

Time-saving appliances and educational pitfalls: Evidence from South Asia

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Abstract

This study investigates whether access to time-saving appliances (TSA) aids children, especially girls in overcoming educational pitfalls, particularly during the challenging transition from primary to secondary and upper secondary schools in South Asia, marked by high dropout rates. Despite established evidence linking TSA access to increased educational enrollment, we focus on its specific impact on reducing dropout rates and their transition from one schooling level to another which is marked by the highest dropout rates. Utilizing instrumental variable methodology to address endogeneity, our findings reveal a causal relationship between owning freezers and washing machines and successful transitions for both genders. The village-level ownership of these appliances among childless families serves as a crucial instrument. Additionally, we analyze the mechanisms through which time-saving appliances influence upward transitions and assess result heterogeneity based on maternal decision-making authority, parental educational aspirations, and sibling gender composition within households. This nuanced exploration provides valuable insights for policymakers and practitioners addressing educational challenges in the region.

Keywords: Time-Saving Appliances, Time Use, Instrumental Variable, Gender, South Asia, Pakistan.

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1 Introduction

For sustainable economic growth and wellbeing, it is important to invest in human capital. In many countries, a simultaneous process of investment and growth in human capital with the economic development and growth is evident. Children are especially benefited by this process. When families' incomes and earnings rise, they invest in various household appliances that provides opportunities to replace children's labor in household chores. When youngsters spend less time helping out around the house, they have more time to invest in their own personal capital by going to school and progressing towards higher grades.

In this paper, we examine whether the use of time-saving appliances (TSA) help reduce the dropout rate of students, particularly girls, specifically focusing on the challenging transition from primary to secondary and upper secondary schools in Pakistan. This is an important question considering Pakistan holds the distinction of having the second-highest count of out-of-school children globally. According to Pakistan Institute of Development Economics, approximately 22.8 million children aged 5 to 16 in the country are not enrolled in schools, constituting 44% of the total population within this age range (Yousafzai, 2022). Having access to the time-saving appliances can help reduce the time spend on house chores especially for females. For instance, in a study conducted by Greenwood, Seshadri, and Yorukoglu (2005), it was discovered that technological advancements in household production, such as the introduction of washing machines and refrigeration, led to time savings in domestic chores. This, in turn, resulted in an augmentation of women's labor force participation in developed nations.

This study leverages data from The Pakistan Rural Household Panel Survey conducted over three rounds spanning from 2012 to 2014. Our primary objective is to examine the impact of time-saving appliances (TSA) on facilitating girls' resilience against educational challenges, specifically during the intricate transition from primary to secondary and upper secondary schools in South Asia—a phase known for its formidable difficulties and pronounced dropout rates. This research contributes valuable insights into the potential role of TSA in enhancing educational outcomes and addressing critical issues within the regional context. First, we use the OLS to estimate the impact of TSA on the time that children spent on housework, unpaid work and dropout rates controlling for a large set of individual and household characteristics. Besides, we also estimate the impact of TSA on the education transition from Primary to lower secondary, from lower secondary to secondary and from secondary to upper secondary. Recognizing that the estimate for TSA may suffer from the omitted variable bias, we instrument appliance ownership of households with children using appliance ownership of households without children. We control for community level characteristics in addition to the tehsil fixed effects to ensure that our instrument is conditionally uncorrelated with village level geographical differences that may affect individual education outcome independently.

Our paper contributes to literature in the following ways. First, to our best knowledge, ours is the first paper that looks at the impact of TSA on the dropout rate using nationally representative

household survey data. As previously stated, the extant body of literature has predominantly concentrated on delineating the positive correlation between accessibility to time-saving appliances and heightened rates of educational enrollment. However, a crucial inquiry remains relatively unexplored: whether such accessibility acts as a mitigating factor for dropout rates, specifically while transitioning from schooling level to another. This study endeavors to address this imperative question, contributing valuable insights to the existing discourse on the intersection of domestic technology, educational participation, and gender dynamics.

The study's findings, as revealed through Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) analyses, provide valuable insights into the impact of household appliances on educational outcomes. In the OLS framework, owning a washing machine emerges as a significant factor in reducing dropout rates and promoting smooth transitions between different school levels, with a pronounced effect on girls. Freezer ownership, while reducing dropout rates, does not show a significant impact on transitions. However, owning a fridge proves beneficial in reducing dropout rates for both genders and facilitating transitions, particularly for girls moving from primary to lower-secondary and lower-secondary to secondary levels. The collective ownership of any appliances consistently contributes to the reduction in dropout rates, with substantial positive effects on girls. The 2SLS results further emphasize the positive influence of washing machines and freezers on facilitating transitions, especially for boys and girls, respectively. Refrigerator ownership is associated with a reduction in dropout rates, while overall appliance ownership continues to exhibit a positive impact on reducing dropouts and facilitating transitions from primary to secondary education for both genders.

The subsequent sections of this paper are structured as follows: Section 2 reviews the literature. Section 3 delves into the empirical methodology employed, Section 4 provides a comprehensive description of the data utilized, Section 5 elucidates the presented results, and Section 6 offers the concluding remarks.

2 Literature Review

The rationale underpinning the adoption of time-saving appliances predominantly revolves around optimizing time allocation and augmenting women's participation in the labor force. However, the scholarly exploration of the repercussions on children's outcomes, especially within developing country contexts, has been relatively understated. In these settings, children typically allocate substantial time to household production. As household incomes rise, the prospect of substituting children's and female labor with household capital becomes apparent (Kerr, 2019). Tewari and Wang (2021) notably identify an increased likelihood of women's engagement in the labor force in households equipped with time-saving durable goods.

A notable body of literature directs its focus on the analysis of time-saving appliances' impact on female labor force participation. Cavalcanti and Tavares (2008) establish a positive correlation between a reduction in the relative price of appliances and a consequent increase in participation. Coen-Pirani, León, and Lugauer (2010) attribute a substantial portion of the surge in married

women's labor force participation rates during the 1960s to the diffusion of household appliances, as evidenced by US census data. Conversely, [Cardia \(2010\)](#) presents contrasting findings, challenging the significance of durables in contributing substantially to women's labor force participation. [Tewari and Wang \(2021\)](#) analysis of the Chinese government's Home Appliances (Going) to the Countryside (HAGC) rebate program unveils the "engines of liberation" hypothesis. This hypothesis posits that appliance adoption not only reduces housework but also stimulates an increase in market labor supply, particularly among rural Chinese women.

Another facet of the literature delves into the influence of time-saving household appliances on children's outcomes. [Kerr \(2019\)](#) investigates the impact on children aged 12 to 18, revealing a positive correlation between ownership of time-saving appliances and improved outcomes. These effects manifest as a decrease in time devoted to household work, an increase in school enrollment rates, and a reduction in labor force participation. Notably, gender stratification highlights more pronounced effects among females.

To mitigate endogeneity concerns, studies, such as [Kerr \(2019\)](#), employ innovative methodologies, instrumenting household ownership of time-saving appliances using the average ownership rate among childless households and two family-specific time-using household assets in the same community. These studies carry significant implications for gender equality and women's empowerment, aligning with United Nations' priorities for developing countries. By emphasizing the potential of time-saving technologies to alleviate household responsibilities, particularly for girls, these studies provide a novel perspective on enhancing educational opportunities for children, standing as pioneering efforts in estimating the impact of time-saving technologies on child outcomes.

