Xu et al. \(2019\)](#).

## 5.2 Household expenditure and child health

Table 1 indicates that not all of the stipend was invested in education. As a decent share of beneficiaries is from poor households, it is reasonable to assume a relatively high marginal propensity behind immediate food consumption needs ([Hoddinott and Skoufias, 2004](#); [Aker et al., 2016](#); [Hoddinott et al., 2018](#)). BIHS provides data on household food consumption expenditure for the 7 days immediately prior to the survey date. We use this data to explore this across the following 10 food groups: cereals, pulses, edible oil, vegetables, meat, dairy, fruits, fishes, spices, and others. We also construct a household dietary diversity score following [Swindale and Bilinsky \(2006\)](#) using the 10 food groups to assess if there are any changes to dietary diversity.<sup>29</sup> Table 2 presents the results. Panel B shows that beneficiary households increased their total food consumption expenditure by about 5%, equivalent to BDT 83/week when compared to the mean of beneficiary households (BDT 1,672/week). Estimated impacts of other cash transfers programs on food consumption expenditure reported in the literature range from 9.9% from Brazil's *Bolsa Alimentação* ([Braido et al., 2012](#)), 12% from a World Food Program (WFP) cash transfer program in Ecuador ([Hidrobo et al., 2014](#)), 15% from Peru's *Juntos* ([Perova and Vakis, 2012](#)), to 15.9% from Colombia's *Familias en Acción* ([Attanasio et al., 2012](#)). Expectedly, due to the small transfer size, the estimated magnitude of the PESP stipend is much smaller. However, after accounting for the investment in education from the stipend, beneficiary households seem to have invested additional money into food consumption.

There was about a 5% significant increase in the consumption expenditure of edible oil, 6% in vegetables, 22% in meat, 16% in dairy, and 8% in spices, in columns (4)-(7) and (10), respectively. The magnitudes, while relatively large for the small size of conditional transfers, are not alarming. [Ferré and Sharif \(2014\)](#) in evaluating the spillovers of another smaller education stipend program in Bangladesh, *Shombhob*, that provided BDT 400/month to the mothers, report an increase of 11% in household food expenditure among the beneficiary group, around 55% of which was spent behind protein consumption. When looking at dietary diversity, we find a positive but insignificant impact. Interestingly, the transition impacts in Panel D are stronger with significance on additional food categories compared to the PESP2 impacts in Panel C. The transition to PESP3 had significantly increased the consumption of edible oil, fish, and spices, compared to the previous program design.<sup>30</sup>

The targeting of mothers as stipend recipients may have altered intra-household bargaining and increased expenditure towards a preference of goods by the mothers. We explore this possibility in Ta-  
supervision of teachers is likely to be less ([Sarkar et al., 2014](#)). Girls are also likely to be expected to help at home after school.

<sup>29</sup>[Ruel \(2001\)](#) stresses the importance of dietary diversity in ensuring intake of essential nutrients.

<sup>30</sup>Unfortunately, without a clear contemporaneous cash transfer reference group, we are unable to isolate the impacts of mobile payments from that of coverage.

ble 3 using monthly expenditure behind the following non-food categories: medical, household fuel, transport, communication, female clothing, children’s clothing, household cleaning supplies, cosmetics, cooking equipment, house-use textiles, and recreation & leisure. We do not find a significant effect on total non-food expenditure. This is expected. Relative to immediate food consumption needs, the marginal propensity to consume non-food goods is lower. However, we find significant increases in expenditure on household fuel, communication, children’s clothing, and cosmetics, in columns (3), (5), (7), and (9) of Panel B, respectively. When segregated by wave pairs in Panels C and D, the impact on household fuel is no longer significant. The impact on communication expenditure remains significant only in Panel C. While this may seem odd at first, this makes sense since mobile phone ownership among beneficiary households increased by 20% between 2011 and 2015 and only by 9% between 2015 and 2019. On the other hand, expenditure on children’s clothing, cooking equipment, and cosmetics increased by about 49%, 29%, and 9%, respectively, for beneficiary households between 2015 and 2019, compared to non-beneficiary households. The former two estimates are also significantly different from their respective PESP2 estimates.

This set of results is particularly interesting since expenditure on children’s clothing, cooking equipment, and cosmetics are often used as proxy indicators of intra-household bargaining power in the female empowerment literature (Attanasio and Lechene, 2002; Bobonis, 2009; Aker et al., 2016; Doepke and Tertilt, 2019). For example, Aker et al. (2016) finds that mothers receiving mobile transfers spend about 40% more on children’s clothing compared to mothers receiving cash transfers. The authors attribute this to increased bargaining power for women and also the ability to better hide mobile transfers from their husbands. Similarly, we explore three potential channels through which the increase in expenditure could have happened. First, mothers receiving the stipend may experience an increase in their intra-household bargaining power and may be better able to convince their husbands to spend more on these goods. They may have also convinced their husbands to spend more on higher nutrient food, such as meat and dairy. Second, in the absence of significant intra-household bargaining power, if mothers can hide their money better due to mobile transfer payments, they may be able to spend more on goods of their preference. Third, the stipend and the stipend-receiving process may have led to more labor market engagement of the mothers increasing their income and their purchasing power.

We attempt to differentiate between the first two channels in Appendix table A9. We check this for waves II and III during the transition to PESP3 when the effects are significant. An additional test of intra-household bargaining is to estimate the stipend impacts for male- and female-headed households separately. If receiving the stipend improved the intra-household bargaining power of the mothers, then the effects should be apparent for male-headed households only (Aker et al., 2016). Stipend impacts on expenditure on children’s clothing, cosmetics, and cooking equipment are significant for male-headed households only in Panel A, with the first two being significantly different between the male- and female-headed households. This provides some evidence of improved intra-household bar-

gaining power of the beneficiary mothers.<sup>31</sup>

The second channel of mothers potentially hiding the stipend money from mobile payments is explored in Panels C and D. While we do not have data on whether mothers engaged in such an activity, they would be more likely to do so if they solely own a mobile phone. However, mobile phone ownership between waves II and III is likely endogenous. Receiving the stipend could have been an incentive for owning a mobile phone after the PESP transition if the mothers did not own a mobile phone earlier. Therefore, we check this heterogeneity by splitting the sample by mothers' sole mobile phone ownership in wave III.<sup>32</sup> Overall, the results do not provide suggestive evidence for this channel. We do not find any statistically significant difference by mothers' sole mobile phone ownership. This holds with the qualitative evidence discussed earlier in Section 2.1. Hossain (2022, p.196) noted a community-wide consensus that the stipend money should go to mothers and Gelb et al. (2019) reported that it was still the mothers who were receiving the stipend after the transition. Taken together, the impacts on expenditure behind the goods in question are likely from the improved intra-household bargaining power of the beneficiary mothers. Increased household bargaining is often an indicator of empowerment. We explore this, along with the third channel, in Section 5.3.

Increased food consumption by beneficiary households could have downstream effects on the health of the children in the household. Unfortunately, we do not have anthropometric data for the stipend-receiving students of the household. Instead, we explore this using anthropometric measures of the children aged less than 2 years in the household in each survey year for whom the data is available, and the mother's body mass index (BMI). Table 4 presents the results. The stipend had a significant positive impact across the three waves on both the height-for-age and weight-for-age z-scores of children in beneficiary households relative to non-beneficiary households.<sup>33</sup> This is consistent with Baulch (2011) who report similar positive impacts of PESP1 on children's height-for-age. However, unlike Baulch (2011), we do not find any significant impact on the children's or the mother's body mass index. Food security and good nutritional intake are among the many determinants of a child's level of stunting (Fakir and Khan, 2015; Islam et al., 2020). It is likely the gains in food consumption are contributing to improving the health of the children in beneficiary households. This is reassuring since inequality in under-five stunting, while improved, remains a major challenge in Bangladesh (Rabbani et al., 2016).

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<sup>31</sup>There are also significant differences between the male- and female-headed households for impacts on fuel and communication expenditure, where both are significant for female-headed households only. This indicates a differential stipend use preference between the two groups. It is worth noting, however, that there is likely some degree of selection bias in this comparison as male- and female-headed households differ in composition and characteristics.

<sup>32</sup>This assumes the mothers who owned a mobile phone in wave III and could hide the stipend money, already had the potential to do so in wave II. In the ideal scenario, we should instrument mothers' sole mobile ownership to address the endogeneity and include the variable as an interaction term. One possibility is by following Riley (2018) and instrumenting mobile phone ownership using the presence of and the distance to the nearest mobile money agent in the village. Unfortunately, we do not have data on the distance to the nearest mobile money agent. While we do have information on the presence of a mobile money agent in the village, it does not strongly predict mothers' sole mobile phone ownership and leads to weak instrument bias. As such, readers should take the results from our approach of splitting the sample by mobile phone ownership in wave III with a grain of salt as it is likely prone to endogeneity concerns.

<sup>33</sup>The results remain consistent after additionally including mother's height to control for inter-generational transmission.

### 5.3 Mothers' employment and empowerment

Kabeer (1999), building on Sen et al. (1985)'s general capabilities approach, broadly defined women's empowerment as the process that enables the development of the ability to make strategic life choices by those previously denied. Targeting mothers as stipend recipients in patriarchal settings may sometimes act as an impetus to their empowerment by enabling their access to resources and agency for decision-making and negotiation. In this section, we explore the stipend impact on mothers' empowerment indicators across several dimensions. Table 5 presents the stipend impacts on the mother's employment, income, asset ownership, and savings. "Earns Money," in column (1), is a positive binary response indicating whether the mother is involved in some form of income generation and serves as a measure of the extensive margin of employment. We do not find any significant impact in any of our specifications. Receiving the stipend is not inducing mothers to be involved in income generation if they were not previously engaged.

Column (2) explores the intensive margin of monthly income earned. Beneficiary mothers earned 13% more income across the three waves in Panel A than non-beneficiaries. This is equivalent to BDT 78/month when compared to the mean monthly income of beneficiary mothers (BDT 601/month). Taking this with the result from column (1), this suggests that beneficiary mothers involved in some form of income generation now earn more. This is similar to findings from Alzúa et al. (2013) who also find an increase in labor hours among working women, but no effect in the extensive margin of labor force participation from Mexico's *PROGRESA*. If we restrict the sample to only mothers involved in income generation, the stipend impact increases to 26.8% ( $p$ -value = 0.009), equivalent to BDT 270/month more in earning, when compared to their mean monthly (BDT 1,009/month). This can compensate for the extra food and non-food expenditure over the stipend amount that we find in beneficiary households. The transition impact on female income in Panel D is slightly greater at 18%. This is reflected in column (3) where we find a slight increase in the female to male income ratio by 3%. Compared to a mean of 14%, this is equivalent to about a one-fifth increase in the female to male income ratio from the base. We find only small significant impacts on the mothers' joint decision-making, with her husband, to work. This is perhaps reflective of the lack of significance on the extensive margin of employment. Mothers previously engaged in income generation were already likely empowered in this decision-making and we would not see much change for them.

Expectantly, due to the small stipend size, we do not find any significant impact on the mothers' ownership of major assets in column (6). We do find a small positive effect in their ownership of minor assets and mobile phones, in columns (7) and (8) respectively. Minor assets include small productive assets (such as poultry and non-mechanized farm equipment) and small consumer durable goods.<sup>34</sup> This is consistent with the increase in female income that can lead to increases in minor asset ownership. However, we find no significant effect on the mothers' savings amount in column (9), even though the estimates are positive.<sup>35</sup> This is understandable given the moderate increase in household

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<sup>34</sup>Please see the caption of Table 5 for details on the construction of major and minor asset variables.

<sup>35</sup>We also do not find any significant impact on mothers' saving behavior.

expenditure we have seen earlier. Few studies in the literature found a significant increase in savings amount from a cash transfer program (Daidone et al., 2014; Haushofer and Shapiro, 2016) while most reported insignificant impacts (Handa et al., 2013; Cheema et al., 2014; Evans et al., 2014; Pellerano et al., 2014; Daidone et al., 2015).

Transfers that target women may increase their involvement in household expenditure-related decisions. We explore this in Panel A of Table 6. Beneficiary mothers have a significant 25% increase in their joint decision-making regarding children's education expenditure, in column (4), which remains significant across all three specifications. There is also an increase in the mothers' joint decision-making behind housing-related expenditure by about 4% in column (2). These are expenditure decisions on small consumer durable goods for the household. The magnitude, although small, is comparable to estimates from previous studies. De Brauw et al. (2014) reports an increase of 7.5% in women's decision-making behind expenditure on durable goods from Brazil's *Bolsa Família*, and Handa et al. (2013) shows a 7.4% increase from Mexico's *PROGRESA*. There are, however, a number of cash transfer evaluations that do not find any significant impact on the decision-making power of females (Adato et al., 2000; Hidrobo and Fernald, 2013; Hidrobo et al., 2014; Merttens et al., 2015). It is therefore surprising that we find an effect for small education stipends.

Empowerment is not a compartmentalized phenomenon. It is holistic in terms of increasing one's capacity to make strategic choices both inside and outside of the household (Kabeer, 2019). The process of collecting the stipend involved communal engagement of the beneficiary mothers with each other and the stipend disbursement agents on specific days. It was also the mothers who interacted with the teachers and the school management committee regarding the stipend eligibility of their children (Hossain, 2022). This process could have increased their network and inclusion within the local community and improved their confidence to retaliate against unjust behavior from authorities (Babajanian, 2012). Panel B explores this using questions on the mothers' participation in local community groups and their willingness to protest for their rights. We find that about 3% more beneficiary mothers actively participate in local community groups in column (4). Further, about 6% more beneficiary mothers believe that they can bring a meaningful improvement to the community in column (3).<sup>36</sup> This suggests that not only are the stipends increasing their social inclusion, but also their confidence in their community role.

Receiving the stipend, however, does not impact the mothers' willingness to publicly speak up against wage manipulation in the public works programs or protest against misbehavior from authorities, in columns (1) and (2) respectively. When we break down the sample by wave pairs, only the latter is significant at 10% for the transition impact in Panel B.3. Perhaps this is because very few of the beneficiary mothers (about 3%) take a leadership role in any community groups and receiving the

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<sup>36</sup>Community groups include credit or microfinance groups, civic groups (improving community), charitable groups (helping others), mutual help or insurance groups (including burial societies), trade and business associations, agricultural producer's groups (including marketing groups), water users' groups, forest users' groups, local government, religious groups, and any other women's groups.

stipend has no significant impact on their leadership role, as reported in column (5).<sup>37</sup> Few studies have explored impacts on social inclusion from cash transfer programs and are mostly qualitative. [Adhikari et al. \(2014\)](#), [Drucza \(2016\)](#) and [Pavanello et al. \(2016\)](#) all report minimum social inclusion gains from cash transfers to women. The overall small magnitudes we find are also in agreement that any spillover impact on the social inclusion of mothers is, at best, minimal.

The PESP stipend may influence intimate partner violence (IPV) by impacting spousal income shares. [Angelucci \(2008\)](#) provides a theoretical model for the relationship.<sup>38</sup> In patriarchal societies, masculinity is associated with the ability to provide for their families ([Maldonado et al., 2005](#)). Increases in the wives' relative income and autonomy may threaten the husbands' identity and increase their frustration and irritability ([Fakir et al., 2016](#)). The PESP transfers may also reduce IPV by alleviating the wives' dependency on their husbands for daily expenditure, often a cause of marital strife. The size of the transfers also may play a role. For example, [Angelucci \(2008\)](#) finds that while small transfers in Mexico's *PROGRESA* decreased violence, large transfers increased the aggressiveness of husbands with traditional views of gender roles, leading to an increase in violence.