[Coen-Pirani et al. \(2010\)](#) explores the impact of household appliance ownership on the labor force participation rate of married women, drawing on micro-level data from the 1960 and 1970 U.S. Censuses. Rigorous empirical strategies leverage both time-series and cross-sectional variations in household appliance ownership and women's labor force participation rates. To address endogeneity concerns, the study instruments a married woman's appliance ownership using the average ownership rate among single women in the same U.S. state. Despite the lack of an increase in single women's labor force participation rates between 1960 and 1970, the findings robustly support the hypothesis that the diffusion of household appliances played a significant role in driving the upsurge in married women's labor force participation during the 1960s.

In a comprehensive study of 36,480 Vietnamese households, [Vu \(2019\)](#) investigates the gender gap in unpaid housework between wives and husbands. Despite considering various factors, the gender gap remains persistent. Notably, the presence of home appliances, such as gas cookers, correlates with an increased gender gap in time spent on housework, suggesting a lower likelihood of husbands participating in housework, possibly influenced by shifting gender values.

[Bittman, Rice, and Wajcman \(2004\)](#) utilize the 1997 Australian Time Use Survey dataset, employing a hybrid of Tobit and Ordinary Least Squares (OLS) regression models to scrutinize

the nexus between domestic technology and the temporal allocation to household responsibilities. The empirical scrutiny discerns that domestic technology demonstrates restrained efficacy in mitigating women's unpaid labor hours. Paradoxically, it engenders certain increments in domestic labor demands. These findings underscore the enduring resistance of the gendered domestic labor division to technological progress, constituting a noteworthy observation warranting consideration within the broader discourse on the intersection of technology and labor dynamics in household contexts.

However, prevailing empirical analyses in existing literature are limited to the enrollment rate of children in education and overlook dropout rates by using panel data sets in Pakistan. Addressing this gap in the literature, the current study aims to provide a comprehensive examination of the impact of time-saving technologies on both enrollment and dropout rates of children, contributing valuable insights to the economic discourse on the intersection of technology, labor dynamics, and educational outcomes within household contexts.

3 Methodology

This study utilizes comprehensive longitudinal data from The Pakistan Rural Household Panel Survey conducted over three consecutive periods from 2012 to 2014 to estimate the model and investigate the influence of time-saving appliances (TSA) in promoting children's ability to withstand educational obstacles, particularly during the complex transition from primary to secondary and upper secondary schools in South Asia—a stage renowned for its significant challenges and high rates of dropouts. Two main outcomes are targeted in this study, one, dropout rates, and two, transition. Dropout rate is defined as the binary variable that takes the value of '1' if any school aged children stopped going to school during the survey rounds, or '0' otherwise. Transition is also a dummy variable that takes the value of '1' if any school aged children progressed to the next level during the survey rounds, or '0' otherwise. Beside this combined transition variable, there are three separate transition variables are also constructed. These variables are transition from - (i) primary to lower secondary, (ii) lower secondary to secondary and (iii) secondary to upper secondary.

The following expression illustrates the connection between these outcome variables and appliance ownership:

$$Y_{ict} = \beta_0 + \beta_1 TSA_{ict} + X_{ict}\beta_2 + \pi_{tehsil} + \tau_{time} + \varepsilon_{ict} \dots \dots \dots (\text{Eq. 1})$$

where TSA_{ict} is a dummy variable that indicates whether a person i living in community c in survey year t owns any time-saving appliances – washing machine, freezer, refrigerator or anyone of these three – at the time of the survey. The critical parameter, β_1 , quantifies the extent to which appliance ownership affects the outcome variables. We estimate each of the five Y_{ict} representations independently in the empirical analysis, namely (i) dropout rates, (ii) primary to lower secondary, (iii) lower secondary to secondary, (iv) secondary to upper secondary, and (v) transition. Furthermore, in order to examine the heterogenous impact for each TSA, we estimate the model multiple separately for each of the four dependent variables, substituting the variable

representing TSA_{ict} with one that indicates washing machine ownership, freezer ownership, refrigerator ownership, or any of these three appliances ownership. In the data set, the two most common time-saving appliance purchases are washing machines and refrigerators.

X_{ict} is a vector of individual, and household control variables that could have an impact on child outcomes. Individual controls consist of female, age in years, age squared, birth order, and school stipend. No of siblings, household size, multigeneration household, durable assets (ln), monthly energy cost, monthly food cost, monthly goods & services cost, father's age, father's education, father's work dummy, mother's age, mother's education, and mother's work dummy are examples of household controls. These controls are employed in this analysis help to reduce disparities in the ability and desire to educate children and acquire appliances at the household level. Besides, for this study, households with electricity connection and access to water supplies are only considered as TSA ownership needs these prerequisites.

Furthermore, [Eq. 1](#) are appended to latent fixed effects for the Tehsil (i.e., A tehsil is the second level of administrative division in Pakistan's local government system.) of residence, π_{tehsil} , where the subscript denotes the Tehsil in which the household's community is located, and the survey year, denoted τ_{time} . The Tehsil fixed effect is used to account for unmeasured regional variations that remain constant throughout the survey's three waves. The year fixed effect accounts for unmeasured macro and pervasive disturbances that could potentially impact the dependent variable, such as market reforms for income generating activities (IGAs), macroeconomic growth, and internal changes like infrastructure advancements. Finally, it is assumed that the random error term ε_{ict} has zero mean and constant variance after accounting for the fixed effects.

The potential correlation between appliance ownership and unobserved factors that impact children's educational progress is a concern when estimating [Eq. 1](#). [Coen-Pirani et al. \(2010\)](#) acknowledge this issue and elucidate possible biases that may arise when examining the impact of appliance ownership on female labor force participation using ordinary least squares (OLS). A modified form of their logic pertains in our analysis: (1) households with school-age children are more likely to purchase household appliances due to the extended utility from them; or (2) households with a strong preference for home-produced goods may make significant investments in both household work and appliances. These unreported parental preferences may also influence children's investment in human capital. In other words, if parents have an intense preference towards specific outcomes for their children and believe that possessing time-saving equipment will relieve their children from home tasks, they may choose to invest in both education and appliances. Conversely, if parents purchase equipment for reasons other than reducing their child's domestic tasks, there may be a presence of negative selection bias.

In this study, concerns for reverse causality are low but cannot be excluded completely. Given the length of time between each wave, one plausible explanation for the direction of causation is that households first buy time-saving appliances and then enroll their kids in school as a result of the reduction in time needed to complete household tasks. Alternatively, if the child

is originally enrolled in school, the family may subsequently opt to purchase a time-saving gadget due to the fact that school commitments reduce the child's availability for home duties.