Table 7 presents our results on physical and verbal abuse. We find mostly insignificant stipend impacts on both physical and verbal abuse across the three waves. When split by wave pairs, we find a decrease of about 7% in verbal abuse in column (2) of Panel C from the transition to PESP3, which is significantly different from the estimate in Panel B. This establishes that the PESP stipends do not lead to an increase in physical or verbal abuse. This is reassuring because previous studies have found increased abuse from cash transfers. For example, [Bobonis et al. \(2013\)](#) finds increased emotional abuse of up to 4% from Mexico's *PROGRESA*, and [Green et al. \(2015\)](#) reports an increase of 2% in physical and emotional abuse from Uganda's *WINGS*. The magnitude of reduction is also comparable. [Perova and Vakis \(2012\)](#) finds a 11% reduction in emotional abuse for beneficiaries of Peru's *Juntos*, and [Hidrobo and Fernald \(2013\)](#) reports a 8% decrease in emotional abuse from Ecuador's *Bono de Desarrollo Humano*. The PESP beneficiary mothers' increase in overall empowerment does not, on average, face adverse retaliation from their partners.

Finally, in table 8 we explore the stipend impact on mothers' time allocation between work and care activities (Panel A), and their life satisfaction (Panel B). We find that beneficiary mothers spent more time behind domestic work and caring for others, with a reduction in their leisure time, in columns (2), (4), and (1) respectively. The latter is significant only for the transition impact in Panel A.3. On average, they spent around 20 minutes more daily behind domestic work and 14 minutes more behind caring for others. The mothers may be substituting for their children's reduced household work efforts

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<sup>37</sup>This could also be from perceiving the existing institutional framework as too orthodox and corrupt to be able to bring any meaningful change by protesting. Another possibility is if the women fear a 'grim trigger' punishment that protesting may deprive them of the stipend permanently. In such a case they may be willing to settle with less than promised or even lose one round of disbursements.

<sup>38</sup>Alcoholism is another potential channel. However, as alcohol sale is illegal in Bangladesh, only about 1.5% of the male household heads in our sample reported alcohol consumption.



for when they are at school (Molyneux, 2006; Ribas et al., 2011; Alzúa et al., 2013).<sup>39</sup> Since school attendance is one of the stipend criteria, this may happen if the stipend-receiving students attend school more regularly. Although we do not have attendance data to verify this, Yunus and Shahana (2018) shows that PESP stipend receiving students were present on about 10% more school days than non-stipend receiving students. This suggests that this is a plausible reason.

This overall result, however, hides an important heterogeneity. Appendix table A10 segregates the sample by mothers who generate income vs. mothers who do not. We find that the burden of the increase in unpaid household work falls mostly on the mothers not engaged in income generation. Mothers engaged in income generation devote the extra time gained behind income-generating work, about 22 minutes daily in column (3).<sup>40</sup> This also explains the increase in female income we observe in column (2) of Table 5 among working mothers. The increase in unpaid work burden of mothers not engaged in income generation may also explain why we do not find a significant effect in the extensive margin of mothers' employment. These mothers are devoting the extra time gained to unpaid household work.

Complementing the increased unpaid work burden we find a significant decrease in the mothers' subjective satisfaction with leisure time in column (1), Panel B of Table 8, across all specifications. There is also a reduction in their satisfaction with household work distribution that is significant for the transition impact in column (2) of Panel B.3. Interestingly, after the PESP transition, beneficiary mothers have a slight increase in their satisfaction regarding contact with friends and family members, in column (3). This is perhaps reflective of their increased community engagement. Since the stipend was being provided as mobile payments in PESP3, this may also reflect improved communication with friends and family members from more frequent mobile phone usage. However, the stipend impact on their satisfaction regarding their power to make important life decisions and their life overall, although insignificant, are mostly negative, in columns (4) and (5) respectively.

Taken together, the results indicate an overall reduction in the beneficiary mothers' subjective satisfaction likely reflective of the increased work burden. This result is not a surprising one, although less discussed in the literature.<sup>41</sup> It is important to acknowledge this burden on the mothers, who often might be the most vulnerable adult household member, in order to devise policies that can aim to ease their burden and encourage their spouses to help better balance household work distribution.

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<sup>39</sup>We check the results by the sex of the child since daughters are more likely to be involved in household work. However, we do not find any statistically significant differences in the impacts on the mothers' time allocation to domestic work by the sex of the stipend-receiving child.

<sup>40</sup>Note that mothers not engaged in income generation may still spend time behind the income-generating activities on behalf of other household members but not earn an income for the work.

<sup>41</sup>Most studies focus on the extensive and intensive margins of labor employment, not on domestic work, and do not evaluate whether the changes are perceived positively or negatively.

## 5.4 Heterogeneity by mobile payment indicators

In almost all the estimated stipend impacts through Tables 1 to 8, we observe slightly greater magnitudes from the transition to PESP3, some of which are significantly different from the estimates of the first two BIHS waves. As mentioned earlier, unfortunately, we are unable to disentangle the impact of the mobile payment from the coverage impact in these estimates. However, if the mobile payments channel is dominating, we may find significant differences when we split the sample by presence of SureCash agents in the village, by the mothers' literacy (as a proxy for mobile 'SMS literacy'), and by mothers' sole mobile phone ownership.<sup>42</sup> Both Hossain (2022) and Gelb et al. (2019) identify these factors as potential channels that may influence the mothers' welfare from the stipend. We present the results for selected outcomes of mothers' employment and empowerment in Appendix figures A1, A2, and A3. Except for a few exceptions, we mostly do not find any significant differences between the groups. The first exception is for monthly income by mothers' literacy. Literate mothers seem to be able to take better advantage of the stipend money to boost their income.<sup>43</sup> The second exception is for time spent behind care for others by mothers' literary and sole ownership of mobile phones. It may be the case that the stipend impacted the sense of responsibility of literate mothers with mobile phones more. However, overall it seems that shifting to mobile payments did not generate significant heterogeneous impacts by these indicators.

## 5.5 Gain and loss of stipend

We explore welfare impacts when households stop receiving the CCTs using BIHS waves II and III by breaking down the sample into four groups: (i) Households that received the stipend in wave III but not in wave II; (ii) Households that received the stipend in wave II but not in wave III; (iii) Households that received the stipend in both waves; and (iv) Households that never received the stipend. Groups (i) and (ii) represent households that gained and lost the stipend in wave III, respectively. By excluding group (i) we can estimate the impact of gaining the stipend. Similarly, by excluding group (ii) we can estimate the impact of losing the stipend. The reference group in each case remains the households with no change in stipend recipient status.<sup>44</sup>

Appendix tables A11 and A12 provide the results on food consumption and child's health, respectively. Similar to Buser et al. (2017), we find a reduction in household food consumption expenditure. Almost three-fourths of the increase in total food consumption expenditure is lost when households stop receiving the stipend. We see almost equivalent expenditure reductions behind all food groups that had an increase from receiving the stipend, except for pulses.<sup>45</sup> We also find decreases in the

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<sup>42</sup>Similar to Appendix table A9, we split the sample by mothers' sole mobile phone ownership in wave III.

<sup>43</sup>Literate mothers are not dependent on others to read the mobile messages sent by SureCash to collect the stipend money. However, if this was leading to differentiated stipend impacts, we would have likely seen significant differences in the other indicators as well.

<sup>44</sup>Including households that received a stipend in both waves may introduce an additional *duration* effect of receiving the stipend for both waves in the reference group. However, our results remain consistent even if we exclude this group.

<sup>45</sup>Not shown here, we also find equivalent decreases in non-food expenditure behind children's clothing and cooking equipment which could signify a fall in the mothers' intra-household bargaining power once they stop receiving the stipend.

stunting and underweight z-scores of the children aged less than 2 years in the household from losing the stipend, although unlike Buser et al. (2017) they are insignificant. However, we do not know exactly for how long the households have not been receiving the stipend so this could simply be due to a short time-lapse from when the mothers became non-beneficiaries.

An important question is whether the mothers remain empowered once they lose access to the stipend. We explore this in Appendix tables A13 and A14 that provide the results for mothers' employment and empowerment indicators. We do not find a significant fall in the intensive margin of the mothers' monthly income or their minor asset ownership, although both are negative. This makes sense as the loss of the small stipend is not a large enough shock to induce significant losses in income or minor assets gained from when the mothers were receiving the stipend. However, curiously we do find a significant reduction in their sole ownership of mobile phones upon losing the stipend. While we do not have evidence to confirm this, perhaps receiving the stipend had operated as a reason for sole mobile phone ownership. We also find *partial* significant decreases in the mothers' decision-making power over household education expenditure and their subjective belief that they can bring a meaningful improvement to the community. Reassuringly, we do not find a fall in their active community group participation or a significant increase in abuse from their partners.

Overall, it seems that losing access to the stipend does not completely strip the mothers from their gained empowerment. This is a pleasant result because this indicates that once empowered, its downward mobility is somewhat 'sticky,' at least in some dimensions. Sadly, the same can be said of their increased burden. Appendix table A15 explores the mothers' time allocation and satisfaction and shows that losing the stipend only partially decreased their domestic workload. One may expect a decrease here since with no school attendance criteria to adhere to the children may now contribute more to household chores. Complementing this, we also see small increases in the mothers' subjective satisfaction scores. However, all the estimated impacts of losing the stipend on time allocation and satisfaction are insignificant. This indicates that while the loss of stipend may reduce some of the previously increased burdens on the mothers, it does not do so entirely.

## 6 Limitations

The study has several data and design limitations to note. The relatively high attrition of about 13% between BIHS waves II and III raises concerns about it being selective. Although we get consistent results when using a balanced panel, indicating that the attrition is likely not selective, lower attrition would have been ideal. We do not know the exact duration or date of when households started and stopped receiving the PESP stipends. This would enable a finer estimation of the impacts of gain and loss of stipends, including an exploration of the duration of receipt of the stipend. Some of the estimated welfare impacts, such as the consumption effects, might taper off with time. We do not know how long it has been since the households started to receive the stipends to be able to explore this. The BIHS also does not have data on individual student attendance or performance in their annual

examinations which may introduce some measurement bias in the targeting assessment of the PESP. This may also introduce some bias in our leakage estimates.

One of the distinguishing features in the transition to PESP3 was its shift to mobile payments. However, the program’s non-experimental nature meant the lack of a control group to isolate the impact of mobile payments. The shift to mobile payments was completed by March 2017 all over Bangladesh following a sub-division staggered roll-out (SureCash, 2017). Temporal and spatial data on the staggered roll-out combined with the timing of when the households started receiving the stipends could permit isolating the impact of mobile payments. Unfortunately, we do not have this data and leave this as a future exercise. Data on the distance from the households to the nearest SureCash agent would also be beneficial. Following Riley (2018) one may use this information as an instrument for mothers’ sole mobile phone ownership to better control endogeneity when exploring the mothers’ potential to hide the stipend money, for which we do not find any evidence.

As discussed in Section 2.1, the roll-out of PESP3 faced a number of implementation challenges including mass exclusions for a smaller cohort of beneficiaries.<sup>46</sup> Promises of enrolment but not receiving the stipend could have adverse implications on beneficiaries. Our data does not identify such a group and this remains to be explored. We also could not assess the impact of a change in monetary amount for more than one child in PESP3 since only about 2.1% households in our data received stipends for more than one child. However, as of mid-2020, the government of Bangladesh has increased the overall PESP stipend value by 50% even for a single child (Alamgir, 2020). Future studies with a longer panel can leverage this to assess the impacts of an increase in the monetary value of education stipends. Finally, the BIHS does not have information on mental health measures. The increased burden and decreased subjective satisfaction of the mothers may reflect a change in their mental health which remain to be explored.

## 7 Conclusion

This study evaluates the contemporaneous welfare impacts of a small national-level primary education stipend program (PESP) that targets mothers as recipients in rural Bangladesh. We use the three waves of the BIHS longitudinal data, spanning from 2011 to 2019, to conduct our analyses. To address endogeneity concerns arising from non-random beneficiary assignment, we use an instrumental variable approach that takes advantage of the age-based eligibility of school-going children to predict household stipend recipient status. We also attempt to identify impacts on household welfare and beneficiary mothers when they stop receiving the transfers.

Consistent with previous studies, the stipend impacts students’ progression to the next grade with a reduction in dropout rates. Education expenditure and private coaching enrolment are higher for male students, potentially contributing to Bangladesh’s academic performance gender gap. There is

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<sup>46</sup>According to Kashem (2021), about 10% of the total stipend monetary amount was in a “pending state for four years.”

an increase in overall household food consumption, particularly behind meat and dairy, leading to a small improvement in the health of children less than 2 years of age in the household. Expenditures on children's clothing, cosmetics, and cooking equipment are also increased, with higher impacts for male-headed households, suggesting an improvement in the mothers' intra-household bargaining power. Interestingly, we find that working mothers who receive the stipend also have an increase in their monthly work income. Complementing this, there are small increases in the mothers' ownership of minor assets. It suggests that the expenditure increase, which is higher than the amount of stipend, comes from mothers' increased bargaining and income. There are increases in female decision-making power, greater engagement with community groups, and increased confidence to bring positive changes to their community. We also find a slight decrease in verbal abuse from partners, although only significant for the transition to PESP3.

This empowerment, however, comes at the cost of increased household work burden, mainly for non-working mothers, causing a fall in their subjective satisfaction in leisure time and household work distribution. Losing access to the PESP stipend leads to almost equivalent reductions in both food and non-food expenditure, accompanied by *partial* reductions in the mothers' income, ownership of minor assets, and empowerment indicators, excluding active community engagement. There is no significant increase in abuse from their partners. Taken together, this indicates a degree of stickiness in the downward mobility of empowerment. Losing the stipend neither significantly decreased the mothers' time allocated behind household work nor significantly increased their subjective satisfaction scores.

The results together emphasize that even small CCTs, such as the PESP, that target women from rural-poor households can have household welfare implications and empower its beneficiaries. The empowerment, however, comes at a cost of increased burden on the women that does not completely dissipate when they stop receiving the transfers. Furthermore, losing access to the stipends can have adverse welfare implications both for the household and the beneficiaries. There remains a dearth of evidence in the available cash transfers literature regarding the disproportionate burdens that may fall on the program beneficiaries and the costs from when the beneficiaries stop receiving the transfers. Similar CCT programs in patriarchal societies need to acknowledge and assess such possibilities. We attempt to address that gap for Bangladesh and emphasize devising complementary policies and re-designing the PESP to ease the increased burden on the beneficiary mothers and to ensure a smoother transition out of the cash transfer program.