Although these challenges can be lessened by accounting for variables like parental and community characteristics, which measure parental preferences and availability in the community, there is still a chance that other unobservable could skew OLS results. In order to tackle this problem, we employ two-staged least squares (2SLS) estimation in order to address possible endogeneity sources. To determine the causal relationship between owning a time-saving appliance and child outcomes, we employ an instrumental variable (IV) strategy as part of this approach. The instrument must have an impact on the potentially endogenous variable (having a time-saving appliance in the home) but not directly affect the dependent variable (dropout rate or transition) in order to be considered valid. [Coen-Pirani et al. \(2010\)](#) measured a married woman's appliance ownership by comparing her ownership rate to the average of single women residing in the same U.S. state. This allowed them to ascertain the impact of home appliance ownership on married women's labor force participation. Observed temporal and cross-section variation in single women's ownership of home appliances is driven by the (unobserved) appliance costs rather than by changes in women's labor force participation rates, they argue, since labor force participation among single women did not increase during the time period used in their sample.

This study uses appliance ownership of households without children as a proxy for appliance ownership of households with children that live in the same community by using an IV strategy similar to that used by [Coen-Pirani et al. \(2010\)](#) and [Kerr \(2019\)](#). The underlying premise is that childless households do not base their purchases on a desire to change the amount of time a child spends doing household chores. As a result, changes in ownership rates for childless households cannot be linked to changes in child outcomes, as they do not face the same trade-off decisions regarding child outcomes and appliance ownership as households with children. We determine the average number of appliances owned by households without children in each community. The average washing machine ownership in the community for households without children and for households with at least one child between the ages of 5 and 18 is shown in Panel A, [Figure 1](#). The same association between freezer ownership is shown in Panel B, [Figure 1](#) and refrigerator ownership is shown in Panel C, [Figure 1](#). All these three groups' ownership seems to follow a similar pattern. These groups' similar trends imply that TSA ownership in childless households did not change in a way that was distinct from that of households with children. Regardless of whether the equation is referring to washing machine, freezer or refrigerator, the figures seem to confirm that the instruments display a temporal pattern that is consistent with the appliance ownership variable in [Eq. 1](#).

For the IV estimation, it is defined that household appliance ownership in the instrumented version of the model as a function of community ownership:

$$TSA_{ict} = \alpha_0 + \alpha_1 avg_TSA_{ct} + X_{ict}\alpha_2 + \pi_{tehsil} + \tau_{time} + \xi_{ict} \dots \dots \dots (Eq. 2)$$

where, as described above, avg_TSA_{ct} is the average appliance ownership for households with no children living in community c in year t , and X_{ict} is the vector of controls from Eq. 1. While the instrument avg_TSA_{ct} varies at the community and year levels, the dependent variable TSA_{ict} is specific to a household. Stage one of the 2SLS procedure uses this IV approach to estimate Eq. 2 in order to determine the instrument's strength and obtain fitted values for the dependent variable. In the second stage, the fitted value of the regressor replaces the TSA_{ict} on the right-side of Eq. 1 to estimate the impact of time-saving appliances ownership. Therefore, the relationship between owning a time-saving appliance and the outcomes of children can be formalized as –

$$Y_{ict} = \beta_0 + \beta_1 TSA_{ict} + X_{ict}\beta_2 + \pi_{tehsil} + \tau_{time} + \varepsilon_{ict} \dots \dots \dots (Eq. 3)$$

where TSA_{ict} is the fitted value from stage one. Since average ownership for households with no children is a continuous instrument, we are calculating the average marginal treatment effect on child outcomes of residing in a home with a time-saving appliance.

4 Data and Descriptive Statistics

4.1 Pakistan Rural Household Panel Survey 2012-14

In this study, we are using Pakistan Rural Household Panel Survey (PRHPS) 2012-2014 collected by International Food Policy Research Institute (IFPRI) (IFPRI, 2017; IFPRI & IDS, 2014, 2016)¹. PRHPS is a nationally representative survey encompassing 76 rural villages from all four provinces in Pakistan. It includes a total of 2,090 households, however, since we are only interested in the outcomes of children, we restrict our sample to the households that have children age 5-18 years that brings down the sample to 1592 households and 4818 individuals in Round 1, 1574 households and 4844 individuals in Round 1, and 1534 households and 4727 individuals in Round 3. The survey includes individual, household and community level data. In addition, it also collects the time use data in the household work for women and children.

4.2 Descriptive Statistics

Table 1 gives the summary statistics for individual and household level characteristics with and without the time saving appliance. Table 1, Panel A gives the summary statistics for household with and without washing machine. Our sample includes children that are 11 years old on average, half of whom are girls, living in a household of 7 members on average with approximately four siblings and 77 percent of the sample's fathers are employer and 31 percent of the mothers are employed. The sample with washing machine differs from the household without washing machine on two factors, they have higher probability of attending school (89 vs 60 percentage) and they have higher indicators of wealth and savings. A similar pattern is observed in Panel B for household with and without freezers, Panel C for households with and without refrigerators and

¹ This dataset has been used in several academic papers including Kosec and Mo (2017), Ghorpade and Justino (2019), and Saleemi and Kofol (2020).

Panel D with or without any of the time saving appliances. Overall, the only concern that is highlighted and could be causing endogeneity in simple regression is the wealth indicators. We expect the household owning the time saving appliances are wealthier and therefore have more resources to afford higher educational attainment compared to households without time saving appliances.

Table 2 further examines the time allocated to household work by children in various households' chores, unpaid productive work and paid productive work by ownership of time saving appliances. Overall, we see that children are allocating time for household chores though they are more of helping hand to mothers who spend on average spend 5-6 hours per day in household reproductive work. However, there isn't a significant difference for children's time allocation in household work with and without time saving appliance.

5 Results

We examine the primary research question using both ordinary least squares and two stage least squares (2SLS) method. While ordinary least squares are not causal, they are important in assessing the 2SLS method. Further, to examine gender heterogeneity, we run separate regression for boys and girls in addition to the full sample regression. We separately examine the impact of ownership of three time-saving appliances, namely, washing machine, refrigerator and freezer. All three appliances have a common feature of saving time in household chores. Since a large sample of children are engaged in household production, we expect that the ownership of time saving appliances would reduce the dropout rate from schools, or increase the probability of their transition from one level of schooling to another. In all estimations of the models, we control of unobserved regional differences by having tehsil level fixed effects, unmeasured temporal effects by including round fixed effect and clustering the standard errors at the village level.

5.1 Ordinary Least Squares Estimation

Table 3 presents the OLS estimates of Equation 1 with appliance ownership defined as ownership of washing machine by the household. The sample is restricted to the children age 5-18 years, living in households who have access to onsite water and electricity. The dependent variables are the dropout rates, transition from one level of schooling to the next (primary to lower secondary, lower secondary to secondary and secondary to upper secondary). For the transition variables, it is only defined for the children who are on the exit/entry year of any level of schooling. For each dependent variable, first columns give the results for the pooled sample and then disaggregated by gender, boys and girls. Column 1 indicate that access to washing machine has a statistically significant impact on dropout rate. It reduces the dropout rate by 6 percentage points (pp), which is equally driven by both boys and girls (5 vs. 6 pp). Column 4-6 present results for the transition from primary to lower secondary. Access to washing machine increases the probability of successful transition by 5 pp for the full sample but the impact is driven by girls as the impact for boys is statistically insignificant in column 5. For girls, owning washing machine increases the probability of girls transitioning to lower secondary by 6 pp. However, access to

washing machine does not impact the transition from lower secondary to secondary or from secondary to upper secondary. However, when we aggregate the sample for any kind of transition, the estimates in column 13-15 states that access to washing machine increases the probability of transition of for both boys and girls.

Next, we move to another time-saving appliance, freezer and its impact on dropout rate and transition rates. [Table 4](#) presents the OLS estimates for the ownership of freezer. While freezer has a similar impact on the dropout rate for both boys and girls, it has no effect on the transition rate at any schooling level.

Lastly, we examine the impact of ownership of refrigerator on dropout rate and transition rates. [Table 5](#) presents the estimates indicating that access to refrigerator reduces the dropout rates by 5 pp and the magnitude of the impact is larger for girls compared to men (7 vs 4 pp). However, it increases probability of transition from primary to lower secondary schooling for girls only by 4 pp but has no significant impact for boys or the full sample. Similarly, as shown in column 7-9, the probability of transition from lower secondary to secondary increases only for girls by 9 pp but has no significant impact for boys or the pooled regression. Interestingly, column 10-12 indicate that the probability of transition from secondary to upper secondary increases for only the boys by 8 pp with no significant impact on girls. Column 13-15 present the results for the ownership of refrigerator on any kind of transition, we find that overall, the impact on transition is larger for girls, compared to boys (5 vs 2 pp) and is only statistically significant for girls.

In nutshell, when combining the data, the impact of having any time-saving appliance in the household is estimated in [Table 6](#). Note that ownership of any time-saving appliance (TSA) is associated with 8 pp reduction in dropout rate, where the magnitude is larger for girls compared to boys (10 vs 6 pp). Moreover, we see that the ownership of TSA can increase the transition rates from primary to lower secondary by 4 pp, primarily driven by girls with an effect of 5 pp. Similarly, the with access to TSA, increase in transition from lower secondary to secondary level is 11 pp for girls and 7 pp for the full sample but it is statistically insignificant for boys. We even find an impact on the transition from secondary to upper secondary here of 7 pp while the effect is statistically insignificant for both boys and girls separately. Overall, access to TSA increases the probability of not dropping out while transitioning from one schooling level to another by 7 pp for girls and 3 pp for the full sample.

5.2 Instrumental Variable Estimation

The instrumental variable (IV) two stage estimation begins with first stage as outline in equation 2 to examine the strength of the IV. We separately create an IV for each of the time-saving appliance. [Table 7](#) gives the first regression where we can see that the IV is strongly correlated with the endogenous variable when for dropout rates and the transition for primary to lower secondary schooling level. [Table 8](#) gives the 2SLS estimates for washing machine, indicating that washing machine has no impact on dropout rates but, as shown in column 4-6, increases the probability of transitioning from primary to lower secondary schooling level by a much larger

magnitude, 65 pp that interestingly in this case is driven by boys who have an impact of 85 pp. There is no significant impact on transition for lower secondary and secondary schooling levels. Overall, access to washing machine increases the probability of successful transition at any schooling level by 56 pp for the full sample and 65 pp for boys.

Moving on the next time saving appliance, now we examine the impact of freezer on dropout and transition rates using 2SLS estimation method. [Table 9](#) gives the first stage results and [Table 10](#) presents the second stage estimation. Similar to washing machine, freezer also has no impact on dropout rates, but, as shown in column 4-6, it increases the probability of successful transition from primary to secondary level for the full sample by 29 pp, which is primarily driven by girls with an effect of 43 pp. There is no significant impact on the transition from lower secondary or secondary schooling level. Therefore, the impact on transition from any kind of schooling level, given in column 13-15, is 23 pp for the full sample and 32 pp for girls. The impact is statistically insignificant for boys.

Our last TSA, refrigerator's estimation results are presented in [Table 11](#) and [Table 12](#). [Table 12](#) indicates that refrigerator has no impact on any kind of transition yet it reduces the dropout rates by 16 pp as shown in column 1. Finally, [Table 14](#) gives the second stage for the households with any time saving appliance and we find in column 1-3 that it reduces the dropout rates by 30 pp which is primarily driven by girls with an impact of 49 pp and boys have no significant impact. Therefore, we may conclude that the time saving appliances can reduce the dropout rates, especially for girls. Further we examine that access to time saving appliances boosts the probability of successful transition from primary to secondary schooling by 76 pp (presented in column 4-6), for boys by 89 pp and for girls by 67 pp. However, access to time saving appliances have no significant impact on transition rates from lower secondary or secondary schooling level.

6 Conclusion

In conclusion, this study underscores the significant role of time-saving appliances (TSAs), particularly washing machines and refrigerators, in mitigating dropout rates and bolstering smooth transitions across various educational levels in Pakistan. This is an important question considering Pakistan holds the distinction of having the second-highest count of out-of-school children globally and we record highest dropout rates after completing a schooling level for various reasons.

This study leverages data from The Pakistan Rural Household Panel Survey conducted over three rounds spanning from 2012 to 2014. Our primary objective is to examine the impact of time-saving appliances (TSA) on facilitating girls' resilience against educational challenges, specifically during the intricate transition from primary to secondary and upper secondary schools in South Asia—a phase known for its formidable difficulties and pronounced dropout rates. This research contributes valuable insights into the potential role of TSA in enhancing educational outcomes and addressing critical issues within the regional context.

Recognizing that the estimate for TSA may suffer from the omitted variable bias and endogeneity issues, we instrument appliance ownership of households with children using appliance ownership of households without children. The underlying premise is that childless households do not base their purchases on a desire to change the amount of time a child spends doing household chores. As a result, changes in ownership rates for childless households cannot be linked to changes in child outcomes, as they do not face the same trade-off decisions regarding child outcomes and appliance ownership as households with children.

In the OLS framework, owning a washing machine emerges as a significant factor in reducing dropout rates and promoting smooth transitions between different school levels, with a pronounced effect on girls. Freezer ownership, while reducing dropout rates, does not show a significant impact on transitions. However, owning a fridge proves beneficial in reducing dropout rates for both genders and facilitating transitions, particularly for girls moving from primary to lower-secondary and lower-secondary to secondary levels. The collective ownership of any appliances consistently contributes to the reduction in dropout rates, with substantial positive effects on girls. The 2SLS results further emphasize the positive influence of washing machines and freezers on facilitating transitions, especially for boys and girls, respectively. Refrigerator ownership is associated with a reduction in dropout rates, while overall appliance ownership continues to exhibit a positive impact on reducing dropouts and facilitating transitions from primary to secondary education for both genders.

As policy recommendations, it is crucial for educational policymakers in Pakistan to consider interventions that facilitate access to these TSAs, especially for households with school-going children, as they demonstrate a substantial positive impact on reducing dropout rates, particularly among girls. Supporting initiatives aimed at increasing the availability and affordability of these time-saving appliances could significantly contribute to improving educational continuity and fostering academic progression, thereby addressing the prevalent challenge of high dropout rates in Pakistan's education system.