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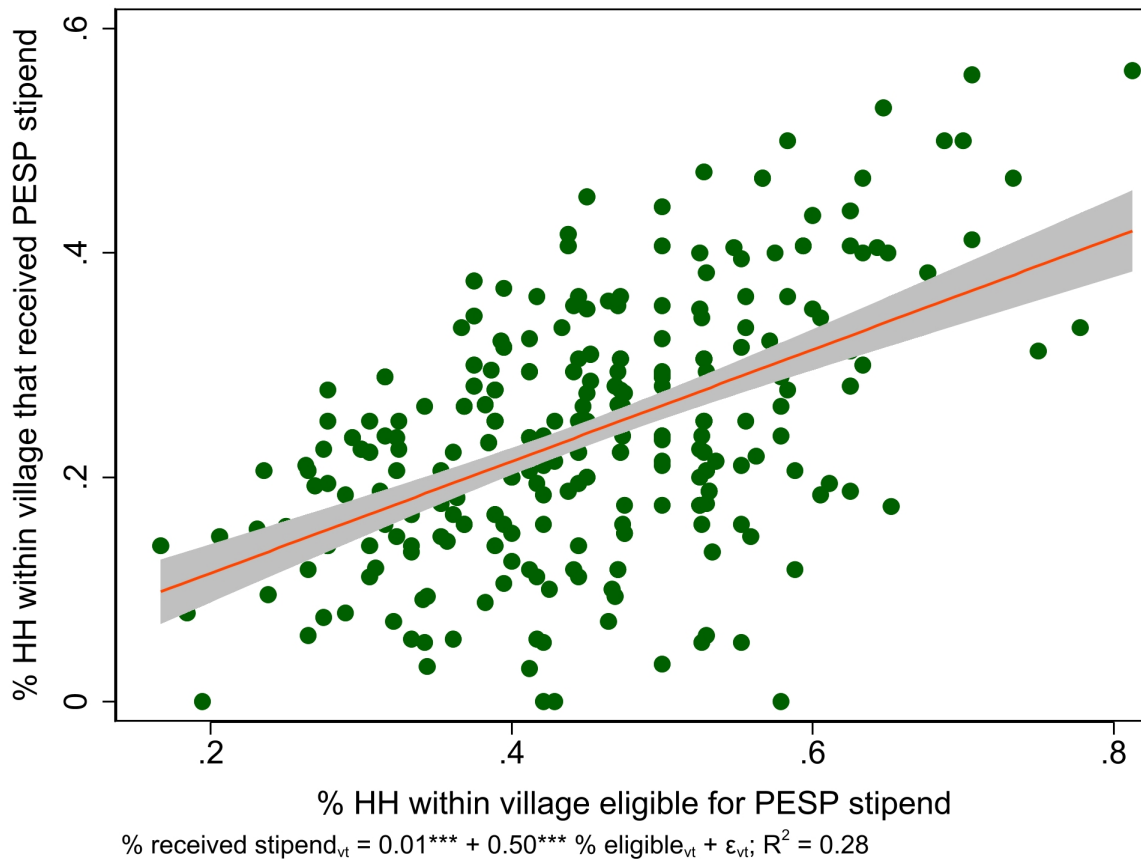
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## Figures

**Figure 1:** Association between PESP stipend eligibility and beneficiary status



Sources: BIHS Waves I, II and III.

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

Notes: Each scatter mark is a village-level observation on the percentage of households that were eligible for the PESP stipend and the percentage of households that received the PESP stipend. The red line depicts the linear fit, with the model's  $R^2$ , intercept and slope coefficients reported below.

## Tables

**Table 1:** The Impact of Education Stipend on Education Investment and Outcomes

	Education Expenditure	Progress	Dropout	Repeat	Coaching
	(1)	(2)	(3)	(4)	(5)
<b>Panel A: All Waves (OLS)</b>					
Stipend	0.00 (0.04)	0.04*** (0.01)	-0.04*** (0.01)	-0.00 (0.01)	n/a n/a
<b>Panel B: All Waves (2SLS)</b>					
Stipend	0.08 (0.10)	0.09*** (0.03)	-0.14*** (0.02)	0.04 (0.03)	n/a n/a
Sanderson-Windmeijer F-Stat	1109.26	794.77	794.77	636.53	n/a
Mean of DV	5.38	0.75	0.18	0.07	n/a
Observations	7,873	6,565	6,565	5,750	n/a
Households	3,217	2,781	2,781	2,473	n/a
<b>Panel C: 2011-2015 (2SLS)</b>					
Stipend ( $S_{12}$ )	0.10 (0.13)	0.10** (0.04)	-0.14*** (0.03)	0.02 (0.04)	n/a n/a
Sanderson-Windmeijer F-Stat	459.43	354.19	354.19	290.98	n/a
Mean of DV	5.28	0.75	0.18	0.07	n/a
Observations	4,848	4,100	4,100	3,520	n/a
Households	2,424	2,050	2,050	1,760	n/a
<b>Panel D: 2015-2019 (2SLS)</b>					
Stipend ( $S_{23}$ )	0.15* (0.08)	0.03 (0.05)	-0.11*** (0.03)	0.08 (0.05)	0.11* (0.06)
Sanderson-Windmeijer F-Stat	488.41	280.93	280.93	236.05	236.05
Mean of DV	5.68	0.76	0.18	0.07	0.62
Observations	4,046	3,024	3,024	2,610	2,610
Households	2,023	1,512	1,512	1,305	1,305
$S_{23} = S_{12}$ p-value	0.74	0.27	0.48	0.35	n/a
Controls	✓	✓	✓	✓	✓
Fixed-Effects		Household, Village × Wave			

Data Sources: BHS Waves I, II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

“Education Expenditure” in column (1) is the log of monthly household expenditure behind education of all members currently studying (winsorized at the top 95%) in Bangladeshi Taka (BDT) with the sample restricted to households with at least one school-going child. The mean of “Education Expenditure” in column (1) without log is 469.22 in Panels A & B, 417.12 in Panel C, and 565.02 in Panel D. Outcomes in columns (2)-(4) are binaries indicating a positive response to the child progressing to the next grade in survey year, dropping out from school in survey year, and repeating a class in survey year, respectively. “Coaching” in column (5), unavailable for Wave I (2011), is a positive binary response if the child receives additional private coaching. Columns (2) to (5) restrict the sample to primary school going children only. See section 4 for the list of controls.

**Table 2: The Impact of Education Stipend on Household Food Consumption Expenditure and Dietary Diversity**

	Total Consumption											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	<b>Panel A: All Waves (OLS)</b>											
Stipend	0.025** (0.010)	0.090* (0.051)	0.035 (0.042)	0.022** (0.010)	0.030*** (0.012)	0.039 (0.064)	-0.017 (0.048)	0.022 (0.051)	-0.003 (0.045)	0.035*** (0.012)	-0.007 (0.018)	-0.027 (0.027)
	<b>Panel B: All Waves (2SLS)</b>											
Stipend	0.050*** (0.019)	0.046 (0.096)	-0.017 (0.082)	0.053*** (0.020)	0.061*** (0.022)	0.224** (0.106)	0.162* (0.093)	0.033 (0.101)	0.089 (0.086)	0.085*** (0.022)	-0.012 (0.034)	-0.018 (0.053)
Sanderson-Windmeijer F-Stat	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60
Mean of DV	7.21	4.57	2.34	4.44	5.16	2.06	1.75	1.82	4.48	4.10	5.33	4.97
Observations	16,852	16,852	16,852	16,852	16,852	16,852	16,852	16,852	16,852	16,852	16,852	16,852
	<b>Panel C: 2011-2015 (2SLS)</b>											
Stipend ( $S_{12}$ )	0.036* (0.020)	0.000 (0.152)	-0.155 (0.136)	0.022 (0.032)	0.065* (0.035)	0.241** (0.116)	0.260* (0.145)	0.066 (0.160)	0.068 (0.055)	0.044 (0.036)	-0.045 (0.055)	0.067 (0.082)
Sanderson-Windmeijer F-Stat	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53
Mean of DV	7.20	4.64	2.31	4.52	5.23	1.89	1.75	1.75	4.42	4.20	5.13	4.86
Observations	11,584	11,584	11,584	11,584	11,584	11,584	11,584	11,584	11,584	11,584	11,584	11,584
	<b>Panel D: 2015-2019 (2SLS)</b>											
Stipend ( $S_{23}$ )	0.063** (0.030)	0.216 (0.136)	0.151 (0.112)	0.113*** (0.031)	0.061* (0.034)	0.268* (0.156)	0.247* (0.143)	0.048 (0.159)	0.252** (0.096)	0.130*** (0.034)	0.002 (0.052)	0.070 (0.085)
Sanderson-Windmeijer F-Stat	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12
Mean of DV	7.13	4.43	2.47	4.23	4.99	2.34	1.71	1.93	4.52	3.84	5.55	5.19
Observations	9,228	9,228	9,228	9,228	9,228	9,228	9,228	9,228	9,228	9,228	9,228	9,228
$S_{23} = S_{12}$ p-value	0.454	0.289	0.082	0.041	0.935	0.890	0.949	0.936	0.096	0.082	0.535	0.980
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fixed-Effects						Household, Village × Wave						

Data Sources: BHHS Waves I, II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

Outcomes in columns (1)-(11) report the log of consumption expenditure of respective category in Bangladesh Taka (BDT) in the past 7 days. "Dietary Diversity" in column (12) reports the Household Dietary Diversity Score (HDDS) based on the previous 24 hours following Swindale and Bilinsky (2006) but using 10 food groups. See section 4 for the list of controls.

**Table 3: The Impact of Education Stipend on Household Non-Food Expenditure**

	Total	Medical	Household Fuel	Transport	Communication	Female Clothing	Child Clothing	Cleaning	Cosmetics	Cooking Equipment	House-Use Textiles	Recreation & Leisure
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<b>Panel A: All Waves (OLS)</b>												
Stipend	0.004 (0.012)	-0.004 (0.026)	0.015** (0.007)	0.022 (0.039)	-0.032 (0.039)	-0.027 (0.030)	0.249*** (0.044)	0.007 (0.011)	0.019 (0.013)	-0.014 (0.045)	-0.020 (0.035)	0.031 (0.041)
<b>Panel B: All Waves (2SLS)</b>												
Stipend	0.037 (0.023)	0.001 (0.050)	0.040*** (0.014)	0.076 (0.077)	0.158** (0.074)	-0.100 (0.070)	0.463*** (0.093)	0.011 (0.021)	0.054** (0.024)	0.089 (0.088)	0.022 (0.068)	0.122 (0.082)
Sanderson-Windmeijer F-Stat	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60	1842.60
Mean of DV	8.53	5.83	6.54	5.23	4.15	4.81	3.23	5.02	5.13	2.25	3.34	2.48
Observations	16,852	16,852	16,852	16,852	16,852	16,852	16,852	16,852	16,852	16,852	16,852	16,852
<b>Panel C: 2011-2015 (2SLS)</b>												
Stipend ( $S_{12}$ )	0.016 (0.037)	-0.011 (0.079)	0.033 (0.023)	0.056 (0.123)	0.277** (0.128)	-0.078 (0.083)	0.226** (0.094)	0.027 (0.033)	0.012 (0.039)	-0.082 (0.036)	-0.002 (0.107)	0.328 (0.231)
Sanderson-Windmeijer F-Stat	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53	1240.53
Mean of DV	8.39	5.64	6.47	5.05	3.83	4.86	3.21	4.89	5.01	2.14	3.23	2.02
Observations	11,584	11,584	11,584	11,584	11,584	11,584	11,584	11,584	11,584	11,584	11,584	11,584
<b>Panel D: 2015-2019 (2SLS)</b>												
Stipend ( $S_{23}$ )	0.055 (0.035)	0.029 (0.076)	0.030 (0.022)	0.124 (0.105)	0.058 (0.085)	-0.086 (0.102)	0.489*** (0.113)	0.044 (0.031)	0.091** (0.041)	0.285** (0.134)	0.077 (0.101)	-0.020 (0.129)
Sanderson-Windmeijer F-Stat	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12	1242.12
Mean of DV	8.73	6.08	6.61	5.45	4.74	4.76	3.24	5.20	5.23	2.37	3.58	3.25
Observations	9,228	9,228	9,228	9,228	9,228	9,228	9,228	9,228	9,228	9,228	9,228	9,228
$S_{23} = S_{12}$ p-value	0.444	0.715	0.925	0.674	0.154	0.951	0.074	0.707	0.163	0.008	0.591	0.188
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fixed-Effects							Household, Village × Wave					

Data Sources: BHHS Waves I, II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

All outcomes report the log of monthly consumption expenditure of respective category in Bangladesh Taka (BDT). See section 4 for the list of controls.

**Table 4:** The Impact of Education Stipend on Child's & Mothers' Health

	Child's Health			Mother's Health
	Height for Age (z-score)	Weight for Age (z-score)	Body Mass Index (z-score)	Body Mass Index
	(1)	(2)	(3)	(4)
<b>Panel A: All Waves (OLS)</b>				
Stipend	0.162 (0.184)	0.144 (0.089)	-0.116 (0.080)	-0.101 (0.069)
<b>Panel B: All Waves (2SLS)</b>				
Stipend	0.761*** (0.233)	0.458*** (0.151)	0.044 (0.182)	0.190 (0.138)
Sanderson-Windmeijer F-Stat	305.65	305.65	305.65	1772.75
Mean of DV	-1.54	-1.44	-0.68	21.59
Observations	3,528	3,528	3,528	16,344
<b>Panel C: 2011-2015 (2SLS)</b>				
Stipend ( $S_{12}$ )	0.691* (0.389)	0.536** (0.249)	0.336 (0.299)	0.159 (0.233)
Sanderson-Windmeijer F-Stat	126.91	132.74	129.44	1193.96
Mean of DV	-1.58	-1.52	-0.76	21.07
Observations	1,958	1,984	1,970	11,032
<b>Panel D: 2015-2019 (2SLS)</b>				
Stipend ( $S_{23}$ )	0.386** (0.194)	0.261** (0.115)	0.038 (0.299)	0.048 (0.122)
Sanderson-Windmeijer F-Stat	89.97	89.97	89.97	1180.80
Mean of DV	-1.34	-1.33	-0.68	22.32
Observations	1,386	1,386	1,386	8,872
$S_{23} = S_{12}$ p-value	0.483	0.332	0.481	0.673
Controls	✓	✓	✓	✓
Fixed-Effects		Household, Village × Wave		

Data Sources: BIHS Waves I, II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

Child health outcomes in columns (1)-(3) are in standard deviations of WHO anthropometric z-scores. The sample in columns (1)-(3) consist of children aged less than 2 years in the household in each survey year for whom the data is available. See section 4 for the list of controls.

**Table 5:** The Impact of Education Stipend on Mothers' Employment, Asset Ownership & Savings

	Employment					Ownership & Savings			
	Earns Money	Female Income (log)	Female to Male Income	Work at Home	Joint Work Decision	Major Assets	Minor Assets	Mobile Phone	Savings (log)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>Panel A: All Waves (OLS)</b>									
Stipend	0.005 (0.011)	0.112* (0.066)	0.008 (0.006)	-0.023* (0.012)	0.003 (0.005)	0.032 (0.027)	0.073** (0.030)	0.023** (0.010)	0.068 (0.101)
<b>Panel B: All Waves (2SLS)</b>									
Stipend	-0.004 (0.022)	0.134* (0.079)	0.013 (0.013)	-0.009 (0.023)	0.014 (0.011)	0.028 (0.032)	0.166*** (0.056)	0.073*** (0.019)	0.303 (0.199)
Sanderson-Windmeijer F-Stat	1842.60	1842.60	1276.47	788.49	788.49	1815.07	1815.07	1815.07	1842.60
Mean of DV	0.62	3.35	0.13	0.76	0.98	0.47	2.44	0.35	3.33
Observations	16,852	16,852	13,696	10,412	10,412	16,733	16,733	16,733	16,733
<b>Panel C: 2011-2015 (2SLS)</b>									
Stipend ( $S_{12}$ )	-0.016 (0.034)	0.112 (0.101)	-0.010 (0.012)	-0.021 (0.040)	0.017 (0.018)	0.029 (0.052)	0.136 (0.086)	0.050* (0.028)	0.343 (0.319)
Sanderson-Windmeijer F-Stat	1240.53	1240.53	1022.72	599.50	599.50	1232.86	1232.86	1232.86	1240.53
Mean of DV	0.60	3.23	0.12	0.75	0.98	0.48	2.16	0.27	3.11
Observations	11,584	11,584	9,418	5,126	5,126	11,488	11,488	11,488	11,488
<b>Panel D: 2015-2019 (2SLS)</b>									
Stipend ( $S_{23}$ )	0.005 (0.033)	0.180* (0.093)	0.031* (0.018)	-0.006 (0.033)	0.028* (0.016)	0.033 (0.049)	0.225** (0.092)	0.082*** (0.031)	0.041 (0.270)
Sanderson-Windmeijer F-Stat	1242.12	1242.12	1054.95	661.93	661.93	1204.48	1204.48	1204.48	1242.12
Mean of DV	0.66	3.59	0.14	0.74	0.98	0.47	2.93	0.49	3.74
Observations	9,228	9,228	7,740	6,164	6,164	9,082	9,082	9,082	9,082
$S_{23} = S_{12}$ p-value	0.658	0.759	0.058	0.772	0.648	0.955	0.480	0.444	0.150
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fixed-Effects									Household, Village × Wave

Data Sources: BIHS Waves I, II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

“Earns Money” in column (1) is a positive binary response indicating that the mother earns money. “Female Income” in column (2) is the female monthly income in Bangladesh Taka (BDT). The mean of “Female Income” in column (2) without log is 540.51 in Panels A & B, 490.20 in Panel C, and 600.24 in Panel D. “Female to Male Income” in column (3) is a ratio of female to male monthly income. “Work at Home Only” in column (4) is a positive binary response indicating that the mother works only at home. “Joint Work Decision” in column (5) is a positive binary response indicating that the decision for the mother to work was taken solely by her or jointly with her husband. Columns (3)-(5) is available for married females. “Major Assets” in column (6) is a count of binary responses to the ownership of: (a) Agricultural land, (b) Farm equipment (mechanized), (c) House (and other structures), (d) Large livestock (oxen, buffalo, etc.), (e) Other land not used for agricultural purposes (including residential), and (f) Means of transportation (bicycle, rickshaw, motorcycle, car, etc.). “Minor Assets” in column (7) is a count of binary responses to the ownership of: (a) Small livestock (goats, sheep, etc.), (b) Poultry (chickens, ducks, turkeys, pigeons, etc.) (c) Fish pond or fishing equipment, (d) Farm equipment (non-mechanized), (e) Non-farm business equipment, and (f) Consumer durable (fridge, TV, radio, cookware, etc.). “Mobile Phone” in column (8) is a binary if the mother *solely* owns a mobile phone. “Savings” in column (9) is the log of the monetary amount saved by the mother in the past year from survey date. See section 4 for the list of controls.

**Table 6: Impact on Mothers' Decision-Making Power & Community Engagement**

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Decision-Making Power</b>					
	Alone or joint decision on how to spend money on:				
	Food	Housing	Health	Education	Clothing
<b>Panel A.1: All Waves (2SLS) [n=13,652]</b>					
Stipend	0.001 (0.022)	0.038* (0.022)	0.006 (0.022)	0.251*** (0.024)	0.003 (0.022)
Sanderson-Windmeijer F-Stat	1275.87	1275.87	1275.87	1275.87	1275.87
Mean of DV	0.71	0.69	0.72	0.61	0.73
<b>Panel A.2: 2011-2015 (2SLS) [n=9,382]</b>					
Stipend ( $S_{12}$ )	0.018 (0.036)	0.034 (0.036)	0.003 (0.034)	0.278*** (0.038)	0.003 (0.035)
Sanderson-Windmeijer F-Stat	1019.79	1019.79	1019.79	1019.79	1019.79
Mean of DV	0.68	0.66	0.70	0.59	0.70
<b>Panel A.3: 2015-2019 (2SLS) [n=7,678]</b>					
Stipend ( $S_{23}$ )	0.027 (0.031)	0.042** (0.020)	0.012 (0.030)	0.291*** (0.034)	0.011 (0.030)
Sanderson-Windmeijer F-Stat	1051.64	1051.64	1051.64	1051.64	1051.64
Mean of DV	0.76	0.73	0.77	0.65	0.78
$S_{23} = S_{12}$ p-value	0.850	0.846	0.843	0.799	0.862
<b>Panel B: Community Engagement</b>					
	Publicly speak-up to ensure payment	Publicly protest misbehavior from authority	Believe can change the community	Active member in community groups	Leader in community groups
<b>Panel B.1: All Waves (2SLS) [n=16,852]</b>					
Stipend	0.017 (0.021)	0.021 (0.021)	0.060*** (0.021)	0.029* (0.017)	0.010 (0.008)
Sanderson-Windmeijer F-Stat	1890.12	1890.12	1890.12	1890.12	1890.12
Mean of DV	0.39	0.40	0.59	0.34	0.03
<b>Panel B.2: 2011-2015 (2SLS) [n=11,584]</b>					
Stipend ( $S_{12}$ )	0.007 (0.033)	0.016 (0.032)	0.073** (0.034)	0.025 (0.030)	0.004 (0.012)
Sanderson-Windmeijer F-Stat	1247.77	1247.77	1247.77	1247.77	1247.77
Mean of DV	0.37	0.38	0.61	0.26	0.02
<b>Panel B.3: 2015-2019 (2SLS) [n=9,780]</b>					
Stipend ( $S_{23}$ )	0.024 (0.034)	0.042* (0.024)	0.046** (0.023)	0.041* (0.021)	0.014 (0.014)
Sanderson-Windmeijer F-Stat	1530.33	1530.33	1530.33	1530.33	1530.33
Mean of DV	0.46	0.49	0.59	0.41	0.03
$S_{23} = S_{12}$ p-value	0.720	0.516	0.511	0.662	0.588
Controls	✓	✓	✓	✓	✓
Fixed-Effects		Household, Village × Wave			

Data Sources: BIHS Waves I, II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

All reported coefficients are 2SLS estimates. All outcomes are coded as positive binary responses to respective questions. The questions asked to the mothers in Panel B are as follows: "Do you feel comfortable speaking up in public to ensure proper payment of wages for public works or other similar programs (such as EGPP, FFW)?" in column (1); "Do you feel comfortable speaking up in public to protest the misbehavior of authorities or elected officials?" in column (2); "Do you feel that a woman like yourself can generally change things in the community where you live if she wants to?" in column (3); "Are you an active member of any group?" in column (4); and "Do you have a leadership position in this group?" in column (5). See section 4 for the list of controls.

**Table 7: Impact on Mothers' Intimate Partner Violence**

	Physical Abuse	Verbal Abuse	Threat: Any	Threat: Divorce	Threat: Remarry
	(1)	(2)	(3)	(4)	(5)
<b>Panel A: All Waves (2SLS)</b>					
Stipend	-0.000 (0.015)	-0.024 (0.023)	-0.015 (0.011)	-0.013 (0.011)	-0.012 (0.010)
Sanderson-Windmeijer F-Stat	1205.07	1205.07	1205.07	1205.07	1205.07
Mean of DV	0.09	0.35	0.05	0.04	0.04
Observations	13,316	13,316	13,316	13,316	13,316
<b>Panel B: 2011-2015 (2SLS)</b>					
Stipend ( $S_{12}$ )	0.021 (0.024)	0.001 (0.014)	-0.017 (0.018)	-0.016 (0.017)	-0.019 (0.017)
Sanderson-Windmeijer F-Stat	1022.72	1022.72	1022.72	1022.72	1022.72
Mean of DV	0.10	0.31	0.05	0.05	0.04
Observations	9,418	9,418	9,418	9,418	9,418
<b>Panel C: 2015-2019 (2SLS)</b>					
Stipend ( $S_{23}$ )	-0.019 (0.023)	-0.070* (0.037)	0.002 (0.015)	0.003 (0.015)	0.006 (0.014)
Sanderson-Windmeijer F-Stat	996.60	996.60	996.60	996.60	996.60
Mean of DV	0.09	0.41	0.04	0.04	0.03
Observations	7,282	7,282	7,282	7,282	7,282
$S_{23} = S_{12}$ p-value	0.229	0.073	0.417	0.402	0.256
Controls	✓	✓	✓	✓	✓
Fixed-Effects		Household, Village × Wave			

Data Sources: BIHS Waves I, II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

All reported coefficients are 2SLS estimates. All outcomes are coded as positive binary responses to respective incidents in the past year from survey. See section 4 for the list of controls.



**Table 8: Impact on Mothers' Time Allocation and Satisfaction**

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Time Allocation (minutes)</b>					
	Leisure & Social	Domestic Work	Work for Income	Care for Others	Travel
<b>Panel A.1: All Waves (2SLS) [n=16,022]</b>					
Stipend	-8.341 (7.047)	12.629* (6.798)	1.108 (5.415)	8.240* (4.236)	-1.974 (2.393)
Sanderson-Windmeijer F-Stat	1707.26	1707.26	1707.26	1707.26	1707.26
Mean of DV	915.34	378.72	65.97	63.51	16.08
<b>Panel A.2: 2011-2015 (2SLS) [n=10,820]</b>					
Stipend ( $S_{12}$ )	-5.919 (10.649)	1.321 (5.604)	3.088 (8.252)	8.255 (6.073)	2.834 (3.861)
Sanderson-Windmeijer F-Stat	1161.75	1161.75	1161.75	1161.75	1161.75
Mean of DV	896.72	398.61	55.06	57.61	15.65
<b>Panel A.3: 2015-2019 (2SLS) [n=8,438]</b>					
Stipend ( $S_{23}$ )	-20.607* (11.691)	19.812** (8.732)	3.508 (9.168)	12.317* (7.120)	-4.471 (3.332)
Sanderson-Windmeijer F-Stat	1130.80	1130.80	1130.80	1130.80	1130.80
Mean of DV	919.93	347.23	89.88	70.75	15.63
$S_{23} = S_{12}$ p-value	0.549	0.075	0.298	0.664	0.378
<b>Panel B: Satisfaction (scale of 1 to 10)</b>					
	Leisure Time	Household Work Distribution	Contact with Friends/Family	Important Decisions	Life Overall
<b>Panel B.1: All Waves (2SLS) [n=16,724]</b>					
Stipend	-0.314*** (0.118)	-0.149 (0.097)	0.013 (0.102)	-0.146 (0.103)	-0.066 (0.098)
Sanderson-Windmeijer F-Stat	1813.80	1813.80	1813.80	1813.80	1813.80
Mean of DV	5.91	7.39	6.76	6.43	7.18
<b>Panel B.2: 2011-2015 (2SLS) [n=11,478]</b>					
Stipend ( $S_{12}$ )	-0.468** (0.189)	-0.204 (0.160)	-0.085 (0.064)	0.010 (0.167)	-0.013 (0.160)
Sanderson-Windmeijer F-Stat	1232.57	1232.57	1232.57	1232.57	1232.57
Mean of DV	5.60	7.30	6.68	6.21	7.02
<b>Panel B.3: 2015-2019 (2SLS) [n=9,082]</b>					
Stipend ( $S_{23}$ )	-0.313* (0.177)	-0.175* (0.106)	0.094* (0.052)	-0.226 (0.155)	-0.205 (0.148)
Sanderson-Windmeijer F-Stat	1204.48	1204.48	1204.48	1204.48	1204.48
Mean of DV	6.32	7.56	6.84	6.66	7.37
$S_{23} = S_{12}$ p-value	0.549	0.880	0.030	0.300	0.378
Controls	✓	✓	✓	✓	✓
Fixed-Effects	Household, Village × Wave				

Data Sources: BIHS Waves I, II and III

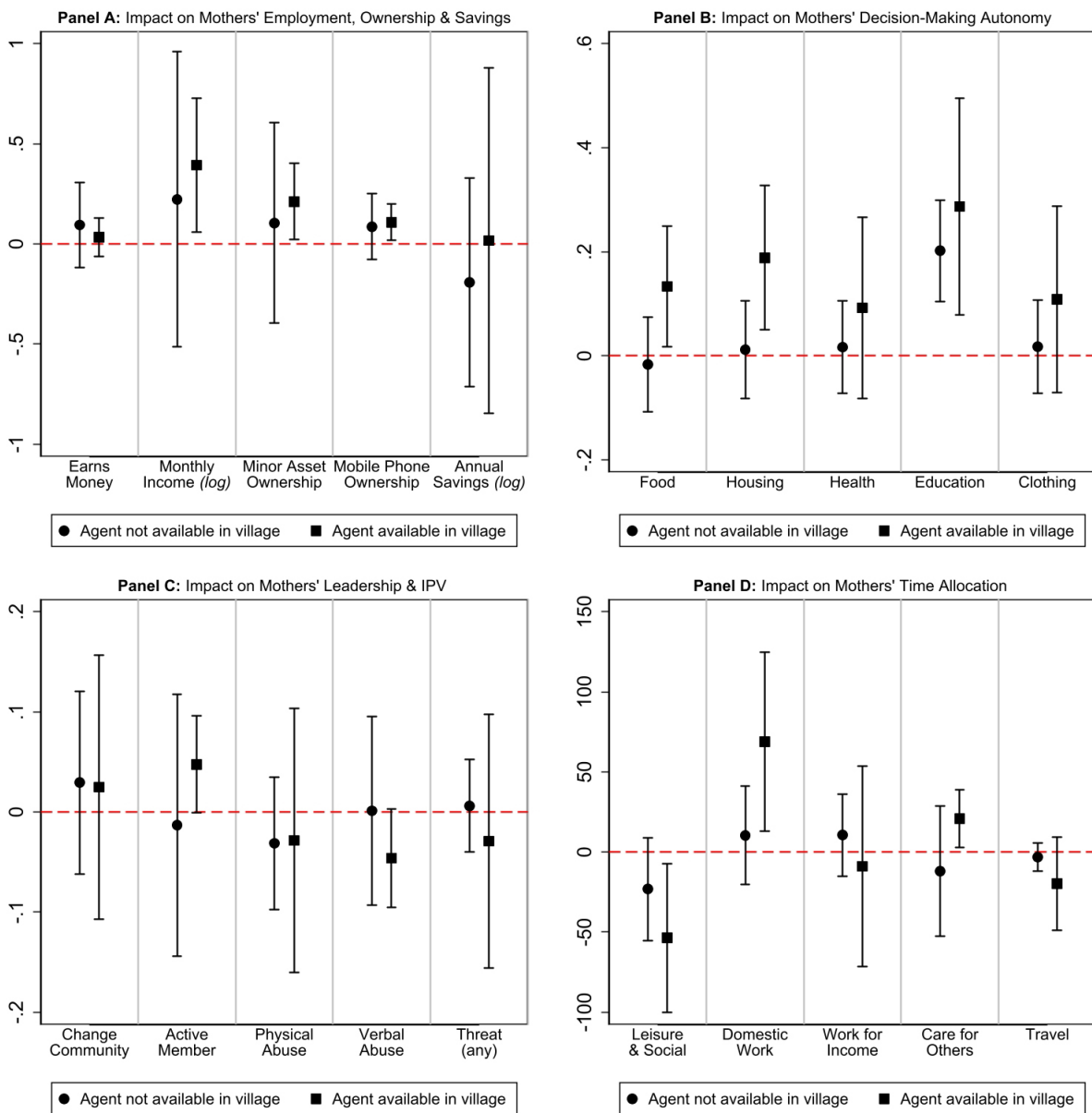
Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

All reported coefficients are 2SLS estimates. In panel A, time for each category is reported in minutes from past 24 hours for working days. BIHS recorded time in 15 minute intervals which was grouped as follows: (1) Leisure & social: Sleeping and resting, eating and drinking, personal care, school (also homework), watching TV/listening to radio, exercising, social & religious activities; (2) Domestic work: Shopping/getting service, weaving, sewing, textile care, cooking, & domestic work; (3) Income-generating work: Work as employed, own business work, & farming/fishing; (4) Care for children/adults/elderly; and (5) Travel. The questions asked to the mothers in Panel B are as follows: "How satisfied are you with the time you have to yourself to do the things you enjoy?" in column (1); "How would you rate your satisfaction with the distribution of work duties within your household?" in column (2); "How would you rate your satisfaction with your contact with friends or relatives?" in column (3); "Your power to make important decisions that change the course of your life?" in column (4); and "How would you rate your satisfaction with your life overall?" in column (5). See section 4 for the list of controls.