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Figures and Tables

Figure 1. Time saving appliances ownership in households with and without children

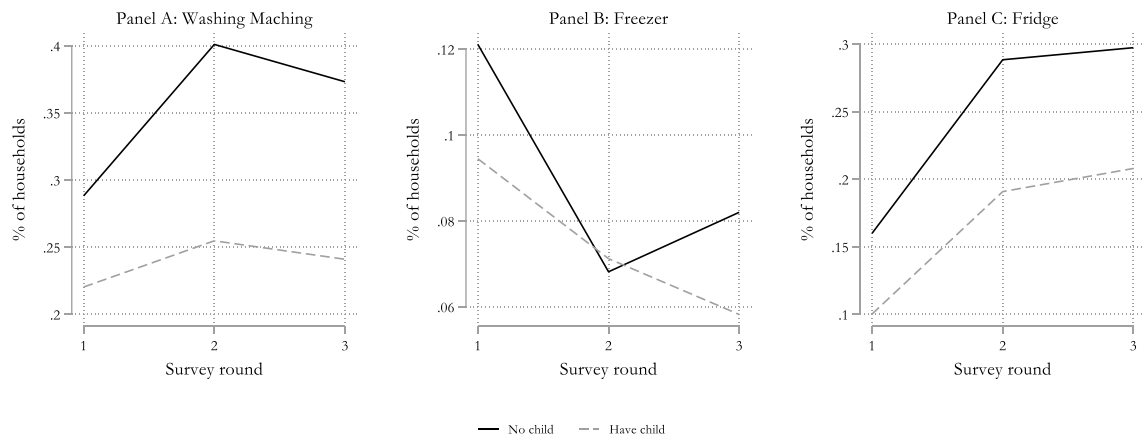


Table 1. Summary statistics.

Variable	Owns time saving appliances			Does not own time saving appliances		
	Mean	Std. dev	N	Mean	Std. dev	N
Panel A: Washing Machine						
Female	0.49	0.50	2795	0.48	0.50	10392
Age in years	11.60	4.10	2795	10.94	3.93	10392
Ever attended to school	0.89	0.31	2748	0.60	0.49	10242
Number of siblings	3.79	1.94	1345	3.83	2.04	4160
Father's age	50.28	14.15	1366	46.19	13.92	4292
Father's work dummy	0.77	0.41	1420	0.77	0.41	4548
Mother's age	46.99	13.66	1384	42.75	13.68	4343
Mother's work dummy	0.31	0.41	1420	0.30	0.42	4548
Household size	7.57	3.60	1420	6.60	3.00	4548
Household saving	79928.65	166826.33	374	28266.99	107688.46	580
Durable asset value	2584352.42	7404628.01	1420	680016.99	2077481.48	4481
Muslim	1.00	0.03	1420	0.97	0.18	4548
Panel B: Freezer						
Female	0.48	0.50	873	0.48	0.50	12314
Age in years	11.68	4.07	873	11.04	3.96	12314
Ever attended to school	0.87	0.33	861	0.65	0.48	12129
Number of siblings	3.91	1.93	370	3.81	2.02	5135
Father's age	50.40	13.06	372	46.95	14.13	5286
Father's work dummy	0.85	0.35	393	0.77	0.41	5575
Mother's age	47.03	13.83	379	43.55	13.77	5348
Mother's work dummy	0.31	0.42	393	0.30	0.42	5575
Household size	7.89	3.75	393	6.76	3.12	5575
Household saving	94362.07	215812.85	116	42174.43	120079.21	838
Durable asset value	2873377.98	7022133.32	393	1014469.69	3822135.36	5508
Muslim	0.99	0.11	393	0.97	0.16	5575
Panel C: Refrigerator						
Female	0.49	0.50	1970	0.48	0.50	11217
Age in years	11.79	4.08	1970	10.96	3.94	11217
Ever attended to school	0.91	0.29	1936	0.62	0.49	11054
Number of siblings	3.78	1.96	937	3.83	2.02	4568
Father's age	51.62	13.90	950	46.28	13.95	4708
Father's work dummy	0.78	0.40	983	0.77	0.41	4985
Mother's age	48.12	13.02	966	42.90	13.78	4761
Mother's work dummy	0.36	0.41	983	0.29	0.42	4985
Household size	7.77	3.94	983	6.65	2.98	4985
Household saving	85959.02	185036.37	290	32168.76	104379.58	664
Durable asset value	3187796.37	8247355.68	983	728615.85	2441025.01	4918
Muslim	1.00	0.05	983	0.97	0.17	4985
Panel D: Any appliance						
Female	0.49	0.50	3882	0.47	0.50	9305
Age in years	11.66	4.08	3882	10.84	3.90	9305
Ever attended to school	0.88	0.33	3822	0.57	0.49	9168
Number of siblings	3.81	1.95	1793	3.82	2.04	3712
Father's age	50.50	13.97	1817	45.61	13.86	3841
Father's work dummy	0.80	0.39	1886	0.76	0.42	4082
Mother's age	47.04	13.46	1841	42.23	13.68	3886
Mother's work dummy	0.33	0.41	1886	0.29	0.42	4082
Household size	7.60	3.64	1886	6.48	2.87	4082
Household saving	78394.16	178373.71	494	16437.95	49002.53	460
Durable asset value	2475928.10	6753915.49	1886	509921.84	1586455.05	4015
Muslim	1.00	0.07	1886	0.97	0.18	4082

Table 2. Summary statistics of time use (household chores per day in hours).

Variable	Owns time saving appliances			Does not own time saving appliances		
	Mean	Std. dev	N	Mean	Std. dev	N
Panel A: Washing Machine						
Cooking time	0.15	0.49	2387	0.17	0.56	9173
Cleaning utensils	0.16	0.46	2387	0.18	0.45	9173
Cleaning time	0.22	0.57	2387	0.22	0.59	9173
Cloth washing	0.07	0.21	2387	0.10	0.31	9173
Caring others	0.17	0.65	2387	0.21	0.69	9173
Household chores time of children	0.71	1.68	2795	0.92	2.00	10392
Unpaid work time	0.05	0.34	2795	0.14	0.57	10392
Paid work time	0.02	0.29	2795	0.15	0.89	10392
Mothers' time in household chores	5.93	3.78	2724	6.65	4.04	10114
Panel B: Freezer						
Cooking time	0.18	0.54	744	0.17	0.55	10816
Cleaning utensils	0.18	0.52	744	0.17	0.45	10816
Cleaning time	0.21	0.60	744	0.22	0.58	10816
Cloth washing	0.09	0.26	744	0.09	0.29	10816
Caring others	0.18	0.65	744	0.20	0.69	10816
Household chores time of children	0.83	1.96	873	0.88	1.94	12314
Unpaid work time	0.09	0.42	873	0.12	0.54	12314
Paid work time	0.08	0.68	873	0.12	0.81	12314
Mothers' time in household chores	6.02	4.22	838	6.53	3.98	12000
Panel C: Refrigerator						
Cooking time	0.14	0.47	1684	0.17	0.56	9876
Cleaning utensils	0.15	0.40	1684	0.18	0.46	9876
Cleaning time	0.23	0.57	1684	0.22	0.59	9876
Cloth washing	0.08	0.22	1684	0.09	0.30	9876
Caring others	0.16	0.58	1684	0.21	0.70	9876
Household chores time of children	0.71	1.62	1970	0.90	1.99	11217
Unpaid work time	0.07	0.39	1970	0.13	0.56	11217
Paid work time	0.04	0.45	1970	0.13	0.85	11217
Mothers' time in household chores	5.76	3.74	1924	6.62	4.03	10914
Panel D: Any appliance						
Cooking time	0.16	0.51	3324	0.17	0.56	8236
Cleaning utensils	0.17	0.46	3324	0.18	0.45	8236
Cleaning time	0.23	0.58	3324	0.22	0.59	8236
Cloth washing	0.08	0.24	3324	0.10	0.31	8236
Caring others	0.18	0.65	3324	0.21	0.70	8236
Household chores time of children	0.76	1.76	3882	0.92	2.01	9305
Unpaid work time	0.07	0.40	3882	0.14	0.58	9305
Paid work time	0.04	0.48	3882	0.15	0.90	9305
Mothers' time in household chores	5.93	3.83	3774	6.73	4.04	9064