# Appendix

## Figures

**Figure A1: Heterogeneous impact of stipend by presence of mobile money agent in village**

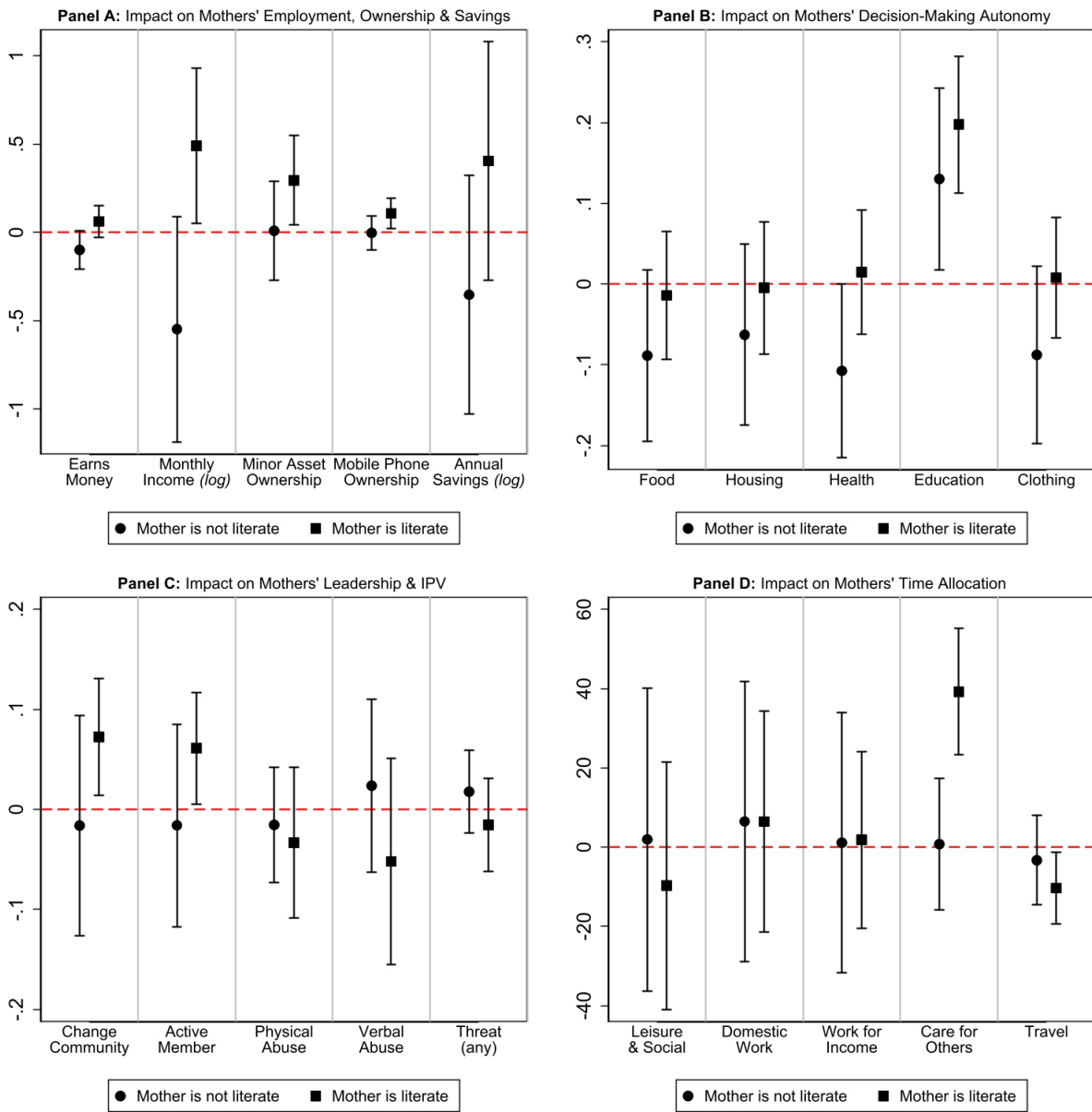


Sources: BIHS Waves II and III.

\*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

Notes: Coefficients are from 2SLS regressions following Equation 2 with standard errors clustered at the household. Vertical capped bars represent 95% confidence intervals. Presence of agent are where at least one SureCash agent is available within the village.

**Figure A2: Heterogeneous impact of stipend by literacy of mothers**

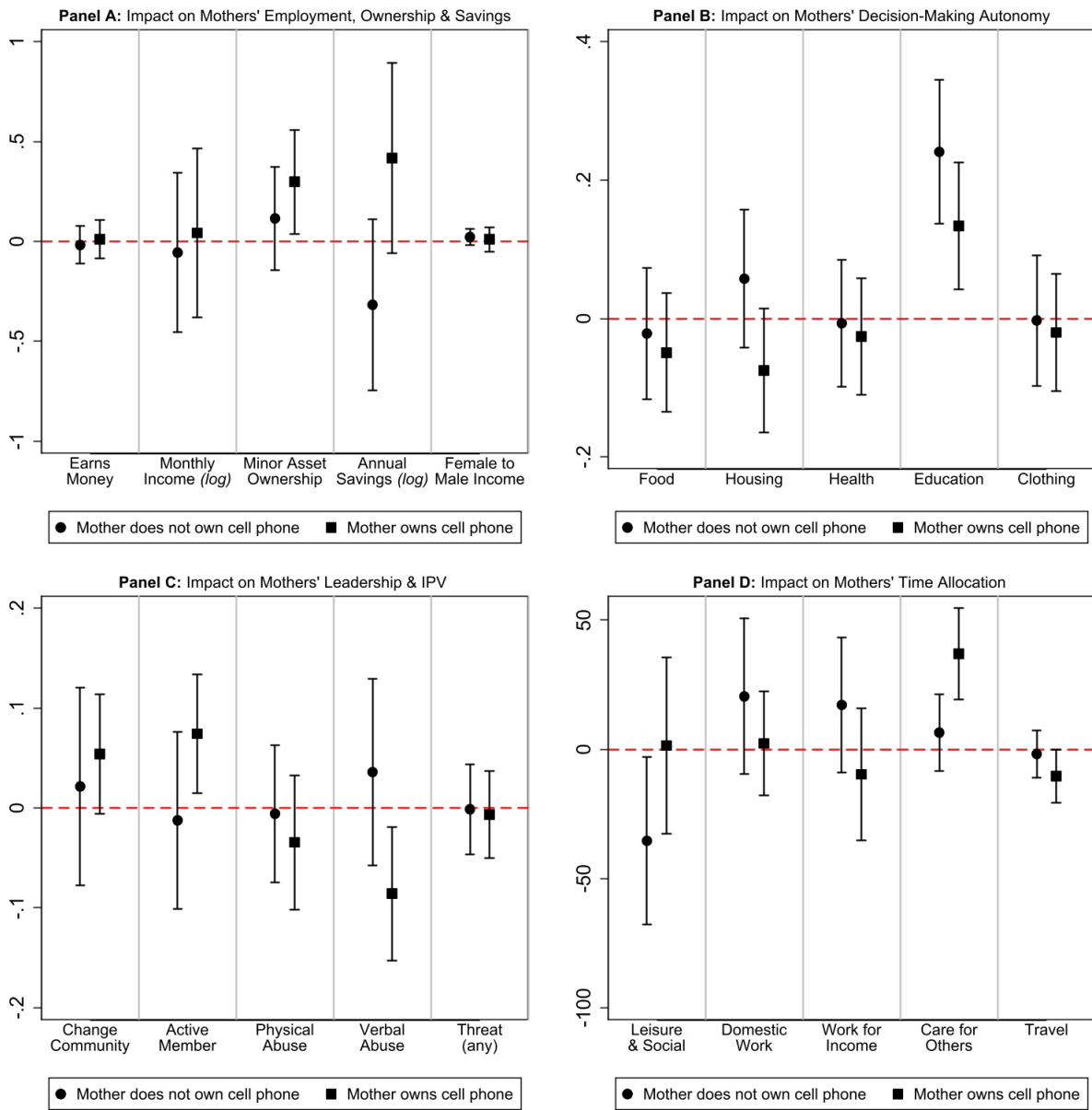


Sources: BIHS Waves II and III.

\*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

Notes: Coefficients are from 2SLS regressions following Equation 2 with standard errors clustered at the household. Vertical capped bars represent 95% confidence intervals. Mothers are not considered literate if they cannot read and write or if they can sign only.

**Figure A3: Heterogeneous impact of stipend by mothers' sole ownership of mobile phone in BIHS Wave III**



Sources: BIHS Waves II and III.

\*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1.

Notes: Coefficients are from 2SLS regressions following Equation 2 with standard errors clustered at the household. Vertical capped bars represent 95% confidence intervals. Mothers' sole mobile phone ownership is based on BIHS wave III in 2019 after the roll-out of PESP3.

## Tables

**Table A1:** Evolution of eligibility and targeting in PESP over time

	PESP 1 (2002-2008)	PESP 2 (2009-2015)	PESP 3 (2016-2020)
Geographical Targeting	All rural unions.	All rural unions.	All rural and urban unions.
Student Eligibility	1) Students of Classes I-V	1) Students of Classes I-V	1) Students of Classes I-V 2) Pre-primary students 3) Students of Classes VI-VIII
School Targeting	1) All rural government and government-supported primary schools. 2) Government-approved NGO schools.	1) All rural government and government-supported primary schools. 2) Government-approved NGO schools.	1) All rural government and government-supported primary schools. 2) Government-approved NGO schools. 3) Selected urban government and government-approved primary schools.
Household Targeting	At least one of the following: 1) Household own less than half acre of land 2) Female headed households (destitute widows and divorces) 3) Household head is a day laborer 4) Household head is involved in a low-income occupation (insolvent artisans/mechanics such as potters, fishermen, blacksmiths, weavers, carpenters, cobblers, etc.) 5) Household head is a sharecropper	At least one of the following: 1) Household own less than half acre of land 2) Female headed households (destitute widows and divorces) 3) Household head is a day laborer 4) Household head is involved in a low-income occupation (insolvent artisans/mechanics such as potters, fishermen, blacksmiths, weavers, carpenters, cobblers, etc.) 5) Household head is a sharecropper 6) Students with disabilities	All households are eligible.
Beneficiary Rationing	1) Poorest 40% of students in each selected rural union.	1) Poorest 40% of students in each selected rural union. 2) Upto 90% of poorest students in targeted rural areas.	All students are eligible.
Additional Conditions	1) Household not receiving other social safety net benefits. 2) 85% student attendance. 3) 50% marks on annual examination.	1) 85% student attendance. 2) 50% marks on annual examination.	1) 85% student attendance. 2) Pass annual examination (usually at least 33% marks).
Estimated Number of Beneficiaries	5.5 million	7.8 million	13 million
Mode of Stipend Delivery	Cash-in-Hand	Cash-in-Hand	Mobile Money (using SureCash)
Stipend Amount	One Child: BDT 100 Two Children: BDT 125 Three Children: BDT 125	One Child: BDT 100 Two Children: BDT 125 Three Children: BDT 125	One Child: BDT 100 Two Children: BDT 200 Three Children: BDT 250

Notes: Table is adapted and expanded from [Hossain \(2022, p.188\)](#).

Additional Sources: [Tietjen \(2003\)](#); [Ahmed et al. \(2011\)](#); [Baulch \(2011\)](#); [DPE \(2014\)](#); [GoB \(2017\)](#); [Yunus and Shahana \(2018\)](#).

**Table A2: Targeting performance of PESP over time**

	Targeted			Below Poverty Line		
	(1)	(2)	(3)	(4)	(5)	(6)
<b>PESP Status, 2003</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>			
Beneficiary	82.9	17.1	100			
Non-Beneficiary	55.4	44.6	100			
Total	65.2	34.8	100			
<i>(Source: Baulch (2011))</i>						
<b>PESP Status, 2006</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>			
Beneficiary	72.6	27.4	100			
Non-Beneficiary	31.6	68.4	100			
Total	40.1	59.9	100			
<i>(Source: Baulch (2011))</i>						
<b>PESP Status, 2011</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>
Beneficiary	63.9	36.1	100	34.7	65.3	100
Non-Beneficiary	23.3	76.7	100	35.2	64.8	100
Total	33.6	66.4	100	35.1	64.9	100
<i>(Source: BIHS Wave I)</i>						
<b>PESP Status, 2015</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>
Beneficiary	64.1	35.9	100	23.9	76.1	100
Non-Beneficiary	27.0	73.0	100	22.2	77.8	100
Total	34.5	65.5	100	22.5	77.5	100
<i>(Source: BIHS Wave II)</i>						
<b>PESP Status, 2019</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>	<b>Yes</b>	<b>No</b>	<b>Total</b>
Beneficiary	97.9	2.1	100	15.4	84.6	100
Non-Beneficiary	31.8	68.2	100	19.6	80.4	100
Total	48.9	51.1	100	18.5	81.5	100
<i>(Source: BIHS Wave III)</i>						

Notes: PESP Status and eligibility information in 2003 and 2006 are taken from Baulch (2011, p.251). The remaining information are calculated from BIHS Waves I, II, and III. Target in each PESP round is based on the household targeting and student eligibility criteria outlined in Appendix table A1. Poverty line of USD 1.90 is used for columns (3)-(6), with the yearly average exchange rate of USD to BDT in each wave. Household income is estimated by aggregating income from employment, income from other sources (rent, gratuity, dividends, etc.), and remittance.