Table 3. OLS: effect of living in a household that owns washing machine.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Own washing machine	-0.06*** (0.02)	-0.05*** (0.02)	-0.06** (0.02)	0.05** (0.02)	0.04 (0.02)	0.06** (0.02)	0.06 (0.04)	0.07 (0.04)	0.05 (0.06)	0.05 (0.03)	0.04 (0.04)	0.08 (0.07)	0.05*** (0.02)	0.04* (0.02)	0.06*** (0.02)
Female	0.16*** (0.02)			-0.03*** (0.01)			-0.03 (0.03)			0.03 (0.03)			-0.03*** (0.01)		
Age in years	-0.13*** (0.01)	-0.16*** (0.01)	-0.10*** (0.01)	-0.05*** (0.02)	-0.05*** (0.02)	-0.04* (0.02)	-0.01 (0.06)	-0.07 (0.07)	0.15 (0.12)	-0.21* (0.12)	-0.16 (0.14)	-0.24 (0.29)	0.02 (0.01)	0.03** (0.01)	-0.01 (0.02)
Age squared	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.00** (0.00)	0.01*** (0.00)	-0.00 (0.00)	0.01** (0.00)	0.01* (0.00)	0.01 (0.01)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
No of siblings	-0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	-0.00 (0.02)	0.00 (0.01)	0.01 (0.02)	-0.02 (0.03)	-0.01 (0.00)	-0.01 (0.01)	-0.00 (0.01)
Birth order	0.01 (0.00)	0.01* (0.01)	-0.00 (0.01)	0.00 (0.00)	0.00 (0.01)	0.00 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.00 (0.02)	0.01 (0.01)	-0.01 (0.02)	0.06** (0.02)	0.00 (0.00)	0.00 (0.01)	0.00 (0.01)
Stipend	-0.48*** (0.02)	-0.36*** (0.02)	-0.49*** (0.02)	0.04** (0.02)	-0.00 (0.01)	0.05** (0.02)	-0.01 (0.04)	0.04 (0.04)	-0.01 (0.05)	-0.19*** (0.05)	-0.15*** (0.05)	-0.19*** (0.05)	0.04** (0.02)	-0.00 (0.01)	0.05** (0.02)
Household size	0.01 (0.00)	0.01 (0.00)	0.02*** (0.01)	-0.01** (0.00)	-0.01*** (0.00)	-0.00 (0.00)	-0.01* (0.01)	-0.01 (0.01)	0.00 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.02)	-0.01*** (0.00)	-0.01*** (0.00)	-0.01 (0.00)
Multigeneration HH	0.01 (0.02)	0.00 (0.02)	0.01 (0.02)	-0.01 (0.02)	0.00 (0.02)	-0.01 (0.03)	-0.03 (0.04)	-0.02 (0.05)	-0.08 (0.06)	0.04 (0.05)	0.02 (0.06)	0.03 (0.10)	-0.01 (0.02)	-0.00 (0.02)	-0.01 (0.03)
Durable assets (ln)	-0.03*** (0.00)	-0.03*** (0.00)	-0.03*** (0.01)	0.01 (0.00)	0.00 (0.00)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.02 (0.01)	-0.00 (0.01)	0.01 (0.01)	-0.02 (0.01)	0.01* (0.00)	0.00 (0.00)	0.01* (0.01)
Monthly energy cost	-0.00 (0.00)	-0.00** (0.00)	-0.00*** (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00** (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
Monthly food cost	-0.00* (0.00)	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00** (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
Monthly goods & services cost	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
Father's age	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00* (0.00)	0.00*** (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.01 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00** (0.00)
Father's education	-0.04*** (0.01)	-0.05*** (0.01)	-0.05*** (0.01)	0.02*** (0.01)	0.01 (0.01)	0.04*** (0.01)	0.04*** (0.01)	0.04** (0.02)	0.02 (0.02)	0.03 (0.02)	0.03 (0.02)	0.02 (0.03)	0.02*** (0.01)	0.01 (0.01)	0.03*** (0.01)
Father's work dummy	-0.06*** (0.02)	-0.04* (0.02)	-0.04** (0.02)	0.00 (0.02)	0.00 (0.02)	-0.01 (0.02)	-0.04 (0.03)	-0.01 (0.04)	-0.07* (0.04)	-0.12** (0.05)	-0.15** (0.07)	-0.06 (0.06)	-0.01 (0.01)	-0.00 (0.02)	-0.02 (0.02)
Mother's age	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00* (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.00* (0.00)	-0.00 (0.00)
Mother's education	-0.06*** (0.01)	-0.06*** (0.01)	-0.08*** (0.01)	0.02** (0.01)	0.03*** (0.01)	0.01 (0.01)	0.06*** (0.01)	0.06*** (0.02)	0.05** (0.02)	0.01 (0.02)	0.01 (0.02)	0.02 (0.04)	0.02** (0.01)	0.03*** (0.01)	0.01 (0.01)
Mother's work dummy	0.13*** (0.02)	0.04* (0.02)	0.05** (0.02)	-0.07*** (0.02)	-0.06*** (0.02)	-0.02 (0.02)	-0.07 (0.05)	-0.09* (0.05)	-0.04 (0.06)	-0.07 (0.05)	-0.05 (0.06)	-0.09 (0.08)	-0.06*** (0.02)	-0.06*** (0.02)	-0.02 (0.02)
Constant	1.20*** (0.09)	1.44*** (0.11)	1.14*** (0.11)	-0.04 (0.10)	0.00 (0.11)	-0.14 (0.13)	-0.69* (0.39)	-0.16 (0.52)	-2.00** (0.86)	1.20 (0.96)	0.61 (1.14)	1.57 (2.18)	-0.34*** (0.09)	-0.39*** (0.10)	-0.35** (0.14)
Observations	8386	4305	4081	3994	2303	1691	1410	906	504	703	469	234	4697	2772	1925
R-squared	0.42	0.37	0.45	0.43	0.45	0.42	0.38	0.42	0.39	0.29	0.31	0.41	0.59	0.60	0.58

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses are clustered at community level. * p<0.10, ** p<0.05, *** p<0.01.

Table 4. OLS: effect of living in a household that owns freezer.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Own freezer	-0.06** (0.02)	-0.05* (0.02)	-0.06* (0.03)	0.01 (0.02)	0.02 (0.03)	-0.00 (0.03)	0.04 (0.04)	0.04 (0.04)	0.03 (0.06)	0.02 (0.05)	0.07 (0.07)	-0.08 (0.07)	0.01 (0.02)	0.01 (0.02)	-0.00 (0.02)
Female	0.15*** (0.01)			-0.04*** (0.01)			-0.03 (0.03)			0.05 (0.03)			-0.03*** (0.01)		
Age in years	-0.12*** (0.01)	-0.15*** (0.01)	-0.09*** (0.01)	-0.05*** (0.02)	-0.04** (0.02)	-0.06*** (0.02)	0.02 (0.05)	-0.07 (0.06)	0.18* (0.09)	-0.25** (0.11)	-0.26** (0.12)	-0.13 (0.29)	0.01 (0.01)	0.03** (0.01)	-0.02 (0.02)
Age squared	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.00** (0.00)	0.01*** (0.00)	-0.00 (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01 (0.01)	0.00*** (0.00)	0.00*** (0.00)	0.01*** (0.00)
No of siblings	-0.00 (0.00)	-0.00 (0.01)	-0.01 (0.01)	-0.00 (0.00)	0.00 (0.01)	-0.00 (0.01)	0.02 (0.01)	0.02* (0.01)	0.01 (0.02)	0.00 (0.01)	0.00 (0.02)	-0.00 (0.03)	0.00 (0.00)	0.00 (0.00)	0.00 (0.01)
Birth order	0.00 (0.00)	0.01* (0.01)	-0.00 (0.00)	-0.01 (0.00)	-0.01 (0.01)	-0.00 (0.01)	-0.02* (0.01)	-0.03** (0.01)	0.00 (0.02)	0.01 (0.01)	-0.00 (0.02)	0.05* (0.03)	-0.00 (0.00)	-0.01 (0.01)	-0.00 (0.01)
Stipend	-0.49*** (0.02)	-0.45*** (0.03)	-0.52*** (0.03)	0.05*** (0.02)	0.02 (0.02)	0.08*** (0.03)	-0.02 (0.03)	-0.02 (0.04)	-0.05 (0.04)	-0.20*** (0.04)	-0.21*** (0.05)	-0.17*** (0.06)	0.05*** (0.02)	0.02 (0.02)	0.09*** (0.03)
Household size	0.01** (0.00)	0.00 (0.00)	0.01*** (0.00)	-0.01** (0.00)	-0.01*** (0.00)	-0.00 (0.00)	-0.02** (0.01)	-0.01* (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.02 (0.02)	-0.01*** (0.00)	-0.01*** (0.00)	-0.01* (0.00)
Multigeneration HH	-0.01 (0.01)	-0.00 (0.02)	-0.01 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.01 (0.03)	-0.03 (0.04)	-0.01 (0.04)	-0.06 (0.06)	0.01 (0.04)	-0.02 (0.06)	0.05 (0.08)	-0.01 (0.01)	-0.01 (0.02)	-0.01 (0.02)
Durable assets (ln)	-0.03*** (0.00)	-0.03*** (0.00)	-0.03*** (0.00)	0.01** (0.00)	0.01** (0.00)	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)	0.02* (0.01)	0.00 (0.01)	0.01 (0.01)	-0.00 (0.02)	0.01*** (0.00)	0.01** (0.00)	0.01** (0.01)
Monthly energy cost	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Monthly food cost	-0.00* (0.00)	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)	0.00** (0.00)	0.00 (0.00)	0.00* (0.00)	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Monthly goods & services cost	-0.00* (0.00)	-0.00*** (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Father's age	0.00 (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00** (0.00)	0.00*** (0.00)	0.00** (0.00)	0.00 (0.00)	0.00 (0.00)	0.00* (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00*** (0.00)
Father's education	-0.05*** (0.01)	-0.06*** (0.01)	-0.04*** (0.01)	0.03*** (0.01)	0.02*** (0.01)	0.03*** (0.01)	0.04*** (0.01)	0.03* (0.01)	0.05** (0.02)	0.03 (0.02)	0.02 (0.02)	0.00 (0.04)	0.03*** (0.01)	0.02*** (0.01)	0.03*** (0.01)
Father's work dummy	-0.06*** (0.01)	-0.06*** (0.02)	-0.05** (0.02)	0.01 (0.02)	0.02 (0.02)	-0.00 (0.02)	0.00 (0.03)	0.01 (0.04)	0.01 (0.04)	-0.07 (0.05)	-0.10 (0.06)	-0.04 (0.06)	0.00 (0.01)	0.02 (0.02)	-0.01 (0.02)
Mother's age	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00*** (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00* (0.00)	-0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.00*** (0.00)	-0.00 (0.00)
Mother's education	-0.07*** (0.01)	-0.06*** (0.01)	-0.07*** (0.01)	0.03*** (0.01)	0.04*** (0.01)	0.02 (0.01)	0.07*** (0.01)	0.08*** (0.02)	0.05*** (0.02)	0.02 (0.02)	0.02 (0.02)	0.03 (0.04)	0.03*** (0.01)	0.03*** (0.01)	0.02* (0.01)
Mother's work dummy	0.11*** (0.02)	0.10*** (0.02)	0.11*** (0.03)	-0.07*** (0.02)	-0.10*** (0.02)	-0.02 (0.03)	-0.07* (0.04)	-0.06 (0.05)	-0.09 (0.06)	-0.05 (0.05)	-0.04 (0.07)	0.02 (0.11)	-0.06*** (0.02)	-0.08*** (0.02)	-0.03 (0.02)
Constant	1.20*** (0.08)	1.39*** (0.09)	1.15*** (0.09)	-0.07 (0.09)	-0.09 (0.11)	-0.09 (0.12)	-0.94*** (0.33)	-0.28 (0.45)	-2.37*** (0.69)	1.28 (0.86)	1.20 (0.98)	0.49 (2.21)	-0.36*** (0.09)	-0.42*** (0.10)	-0.30*** (0.13)
Observations	11547	6031	5516	5261	3061	2200	1783	1152	631	865	579	286	6126	3640	2486
R-squared	0.43	0.41	0.46	0.43	0.45	0.43	0.37	0.41	0.38	0.30	0.33	0.36	0.59	0.60	0.58

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses are clustered at community level. * p<0.10, ** p<0.05, *** p<0.01.