**Table A3: Number of Children (per Household) Eligible for PESP and Receiving Stipend by Waves**

	Number Eligible	Number Receiving Stipend				Total
		0	1	2	3	
<b>All Waves</b>						
0	10260	173	0	0	10433	
	98.35	1.66	0.00	0.00	100.00	
1	3087	2916	67	0	6070	
	50.86	48.04	1.11	0.00	100.00	
2	720	827	267	0	1814	
	39.70	45.59	14.72	0.00	100.00	
3	83	80	33	17	213	
	38.97	37.56	15.50	7.99	100.00	
4	8	5	1	2	16	
	50.00	31.25	6.25	12.50	100.00	
Total	14158	4001	368	19	18546	
	76.34	21.58	1.99	0.11	100.00	
<b>BIHS Wave I</b>						
0	3548	56	0	0	3604	
	98.45	1.56	0.00	0.00	100.00	
1	1007	1037	25	0	2069	
	48.67	50.12	1.21	0.00	100.00	
2	271	401	59	0	731	
	37.07	54.86	8.07	0.00	100.00	
3	30	41	19	3	93	
	32.26	44.09	20.43	3.23	100.00	
4	1	3	1	1	6	
	16.67	50.00	16.67	16.67	100.00	
Total	4857	1538	104	4	6503	
	74.69	23.66	1.60	0.07	100.00	
<b>BIHS Wave II</b>						
0	3481	57	0	0	3538	
	98.39	1.61	0.00	0.00	100.00	
1	1312	847	15	0	2174	
	60.35	38.96	0.69	0.00	100.00	
2	312	287	44	0	643	
	48.52	44.63	6.85	0.00	100.00	
3	37	31	7	1	76	
	48.68	40.79	9.21	1.32	100.00	
4	5	2	0	0	7	
	71.43	28.57	0.00	0.00	100.00	
Total	5147	1224	66	1	6438	
	79.95	19.02	1.03	0.02	100.00	
<b>BIHS Wave III</b>						
0	3231	60	0	0	3291	
	98.18	1.82	0.00	0.00	100.00	
1	768	1032	27	0	1827	
	42.04	56.49	1.48	0.00	100.00	
2	137	139	164	0	440	
	31.14	31.59	38.28	0.00	100.00	
3	16	8	7	13	44	
	36.36	18.18	15.91	29.55	100.00	
4	2	0	0	1	3	
	66.67	0.00	0.00	33.33	100.00	
Total	4154	1239	198	14	5605	
	74.12	22.11	3.54	0.25	100.00	

Notes: Calculated from BIHS Waves I, II, and III. First row has frequencies and second row has row percentages. Eligibility in each PESP round is based on the student eligibility criteria outlined in Appendix table A1.

**Table A4:** Summary statistics of Household Characteristics by BIHS Waves

	Full Sample		Beneficiary		Non-Beneficiary		Diff.	p-value
	Mean	SD	Mean	SD	Mean	SD		
<b>Panel A: All Waves</b>								
	n=18,546		n=4,389		n=14,157			
Household Head's Age	45.46	13.92	43.33	11.19	46.12	14.60	-2.79	0.00
Female Respondent's Age	39.08	12.59	36.65	9.58	39.83	13.30	-3.18	0.00
Female Respondent is Married	0.90	0.30	0.94	0.24	0.88	0.32	0.06	0.00
Household Size	4.44	1.84	5.01	1.66	4.26	1.85	0.75	0.00
Number of Children Aged <6	0.54	0.71	0.54	0.69	0.54	0.72	0.00	0.73
Head's Education: None	0.46	0.50	0.49	0.50	0.45	0.50	0.04	0.00
Head's Education: Primary (Class I-V)	0.26	0.44	0.27	0.45	0.26	0.44	0.01	0.12
Head's Education: Secondary (Class VI-XII)	0.26	0.44	0.22	0.42	0.27	0.44	-0.05	0.00
Household's Average Daily Income	354.86	401.23	330.78	339.61	362.33	418.22	-31.54	0.00
Size of Land	62.62	125.45	52.70	118.25	65.69	127.44	-12.99	0.00
Female Headed Household	0.19	0.39	0.17	0.37	0.20	0.40	-0.03	0.00
Head's Occupation: Waged Labor	0.16	0.37	0.19	0.39	0.15	0.36	0.03	0.00
Head's Occupation: Low-Income	0.24	0.43	0.21	0.41	0.25	0.43	-0.03	0.00
Head's Occupation: Share-cropper	0.11	0.31	0.13	0.33	0.10	0.30	0.03	0.00
<b>Panel B: BIHS Wave I (2011)</b>								
	n=6,503		n=1,647		n=4,856			
Household Head's Age	44.17	13.98	43.04	10.75	44.55	14.90	-1.51	0.00
Female Respondent's Age	37.19	12.41	35.91	9.00	37.62	13.34	-1.71	0.00
Female Respondent is Married	0.91	0.29	0.94	0.24	0.90	0.30	0.04	0.00
Household Size	4.20	1.63	4.86	1.49	3.97	1.61	0.88	0.00
Number of Children Aged <6	0.56	0.71	0.51	0.66	0.53	0.72	-0.02	0.29
Head's Education: None	0.49	0.50	0.54	0.50	0.47	0.50	0.08	0.00
Head's Education: Primary (Class I-V)	0.25	0.43	0.26	0.44	0.25	0.43	0.01	0.57
Head's Education: Secondary (Class VI-XII)	0.25	0.43	0.19	0.39	0.27	0.44	-0.08	0.00
Household's Average Daily Income	248.95	298.01	227.18	230.90	256.33	317.25	-29.15	0.00
Size of Land	62.40	122.55	48.12	88.72	67.25	131.72	-19.13	0.00
Female Headed Household	0.18	0.38	0.15	0.36	0.19	0.39	-0.03	0.00
Head's Occupation: Waged Labor	0.18	0.38	0.20	0.40	0.17	0.38	0.03	0.01
Head's Occupation: Low-Income	0.21	0.41	0.17	0.38	0.22	0.41	-0.05	0.00
Head's Occupation: Share-cropper	0.11	0.31	0.13	0.34	0.10	0.29	0.04	0.00
<b>Panel C: BIHS Wave II (2015)</b>								
	n=6,438		n=1,291		n=5,147			
Household Head's Age	45.79	13.86	43.75	11.12	46.30	14.42	-2.55	0.00
Female Respondent's Age	39.33	12.44	36.89	9.53	39.94	13.00	-3.05	0.00
Female Respondent is Married	0.90	0.30	0.95	0.22	0.88	0.32	0.06	0.00
Household Size	4.96	2.00	5.36	1.74	4.86	2.05	0.50	0.00
Number of Children Aged <6	0.53	0.70	0.52	0.66	0.53	0.71	-0.01	0.62
Head's Education: None	0.45	0.50	0.47	0.50	0.44	0.50	0.03	0.05
Head's Education: Primary (Class I-V)	0.27	0.45	0.29	0.45	0.27	0.44	0.02	0.10
Head's Education: Secondary (Class VI-XII)	0.26	0.44	0.22	0.42	0.27	0.44	-0.05	0.00
Household's Average Daily Income	360.62	407.49	311.80	261.19	372.87	435.73	-61.08	0.00
Size of Land	66.23	135.41	58.69	147.42	68.12	132.17	-9.42	0.03
Female Headed Household	0.19	0.39	0.15	0.36	0.20	0.40	-0.04	0.00
Head's Occupation: Waged Labor	0.16	0.37	0.21	0.40	0.15	0.36	0.05	0.00
Head's Occupation: Low-Income	0.22	0.42	0.19	0.39	0.23	0.42	-0.05	0.00
Head's Occupation: Share-cropper	0.10	0.30	0.12	0.33	0.10	0.30	0.03	0.01
<b>Panel D: BIHS Wave III (2019)</b>								
	n=5,605		n=1,451		n=4,154			
Household Head's Age	46.58	13.79	43.29	11.74	47.73	14.26	-4.44	0.00
Female Respondent's Age	40.97	12.67	37.26	10.18	42.27	13.18	-5.01	0.00
Female Respondent is Married	0.88	0.32	0.94	0.24	0.87	0.34	0.07	0.00
Household Size	4.13	1.74	4.88	1.72	3.86	1.67	1.02	0.00
Number of Children Aged <6	0.53	0.72	0.57	0.74	0.54	0.71	-0.03	0.17
Head's Education: None	0.43	0.50	0.44	0.50	0.43	0.50	0.01	0.56
Head's Education: Primary (Class I-V)	0.27	0.44	0.27	0.45	0.27	0.44	0.01	0.46
Head's Education: Secondary (Class VI-XII)	0.28	0.45	0.27	0.44	0.28	0.45	-0.01	0.47
Household's Average Daily Income	471.12	460.85	465.27	444.08	473.16	466.6	-7.89	0.57
Size of Land	58.71	116.46	52.55	118.26	60.86	115.76	-8.31	0.02
Female Headed Household	0.21	0.41	0.20	0.40	0.21	0.41	-0.01	0.33
Head's Occupation: Waged Labor	0.13	0.34	0.15	0.36	0.13	0.33	0.03	0.01
Head's Occupation: Low-Income	0.30	0.46	0.29	0.45	0.30	0.46	-0.01	0.37
Head's Occupation: Share-cropper	0.11	0.31	0.12	0.33	0.11	0.31	0.01	0.12



**Table A5: Summary statistics: Outcome variables (All Waves)**

	Full Sample			Beneficiary			Non-Beneficiary			Diff.	p-value
	N	Mean	SD	N	Mean	SD	N	Mean	SD		
<b>Education Outcomes</b>											
Monthly Education Expenditure (in BDT)	18546	284.89	393.41	4389	329.96	359.89	14157	270.92	402.23	59.04	0.00
Child: Progress	9357	0.74	0.37	3644	0.77	0.34	5713	0.72	0.38	0.05	0.00
Child: Dropout	9357	0.19	0.29	3644	0.16	0.25	5713	0.21	0.32	-0.05	0.00
Child: Repeat	8480	0.07	0.26	3409	0.07	0.26	5071	0.07	0.26	0.00	0.60
Child: Coaching	5224	0.61	0.49	2005	0.63	0.48	3219	0.60	0.49	0.03	0.02
<b>Weekly Food Consumption</b>											
Total Food Expenditure (in BDT)	18546	1614.16	946.52	4389	1671.88	924.91	14157	1596.27	952.45	75.60	0.00
Cereals (in BDT)	18546	361.11	347.39	4389	414.32	377.54	14157	344.61	335.80	69.71	0.00
Pulses (in BDT)	18546	30.13	34.95	4389	30.80	35.52	14157	29.92	34.76	0.89	0.14
Edible Oil (in BDT)	18546	101.13	62.96	4389	103.83	60.83	14157	100.29	63.58	3.54	0.00
Vegetables (in BDT)	18546	212.23	132.41	4389	222.12	132.77	14157	209.16	132.15	12.95	0.00
Meat (in BDT)	18546	129.68	211.63	4389	119.76	203.66	14157	132.75	213.95	-12.99	0.00
Dairy (in BDT)	18546	39.51	65.85	4389	33.66	60.82	14157	41.32	67.23	-7.67	0.00
Fruits (in BDT)	18546	54.38	98.07	4389	47.54	90.88	14157	56.50	100.11	-8.97	0.00
Fish (in BDT)	18546	238.66	229.76	4389	231.36	225.45	14157	240.92	231.04	-9.56	0.02
Spices (in BDT)	18546	75.41	52.85	4389	79.22	53.18	14157	74.22	52.69	5.00	0.00
Others (in BDT)	18546	310.54	264.27	4389	324.35	267.47	14157	306.26	263.13	18.09	0.00
Household Dietary Diversity Score (out of 10)	18546	4.97	1.27	4389	4.96	1.24	14157	4.98	1.28	-0.02	0.31
<b>Monthly Non-Food Expenditure</b>											
Total Non-Food Expenditure (in BDT)	18546	6652.06	5274.1	4389	6204.59	4749.47	14157	6790.80	5419.14	-586.21	0.00
Medical (in BDT)	18546	680.64	842.87	4389	620.28	778.65	14157	699.35	860.98	-79.07	0.00
Household Fuel (in BDT)	18546	747.36	301.45	4389	752.95	293.89	14157	745.63	303.75	7.32	0.16
Transport (in BDT)	18546	423.46	450.49	4389	404.61	431.32	14157	429.30	456.13	-24.69	0.00
Communication (in BDT)	18546	201.16	579.94	4389	169.68	215.51	14157	210.92	652.54	-41.25	0.00
Female Clothing (in BDT)	18546	192.12	149.34	4389	181.57	141.35	14157	195.40	151.59	-13.83	0.00
Child Clothing (in BDT)	18546	108.40	118.23	4389	144.09	116.30	14157	97.34	116.63	46.76	0.00
Cleaning and Washing (in BDT)	18546	179.71	105.15	4389	181.97	102.56	14157	179.01	105.94	2.96	0.10
Cosmetics (in BDT)	18546	211.25	137.80	4389	222.99	134.27	14157	207.61	138.67	15.38	0.00
Cooking Equipment (in BDT)	18546	33.41	47.56	4389	31.58	44.42	14157	33.98	48.48	-2.40	0.00
House-Use Textiles (in BDT)	18546	67.49	84.21	4389	64.92	81.02	14157	68.29	85.16	-3.37	0.02
Recreation and Leisure (in BDT)	18546	76.79	122.39	4389	70.59	115.33	14157	78.72	124.43	-8.12	0.00
<b>Child's &amp; Mothers' Health</b>											
Child's Height-for-age z-score	6192	-1.53	1.40	1464	-1.63	1.36	4728	-1.50	1.42	-0.13	0.00
Child's Weight-for-age z-score	6192	-1.40	1.12	1464	-1.49	1.08	4728	-1.37	1.13	-0.12	0.00
Child's Body Mass Index z-score	6192	-0.62	1.28	1464	-0.66	1.25	4728	-0.60	1.29	-0.06	0.14
Mother's Body Mass Index	18118	21.56	3.85	4316	21.25	3.64	13802	21.66	3.90	-0.42	0.00
<b>Mothers' Employment, Ownership, &amp; Savings</b>											
Earns Money	18546	0.61	0.49	4389	0.66	0.48	14157	0.60	0.49	0.06	0.00
Monthly Income (in BDT)	18546	533.56	1666.82	4389	581.75	1673.43	14157	518.62	1664.53	63.13	0.03
Female to Male Income Ratio	18546	0.16	0.32	4389	0.16	0.31	14157	0.16	0.32	0.00	0.78
Works at Home only	13127	0.77	0.42	3345	0.76	0.43	9782	0.77	0.42	-0.01	0.18
Decision to Work (joint)	13127	0.98	0.15	3345	0.98	0.13	9782	0.97	0.16	0.01	0.01
Own Major Assets (count)	18546	0.46	0.76	4389	0.44	0.74	14157	0.47	0.76	-0.03	0.05
Own Minor Assets (count)	18546	2.44	1.46	4389	2.48	1.50	14157	2.42	1.45	0.06	0.02
Own Mobile Phone (binary)	18546	0.35	0.48	4389	0.35	0.48	14157	0.35	0.48	0.00	0.90
Annual Savings (in BDT)	18546	4552.55	10204.97	4389	4490.07	9726.91	14157	4571.92	10348.95	-81.85	0.64
<b>Mothers' Empowerment Indicators</b>											
Joint Spending Decision: Food	18546	0.71	0.46	4389	0.73	0.45	14157	0.70	0.46	0.03	0.00
Joint Spending Decision: Housing	18546	0.69	0.46	4389	0.72	0.45	14157	0.68	0.47	0.04	0.00
Joint Spending Decision: Health	18546	0.72	0.45	4389	0.75	0.43	14157	0.71	0.45	0.04	0.00
Joint Spending Decision: Education	18546	0.58	0.49	4389	0.75	0.43	14157	0.53	0.50	0.23	0.00
Joint Spending Decision: Clothing	18546	0.72	0.45	4389	0.76	0.43	14157	0.71	0.45	0.04	0.00
Publicly Protest to Ensure Wage	18546	0.39	0.49	4389	0.40	0.49	14157	0.38	0.49	0.02	0.03
Publicly Protest against Misbehavior	18546	0.40	0.49	4389	0.41	0.49	14157	0.40	0.49	0.01	0.32
Believe Can Change the Community	18546	0.59	0.49	4389	0.61	0.49	14157	0.59	0.49	0.02	0.01
Active Member of Community Groups	18546	0.35	0.48	4389	0.41	0.49	14157	0.33	0.47	0.08	0.00
Leader in Community Groups	18546	0.03	0.16	4389	0.03	0.17	14157	0.02	0.15	0.00	0.09
Mother faced Physical Abuse	17753	0.09	0.29	4247	0.11	0.32	13506	0.08	0.27	0.03	0.00
Mother faced Verbal Abuse	17753	0.32	0.47	4247	0.37	0.48	13506	0.30	0.46	0.07	0.00
Husband Threatened: Any	17753	0.05	0.21	4247	0.05	0.23	13506	0.04	0.20	0.01	0.01
Husband Threatened to Divorce	17753	0.04	0.19	4247	0.05	0.21	13506	0.04	0.19	0.01	0.01
Husband Threatened to Remarry	17753	0.04	0.19	4247	0.04	0.20	13506	0.04	0.19	0.01	0.05
Past 24 Hrs: Leisure and Social Activities (mins)	18546	919.57	161.23	4389	894.48	153.38	14157	927.38	162.81	-32.90	0.00
Past 24 Hrs: Domestic Work (mins)	18546	374.73	153.72	4389	393.68	152.8	14157	368.83	153.54	24.85	0.00
Past 24 Hrs: Income-Generating Work (mins)	18546	64.94	121.65	4389	72.62	127.65	14157	62.55	119.62	10.07	0.00
Past 24 Hrs: Care for Others (mins)	18546	65.39	93.93	4389	71.39	98.48	14157	63.52	92.39	7.87	0.00
Past 24 Hrs: Tavel (mins)	18546	16.55	47.54	4389	15.96	45.06	14157	16.74	48.28	-0.78	0.34
Satisfaction: Leisure Time	18546	5.92	2.73	4389	5.68	2.70	14157	6.00	2.73	-0.32	0.00
Satisfaction: Household Work Distribution	18546	7.39	2.24	4389	7.30	2.25	14157	7.42	2.23	-0.11	0.00
Satisfaction: Contact with Friends/Family	18546	6.76	2.30	4389	6.68	2.31	14157	6.78	2.30	-0.10	0.01
Satisfaction: Making Important Decisions	18546	6.43	2.31	4389	6.40	2.27	14157	6.44	2.32	-0.04	0.35
Satisfaction: Life Overall	18546	7.19	2.36	4389	7.05	2.33	14157	7.23	2.36	-0.19	0.00

**Table A6:** Association between PESP targeting and child birth between rounds

	Births Count (1)	Births Count (2)	Births Count (3)	Births Count (4)
<b>Panel A: Count of birth of primary female respondents between rounds</b>				
Target	0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)
Stipend		-0.05 (0.03)		-0.02 (0.02)
Target × Stipend		-0.01 (0.01)		-0.01 (0.01)
Mean of DV	0.24	0.24	0.24	0.24
<b>Panel B: Count of birth of any member in household between rounds</b>				
Target	-0.01 (0.01)	0.00 (0.01)	0.01 (0.01)	0.02 (0.02)
Stipend		0.02 (0.02)		0.02 (0.02)
Target × Stipend		-0.05* (0.03)		-0.05 (0.04)
Mean of DV	0.36	0.36	0.36	0.36
Observations	16,852	16,852	16,852	16,852
Households	6,304	6,304	6,304	6,304
Household FE	✓	✓	✓	✓
Village-wave FE	✓	✓	✓	✓
Controls	✗	✗	✓	✓
Clustering-level	Household	Household	Household	Household

Data Sources: BIHS Waves I, II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

**Table A7: First stage with different fixed-effects and clustering-level**

	Stipend (1)	Stipend (2)	Stipend (3)	Stipend (4)	Stipend (5)
<b>Panel A: All Waves</b>					
PESP Eligibility	0.48*** (0.01)	0.48*** (0.01)	0.48*** (0.01)	0.48*** (0.01)	0.48*** (0.02)
Mean of DV	0.22	0.22	0.22	0.22	0.22
Observations	16,852	16,852	16,852	16,852	16,852
Households	6,304	6,304	6,304	6,304	6,304
<b>Panel B: 2011-2015</b>					
PESP Eligibility	0.46*** (0.01)	0.43*** (0.01)	0.42*** (0.01)	0.42*** (0.02)	0.42*** (0.02)
Mean of DV	0.22	0.22	0.22	0.22	0.22
Observations	11,584	11,584	11,584	11,584	11,584
Households	5,792	5,792	5,792	5,792	5,792
<b>Panel C: 2015-2019</b>					
PESP Eligibility	0.46*** (0.01)	0.49*** (0.01)	0.49*** (0.01)	0.49*** (0.02)	0.49*** (0.02)
Mean of DV	0.21	0.21	0.21	0.21	0.21
Observations	9,228	9,228	9,228	9,228	9,228
Households	4,614	4,614	4,614	4,614	4,614
Household FE	✗	✓	✓	✓	✓
Year FE	✗	✓	✗	✗	✗
Village-wave FE	✗	✗	✓	✓	✗
District-wave FE	✗	✗	✗	✗	✓
Clustering-level	✗	Household	Household	Village	District

Data Sources: BIHS Waves I, II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

**Table A8: Impact on Education Investment and Outcomes by Gender**

	Total Expenditure	Progress	Dropout	Repeat	Coaching
	(1)	(2)	(3)	(4)	(5)
<b>Panel A: All Waves (2SLS)</b>					
<b>Panel A.1: Male students</b>					
Stipend	0.21 (0.17)	0.14** (0.05)	-0.13*** (0.04)	-0.01 (0.05)	n/a n/a
Sanderson-Windmeijer F-Stat	458.35	226.26	226.26	172.56	n/a
Mean of DV	5.23	0.73	0.20	0.08	n/a
Observations	3,613	2,832	2,832	2,338	n/a
<b>Panel A.2: Female students</b>					
Stipend	0.11 (0.16)	0.02 (0.05)	-0.07** (0.03)	0.05 (0.04)	n/a n/a
Sanderson-Windmeijer F-Stat	294.12	211.16	211.16	175.83	n/a
Mean of DV	5.56	0.78	0.15	0.07	n/a
Observations	3,406	2,790	2,790	2,515	n/a
Male=Female <i>p</i> -value	0.668	0.090	0.230	0.349	n/a
<b>Panel B: 2011-2015 (2SLS)</b>					
<b>Panel B.1: Male students</b>					
Stipend	0.21 (0.22)	0.22*** (0.07)	-0.17*** (0.05)	-0.12 (0.08)	n/a n/a
Sanderson-Windmeijer F-Stat	189.34	125.61	125.61	93.35	n/a
Mean of DV	5.12	0.73	0.19	0.07	n/a
Observations	2,126	1,718	1,718	1,396	n/a
<b>Panel B.2: Female students</b>					
Stipend	0.18 (0.21)	0.03 (0.07)	-0.08* (0.05)	0.04 (0.06)	n/a n/a
Sanderson-Windmeijer F-Stat	142.88	113.68	113.68	93.12	n/a
Mean of DV	5.44	0.79	0.15	0.06	n/a
Observations	2,150	1,788	1,788	1,600	n/a
Male=Female <i>p</i> -value	0.921	0.055	0.203	0.110	n/a
<b>Panel C: 2015-2019 (2SLS)</b>					
<b>Panel C.1: Male students</b>					
Stipend	0.34** (0.16)	0.08 (0.08)	-0.14** (0.06)	0.10 (0.08)	0.37*** (0.14)
Sanderson-Windmeijer F-Stat	218.52	87.02	87.02	69.13	69.13
Mean of DV	5.54	0.73	0.19	0.07	0.64
Observations	1,834	1,294	1,294	1,024	1,024
<b>Panel C.2: Female students</b>					
Stipend	0.16 (0.16)	0.03 (0.08)	-0.09* (0.05)	0.12 (0.07)	-0.04 (0.14)
Sanderson-Windmeijer F-Stat	110.86	58.68	58.68	48.31	48.31
Mean of DV	5.84	0.80	0.14	0.06	0.62
Observations	1,588	1,146	1,146	1,020	1,020
Male=Female <i>p</i> -value	0.426	0.331	0.522	0.851	0.039
Controls	✓	✓	✓	✓	✓
Fixed-Effects		Household, Village × Wave			

Data Sources: BIHS Waves I, II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

"Education Expenditure" is the log of monthly household education expenditure (in BDT) of all members currently studying (winsorized at the top 95%) in column (1). Outcomes in columns (2)-(4) are binaries indicating a positive response to the child progressing to the next grade in survey year, dropping out from school in survey year, and repeating a class in survey year, respectively. "Coaching" in column (5), unavailable for Wave I (2011), is a positive binary response if the child receives additional private coaching. Columns (2) to (5) restrict the sample to primary school going children only. See section 4 for the list of controls.

**Table A9: The Impact of Education Stipend on Household Non-Food Expenditure: Exploring Pathways**

	Total	Medical	Household Fuel	Transport	Communication	Female Clothing	Child Clothing	Cleaning	Cosmetics	Cooking Equipment	House-Use Textiles	Recreation & Leisure
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<b>Panel A: Female headed households, 2015-2019 (2SLS)</b>												
Stipend ( $S_F$ )	0.055 (0.132)	0.075 (0.286)	0.210** (0.094)	-0.288 (0.494)	0.273** (0.128)	0.345 (0.406)	0.176 (0.182)	0.024 (0.135)	-0.008 (0.039)	0.405 (0.614)	0.283 (0.446)	0.138 (0.502)
Sanderson-Windmeijer F-Stat	72.94	72.94	72.94	72.94	72.94	72.94	72.94	72.94	72.94	72.94	72.94	72.94
Mean of DV	8.66	5.95	6.57	4.92	4.28	4.90	3.30	5.08	5.05	2.25	3.29	3.01
Observations	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192	1,192
<b>Panel B: Male headed households, 2015-2019 (2SLS)</b>												
Stipend ( $S_M$ )	0.049 (0.039)	0.016 (0.086)	0.017 (0.024)	0.103 (0.114)	0.053 (0.034)	-0.093 (0.115)	0.517*** (0.063)	0.023 (0.034)	0.093** (0.043)	0.245* (0.148)	0.151 (0.109)	-0.058 (0.146)
Sanderson-Windmeijer F-Stat	981.22	981.22	981.22	981.22	981.22	981.22	981.22	981.22	981.22	981.22	981.22	981.22
Mean of DV	8.75	6.10	6.63	5.58	4.87	4.74	3.07	5.23	5.29	2.39	3.67	3.30
Observations	6,830	6,830	6,830	6,830	6,830	6,830	6,830	6,830	6,830	6,830	6,830	6,830
$S_F = S_M$ p-value	0.965	0.843	0.047	0.441	0.097	0.299	0.077	0.994	0.082	0.800	0.774	0.708
<b>Panel C: Mother owned mobile phone in wave III, 2015-2019 (2SLS)</b>												
Stipend ( $S_F$ )	0.101** (0.051)	0.045 (0.111)	0.050 (0.032)	0.017 (0.147)	0.096 (0.108)	0.046 (0.158)	0.705*** (0.203)	0.094** (0.047)	0.027 (0.052)	0.366* (0.204)	-0.004 (0.153)	0.196 (0.191)
Sanderson-Windmeijer F-Stat	571.30	571.30	571.30	571.30	571.30	571.30	571.30	571.30	571.30	571.30	571.30	571.30
Mean of DV	8.84	6.16	6.65	5.58	5.04	4.79	3.43	5.26	5.30	2.53	3.67	3.45
Observations	5,006	5,006	5,006	5,006	5,006	5,006	5,006	5,006	5,006	5,006	5,006	5,006
<b>Panel D: Mother did not own mobile phone in wave III, 2015-2019 (2SLS)</b>												
Stipend ( $S_M$ )	0.012 (0.053)	-0.004 (0.113)	0.012 (0.032)	0.131 (0.166)	0.007 (0.143)	-0.195 (0.136)	0.560*** (0.217)	0.018 (0.043)	0.063* (0.035)	0.216 (0.190)	0.007 (0.147)	0.262 (0.188)
Sanderson-Windmeijer F-Stat	593.42	593.42	593.42	593.42	593.42	593.42	593.42	593.42	593.42	593.42	593.42	593.42
Mean of DV	8.59	5.98	6.56	5.29	4.39	4.75	3.03	5.13	5.16	2.20	3.48	3.02
Observations	4,110	4,110	4,110	4,110	4,110	4,110	4,110	4,110	4,110	4,110	4,110	4,110
$S_F = S_M$ p-value	0.226	0.757	0.401	0.607	0.619	0.248	0.626	0.233	0.566	0.591	0.959	0.805
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fixed-Effects						Household, Village × Wave						

Data Sources: BIHS Waves II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

All outcomes report the log of monthly consumption expenditure of respective category in Bangladesh Taka (BDT). See section 4 for the list of controls.

**Table A10: Impact on Mothers' Time Allocation by Working Status**

	Leisure & Social	Domestic Work	Work for Income	Care for Others	Travel
	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Engaged in Income Generation, 2015-19</b>					
Stipend ( $S_W$ )	-7.409 (15.629)	-3.248 (14.324)	21.684* (12.099)	7.804 (8.924)	-6.119 (4.455)
Sanderson-Windmeijer F-Stat	621.66	621.66	621.66	621.66	621.66
Mean of DV	898.36	347.41	114.99	64.06	16.73
Observations	4,406	4,406	4,406	4,406	4,406
<b>Panel B: Not engaged in Income Generation, 2015-19</b>					
Stipend ( $S_{NW}$ )	-32.964* (17.656)	18.414** (9.063)	-15.538 (20.165)	12.171* (6.631)	11.305 (10.320)
Sanderson-Windmeijer F-Stat	589.66	589.66	589.66	589.66	589.66
Mean of DV	974.93	338.23	36.63	79.61	12.99
Observations	4,032	4,032	4,032	4,032	4,032
$S_W = S_{NW}$ p-value	0.278	0.201	0.113	0.694	0.121
Controls	✓	✓	✓	✓	✓
Fixed-Effects		Household, Village × Wave			✓

Data Sources: BIHS Waves II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

All reported coefficients are 2SLS estimates. Note that mothers not engaged in income generation may still spend time behind the income generating activities on behalf of other household members but not earn an income for the work. Time for each category is reported in minutes from past 24 hours for working days. BIHS recorded time in 15 minute intervals which was grouped as follows: (1) Leisure & social: Sleeping and resting, eating and drinking, personal care, school (also homework), watching TV/listening to radio, exercising, social & religious activities; (2) Domestic work: Shopping/getting service, weaving, sewing, textile care, cooking, & domestic work; (3) Income-generating work: Work as employed, own business work, & farming/fishing; (4) Care for children/adults/elderly; and (5) Travel. See section 4 for the list of controls.

**Table A11: Impact of Gain and Loss of Stipend in Wave III on Household Food Consumption Expenditure and Dietary Diversity**

	Total Consumption												Dietary Diversity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
<b>Panel A: Gain of Stipend in Wave III, 2015-19 (2SLS)</b>													
<b>Gain Stipend</b>	0.063** (0.032)	0.133 (0.132)	0.188* (0.104)	0.150*** (0.055)	0.077** (0.033)	0.267* (0.150)	0.282* (0.156)	0.100 (0.286)	0.282** (0.124)	0.135** (0.061)	0.019 (0.090)	0.157 (0.154)	
Sanderson-Windmeijer F-Stat	663.64	663.64	663.64	663.64	663.64	663.64	663.64	663.64	663.64	663.64	663.64	663.64	
Mean of DV	7.14	4.45	2.47	4.23	4.99	2.34	1.73	1.96	4.53	3.84	5.55	5.18	
Observations	8,656	8,656	8,656	8,656	8,656	8,656	8,656	8,656	8,656	8,656	8,656	8,656	
<b>Panel B: Loss of Stipend in Wave III, 2015-2019 (2SLS)</b>													
<b>Loss Stipend</b>	-0.047** (0.020)	-0.165 (0.173)	0.002 (0.224)	-0.142** (0.061)	-0.076 (0.067)	-0.251 (0.192)	-0.255 (0.190)	-0.125 (0.113)	-0.259* (0.156)	-0.127* (0.067)	0.016 (0.103)	-0.120 (0.129)	
Sanderson-Windmeijer F-Stat	527.30	527.30	527.30	527.30	527.30	527.30	527.30	527.30	527.30	527.30	527.30	527.30	
Mean of DV	7.13	4.42	2.48	4.23	4.98	2.34	1.70	1.91	4.51	3.84	5.54	5.18	
Observations	7,966	7,966	7,966	7,966	7,966	7,966	7,966	7,966	7,966	7,966	7,966	7,966	
Gain = Lose <i>p</i> -value	0.004	0.171	0.451	0.000	0.041	0.034	0.029	0.464	0.007	0.004	0.953	0.172	
Gain = -Lose <i>p</i> -value	0.672	0.883	0.442	0.922	0.989	0.948	0.913	0.935	0.908	0.930	0.798	0.854	
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Fixed-Effects					Household, Village	Household, Village × Wave							

*Data Sources:* BHHS Waves II and III

*Notes:* \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

Outcomes in columns (1)-(11) report the log of consumption expenditure of respective category in Bangladesh Taka (BDT) in the past 7 days. "Dietary Diversity" in column (12) reports the Household Dietary Diversity Score (HDDS) based on the previous 24 hours following [Swindale and Bilinsky \(2006\)](#) but using 10 food groups. The sample in Panel A and Panel B excludes households that lose stipend and gain stipend from BHHS Wave II to Wave III, respectively. See section 4 for the list of controls.

**Table A12: Impact of Gain and Loss of Stipend in Wave III on Child's & Mothers' Health**

	Child's Health			Mother's Health
	Height for Age (z-score)	Weight for Age (z-score)	Body Mass Index (z-score)	Body Mass Index
	(1)	(2)	(3)	(4)
<b>Panel A: Gain of Stipend in Wave III</b>				
<b>Gain Stipend</b>	0.434*	0.516*	0.136	0.398*
	(0.254)	(0.281)	(0.373)	(0.228)
Sanderson-Windmeijer F-Stat	82.11	82.11	82.11	623.85
Mean of DV	-1.38	-1.35	-0.68	22.29
Observations	1,442	1,442	1,442	8,324
<b>Panel B: Loss of Stipend in Wave III</b>				
<b>Lose Stipend</b>	-0.354	-0.463	0.139	-0.253
	(0.503)	(0.630)	(0.358)	(0.256)
Sanderson-Windmeijer F-Stat	52.02	52.02	52.02	511.46
Mean of DV	-1.35	-1.33	-0.69	22.37
Observations	1,032	1,032	1,032	7,672
Gain = Lose <i>p</i> -value	0.162	0.156	0.995	0.058
Gain = -Lose <i>p</i> -value	0.887	0.939	0.595	0.672
Controls	✓	✓	✓	✓
Fixed-Effects	Household, Village × Wave			

*Data Sources:* BIHS Waves I, II and III

*Notes:* \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses. Child health outcomes in columns (1)-(3) are in standard deviations of WHO anthropometric z-scores. The sample in columns (1)-(3) consist of children aged less than 2 years in the household in each survey year for whom the data is available. The sample in Panel A and Panel B excludes households that lose stipend and gain stipend from BIHS Wave II to Wave III, respectively. See section 4 for the list of controls.



**Table A13:** Impact of Gain and Loss of Stipend in Wave III on Mothers' Employment, Asset Ownership & Savings

	Employment					Ownership & Savings				
	Earns Money	Female Income (log)	Female to Male Income	Work at Home	Joint Work Decision	Major Assets	Minor Assets	Mobile Phone	Savings (log)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
<b>Panel A: Gain of Stipend in Wave III</b>										
<b>Gain Stipend</b>	0.024 (0.067)	0.165* (0.095)	0.019 (0.038)	0.048 (0.066)	0.060* (0.033)	0.008 (0.098)	0.344* (0.182)	0.145** (0.062)	0.323 (0.546)	
Sanderson-Windmeijer F-Stat	525.98	525.98	438.47	374.49	374.49	504.87	504.87	504.87	525.98	
Mean of DV	0.65	3.55	0.14	0.74	0.97	0.47	2.93	0.49	3.70	
Observations	8,172	8,172	6,790	5,420	5,420	8,050	8,050	8,050	8,050	
<b>Panel B: Loss of Stipend in Wave III</b>										
<b>Lose Stipend</b>	-0.071 (0.072)	-0.073 (0.125)	-0.021 (0.042)	-0.052 (0.073)	-0.015 (0.037)	-0.033 (0.108)	-0.254 (0.203)	-0.109* (0.058)	-0.056 (0.604)	
Sanderson-Windmeijer F-Stat	452.23	452.23	386.08	296.67	296.67	444.50	444.50	444.50	452.23	
Mean of DV	0.65	3.57	0.14	0.74	0.98	0.48	2.93	0.49	3.66	
Observations	7,612	7,612	6,296	5,052	5,052	7,498	7,498	7,498	7,498	
Gain = Lose <i>p</i> -value	0.334	0.130	0.480	0.310	0.130	0.779	0.028	0.003	0.642	
Gain = -Lose <i>p</i> -value	0.633	0.558	0.972	0.968	0.364	0.864	0.741	0.672	0.743	
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Fixed-Effects				Household, Village × Wave						

*Data Sources:* BIHS Waves II and III

*Notes:* \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

“Earns Money” in column (1) is a positive binary response indicating that the mother earn money. “Female Income” in column (2) is the female monthly income in Bangladesh Taka (BDT). “Female to Male Income” in column (3) is a ratio of female to male monthly income. “Work at Home Only” in column (4) is a positive binary response indicating that the mother works only at home. “Joint Work Decision” in column (5) is a positive binary response indicating that the decision for the mother to work was taken solely by her or jointly with her husband. Columns (3)-(5) is available for married females. “Major Assets” in column (6) is a count variable of binary responses to the ownership of: (a) Agricultural land, (b) Farm equipment (mechanized), (c) House (and other structures), (d) Large livestock (oxen, buffalo, etc.), (e) Other land not used for agricultural purposes (including residential), and (f) Means of transportation (bicycle, rickshaw, motorcycle, car, etc.). “Minor Assets” in column (7) is a count variable of binary responses to the ownership of: (a) Small livestock (goats, sheep, etc.), (b) Poultry (chickens, ducks, turkeys, pigeons, etc.) (c) Fish pond or fishing equipment, (d) Farm equipment (non-mechanized), (e) Non-farm business equipment, and (f) Consumer durable (fridge, TV, radio, cookware, etc.). “Mobile Phone” in column (8) is a binary if the mother *solely* owns a mobile phone. “Savings” in column (9) is the log of the monetary amount saved by the mother in the past year from survey date. The sample in Panel A and Panel B excludes households that lose stipend and gain stipend from BIHS Wave II to Wave III, respectively. See section 4 for the list of controls.

**Table A14: Impact of Gain and Loss of Stipend in Wave III on Mothers' Decision-Making, Community Engagement, & Violence**

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Decision-Making Power</b>					
	Alone or joint decision on how to spend money on:				
	Food	Housing	Health	Education	Clothing
<b>Gain Stipend</b>	0.029 (0.062)	0.014 (0.066)	0.016 (0.061)	0.435*** (0.069)	0.003 (0.061)
Sanderson-Windmeijer F-Stat	432.59	432.59	432.59	432.59	432.59
Mean of DV	0.76	0.73	0.77	0.64	0.78
Observations	6,734	6,734	6,734	6,734	6,734
<b>Lose Stipend</b>	0.015 (0.069)	0.016 (0.071)	0.017 (0.067)	-0.183** (0.075)	0.032 (0.067)
Sanderson-Windmeijer F-Stat	390.20	390.20	390.20	390.20	390.20
Mean of DV	0.75	0.73	0.76	0.63	0.77
Observations	6,250	6,250	6,250	6,250	6,250
Gain = Lose <i>p</i> -value	0.880	0.984	0.991	0.000	0.749
Gain = -Lose <i>p</i> -value	0.635	0.757	0.716	0.013	0.699
<b>Panel B: Community Engagement</b>					
	Publicly speak-up to ensure payment	Publicly protest misbehavior from authority	Believe can change the community	Active member in community groups	Leader in community groups
<b>Gain Stipend</b>	0.059 (0.067)	0.087 (0.057)	0.074* (0.044)	0.134** (0.062)	0.014 (0.028)
Sanderson-Windmeijer F-Stat	535.57	535.57	535.57	535.57	535.57
Mean of DV	0.46	0.48	0.58	0.40	0.03
Observations	8,172	8,172	8,172	8,172	8,172
<b>Lose Stipend</b>	-0.087 (0.075)	-0.076 (0.076)	-0.060* (0.033)	0.003 (0.069)	-0.056 (0.040)
Sanderson-Windmeijer F-Stat	450.30	450.30	450.30	450.30	450.30
Mean of DV	0.46	0.48	0.58	0.40	0.03
Observations	7,612	7,612	7,612	7,612	7,612
Gain = Lose <i>p</i> -value	0.147	0.086	0.015	0.158	0.152
Gain = -Lose <i>p</i> -value	0.781	0.908	0.799	0.140	0.390
<b>Panel C: Intimate Partner Violence</b>					
	Physical Abuse	Verbal Abuse	Threat: Any	Threat: Divorce	Threat: Remarry
<b>Gain Stipend</b>	-0.033 (0.047)	-0.050* (0.028)	0.022 (0.032)	0.024 (0.031)	0.029 (0.028)
Sanderson-Windmeijer F-Stat	395.86	395.86	395.86	395.86	395.86
Mean of DV	0.09	0.41	0.04	0.03	0.03
Observations	6,360	6,360	6,360	6,360	6,360
<b>Lose Stipend</b>	0.021 (0.049)	0.020 (0.039)	0.012 (0.031)	0.012 (0.031)	0.014 (0.028)
Sanderson-Windmeijer F-Stat	380.43	380.43	380.43	380.43	380.43
Mean of DV	0.09	0.40	0.04	0.03	0.03
Observations	5,932	5,932	5,932	5,932	5,932
Gain = Lose <i>p</i> -value	0.426	0.145	0.822	0.784	0.705
Gain = -Lose <i>p</i> -value	0.860	0.532	0.445	0.412	0.278
Controls	✓	✓	✓	✓	✓
Fixed-Effects		Household, Village × Wave			

Data Sources: BIHS Waves II and III

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

All reported coefficients are 2SLS estimates. All outcomes are coded as positive binary responses to respective questions. The questions asked to the mothers in Panel B are as follows: “Do you feel comfortable speaking up in public to ensure proper payment of wages for public works or other similar programs (such as EGPP, FFW)?” in column (1); “Do you feel comfortable speaking up in public to protest the misbehavior of authorities or elected officials?” in column (2); “Do you feel that a woman like yourself can generally change things in the community where you live if she wants to?” in column (3); “Are you an active member of any group?” in column (4); and “Do you have a leadership position in this group?” in column (5). Intimate partner violence reported in Panel C is based on respective incidents in the past year. The sample in “Gain Stipend” and “Lose Stipend” excludes households that lose stipend and gain stipend from BIHS Wave II to Wave III, respectively. See section 4 for the list of controls.

**Table A15: Impact of Gain and Loss of Stipend in Wave III on Mothers' Time Allocation and Satisfaction**

	(1)	(2)	(3)	(4)	(5)
<b>Panel A: Time Allocation (minutes)</b>					
	Leisure & Social	Domestic Work	Work for Income	Care for Others	Travel
<b>Gain Stipend</b>	-38.586* (20.094)	37.185* (21.725)	-15.181 (18.164)	16.371* (8.703)	-2.884 (6.888)
Sanderson-Windmeijer F-Stat	458.76	458.76	458.76	458.76	458.76
Mean of DV	923.04	344.83	88.40	71.46	15.57
Observations	7,476	7,476	7,476	7,476	7,476
<b>Lose Stipend</b>	3.528 (15.447)	-17.915 (23.471)	16.698 (20.265)	-19.168 (15.065)	5.001 (7.383)
Sanderson-Windmeijer F-Stat	428.57	428.57	428.57	428.57	428.57
Mean of DV	923.52	345.55	89.76	65.99	15.70
Observations	6,946	6,946	6,946	6,946	6,946
Gain = Lose <i>p</i> -value	0.097	0.085	0.241	0.041	0.435
Gain = -Lose <i>p</i> -value	0.167	0.547	0.956	0.872	0.834
<b>Panel B: Satisfaction (scale of 1 to 10)</b>					
	Leisure Time	Household Work Distribution	Contact with Friends/Family	Important Decisions	Life Overall
<b>Gain Stipend</b>	-0.293* (0.152)	-0.278 (0.194)	0.328* (0.195)	-0.492 (0.312)	-0.261 (0.299)
Sanderson-Windmeijer F-Stat	504.87	504.87	504.87	504.87	504.87
Mean of DV	6.32	7.55	6.84	6.66	7.36
Observations	8,050	8,050	8,050	8,050	8,050
<b>Lose Stipend</b>	0.130 (0.282)	0.174 (0.219)	0.263 (0.228)	0.128 (0.240)	0.162 (0.219)
Sanderson-Windmeijer F-Stat	444.50	444.50	444.50	444.50	444.50
Mean of DV	6.35	7.57	6.86	6.65	7.36
Observations	7,498	7,498	7,498	7,498	7,498
Gain = Lose <i>p</i> -value	0.187	0.122	0.828	0.115	0.254
Gain = -Lose <i>p</i> -value	0.611	0.722	0.049	0.355	0.789
Controls	✓	✓	✓	✓	✓
Fixed-Effects		Household, Village × Wave			

*Data Sources:* BIHS Waves II and III

*Notes:* \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Standard errors clustered at the household are reported in parentheses.

All reported coefficients are 2SLS estimates. In panel A, time for each category is reported in minutes from past 24 hours for working days. BIHS recorded time in 15 minute intervals which was grouped as follows: (1) Leisure & social: Sleeping and resting, eating and drinking, personal care, school (also homework), watching TV/listening to radio, exercising, social & religious activities; (2) Domestic work: Shopping/getting service, weaving, sewing, textile care, cooking, & domestic work; (3) Income-generating work: Work as employed, own business work, & farming/fishing; (4) Care for children/adults/elderly; and (5) Travel. The questions asked to the mothers in Panel B are as follows: "How satisfied are you with the time you have to yourself to do the things you enjoy?" in column (1); "How would you rate your satisfaction with the distribution of work duties within your household?" in column (2); "How would you rate your satisfaction with your contact with friends or relatives?" in column (3); "Your power to make important decisions that change the course of your life?" in column (4); and "How would you rate your satisfaction with your life overall?" in column (5). The sample in "Gain Stipend" and "Lose Stipend" excludes households that lose stipend and gain stipend from BIHS Wave II to Wave III, respectively. See section 4 for the list of controls.