Table 5. OLS: effect of living in a household that owns refrigerator.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Own refrigerator	-0.05*** (0.01)	-0.04** (0.02)	-0.07*** (0.02)	0.03 (0.02)	0.02 (0.02)	0.04** (0.02)	0.04 (0.03)	0.00 (0.03)	0.09** (0.04)	0.08*** (0.03)	0.08** (0.03)	0.04 (0.05)	0.03** (0.02)	0.02 (0.02)	0.05*** (0.02)
Female	0.15*** (0.01)			-0.04*** (0.01)			-0.03 (0.03)			0.04 (0.03)			-0.03*** (0.01)		
Age in years	-0.12*** (0.01)	-0.15*** (0.01)	-0.09*** (0.01)	-0.05*** (0.02)	-0.04** (0.02)	-0.06*** (0.02)	0.01 (0.05)	-0.07 (0.07)	0.18* (0.09)	-0.25** (0.10)	-0.26** (0.12)	-0.13 (0.29)	0.01 (0.01)	0.03** (0.01)	-0.02 (0.02)
Age squared	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.00** (0.00)	0.01*** (0.00)	-0.00 (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01 (0.01)	0.00*** (0.00)	0.00*** (0.00)	0.01*** (0.00)
No of siblings	-0.00 (0.00)	-0.00 (0.01)	-0.01 (0.01)	-0.00 (0.00)	0.00 (0.01)	-0.00 (0.01)	0.02 (0.01)	0.02* (0.01)	0.00 (0.02)	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.03)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.01)
Birth order	0.00 (0.00)	0.01* (0.01)	-0.00 (0.00)	-0.00 (0.00)	-0.01 (0.01)	-0.00 (0.01)	-0.02** (0.01)	-0.03** (0.01)	0.00 (0.02)	0.01 (0.01)	-0.00 (0.02)	0.04* (0.03)	-0.00 (0.00)	-0.01 (0.01)	-0.00 (0.01)
Stipend	-0.49*** (0.02)	-0.45*** (0.03)	-0.53*** (0.03)	0.05*** (0.02)	0.03 (0.02)	0.09*** (0.03)	-0.01 (0.03)	-0.02 (0.04)	-0.05 (0.04)	-0.20*** (0.04)	-0.21*** (0.05)	-0.17*** (0.06)	0.05*** (0.02)	0.02 (0.02)	0.09*** (0.02)
Household size	0.01** (0.00)	0.00 (0.00)	0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)	-0.00 (0.00)	-0.02** (0.01)	-0.01** (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.02 (0.02)	-0.01*** (0.00)	-0.01*** (0.00)	-0.01* (0.00)
Multigeneration HH	-0.00 (0.01)	-0.00 (0.02)	-0.01 (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.01 (0.03)	-0.03 (0.04)	-0.01 (0.04)	-0.07 (0.06)	0.01 (0.04)	-0.03 (0.06)	0.05 (0.08)	-0.01 (0.01)	-0.01 (0.02)	-0.01 (0.02)
Durable assets (ln)	-0.03*** (0.00)	-0.03*** (0.00)	-0.03*** (0.00)	0.01** (0.00)	0.01* (0.00)	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)	0.02 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.01 (0.02)	0.01*** (0.00)	0.01** (0.00)	0.01* (0.01)
Monthly energy cost	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Monthly food cost	-0.00* (0.00)	-0.00** (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)	0.00*** (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Monthly goods & services cost	-0.00 (0.00)	-0.00** (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Father's age	0.00 (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00** (0.00)	0.00*** (0.00)	0.00** (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00*** (0.00)
Father's education	-0.05*** (0.01)	-0.06*** (0.01)	-0.04*** (0.01)	0.03*** (0.01)	0.02*** (0.01)	0.03*** (0.01)	0.04*** (0.01)	0.03** (0.01)	0.05** (0.02)	0.03 (0.02)	0.02 (0.02)	0.00 (0.04)	0.03*** (0.01)	0.02*** (0.01)	0.03*** (0.01)
Father's work dummy	-0.06*** (0.01)	-0.06*** (0.02)	-0.05** (0.02)	0.01 (0.01)	0.02 (0.02)	-0.00 (0.02)	0.00 (0.03)	0.01 (0.04)	0.01 (0.04)	-0.08 (0.05)	-0.10 (0.06)	-0.05 (0.06)	0.00 (0.01)	0.02 (0.02)	-0.01 (0.02)
Mother's age	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00*** (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00** (0.00)	-0.00** (0.00)	0.00 (0.00)	0.00 (0.00)	0.00*** (0.00)	-0.00 (0.00)
Mother's education	-0.06*** (0.01)	-0.06*** (0.01)	-0.07*** (0.01)	0.03*** (0.01)	0.04*** (0.01)	0.02 (0.01)	0.07*** (0.01)	0.08*** (0.02)	0.05*** (0.02)	0.02 (0.02)	0.01 (0.02)	0.03 (0.04)	0.03*** (0.01)	0.03*** (0.01)	0.02* (0.01)
Mother's work dummy	0.11*** (0.02)	0.10*** (0.02)	0.11*** (0.03)	-0.07*** (0.02)	-0.10*** (0.02)	-0.01 (0.03)	-0.06 (0.04)	-0.06 (0.05)	-0.08 (0.06)	-0.05 (0.05)	-0.04 (0.07)	0.03 (0.11)	-0.06*** (0.02)	-0.08*** (0.02)	-0.02 (0.02)
Constant	1.18*** (0.08)	1.37*** (0.10)	1.11*** (0.09)	-0.05 (0.09)	-0.08 (0.11)	-0.06 (0.12)	-0.89*** (0.33)	-0.29 (0.47)	-2.22*** (0.70)	1.34 (0.82)	1.32 (0.93)	0.52 (2.21)	-0.33*** (0.09)	-0.41*** (0.10)	-0.26* (0.13)
Observations	11547	6031	5516	5261	3061	2200	1783	1152	631	865	579	286	6126	3640	2486
R-squared	0.43	0.41	0.46	0.43	0.45	0.43	0.37	0.41	0.38	0.30	0.33	0.36	0.59	0.60	0.58

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses are clustered at community level. * p<0.10, ** p<0.05, *** p<0.01.

Table 6. OLS: effect of living in a household that owns any time savings appliances.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Own any time savings appliances	-0.08*** (0.01)	-0.06*** (0.02)	-0.10*** (0.02)	0.04* (0.02)	0.03 (0.03)	0.05** (0.02)	0.07** (0.03)	0.03 (0.04)	0.11* (0.06)	0.07** (0.03)	0.03 (0.04)	0.12 (0.08)	0.04** (0.02)	0.02 (0.02)	0.07*** (0.02)
Female	0.16*** (0.02)			-0.03*** (0.01)			-0.03 (0.03)			0.03 (0.03)			-0.03*** (0.01)		
Age in years	-0.13*** (0.01)			-0.05*** (0.02)	-0.05*** (0.02)	-0.04* (0.03)	-0.01 (0.05)	-0.08 (0.07)	0.13 (0.13)	-0.22* (0.12)	-0.16 (0.14)	-0.31 (0.31)	0.01 (0.01)	0.03** (0.01)	-0.01 (0.02)
Age squared	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.00** (0.00)	0.01*** (0.00)	-0.00 (0.00)	0.01** (0.00)	0.01* (0.00)	0.01 (0.01)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
No of siblings	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.02)	0.00 (0.01)	0.01 (0.02)	-0.01 (0.03)	-0.00 (0.00)	-0.00 (0.01)	-0.00 (0.01)
Birth order	0.01 (0.00)	0.01** (0.01)	-0.00 (0.01)	-0.00 (0.00)	0.00 (0.01)	-0.00 (0.01)	-0.02 (0.01)	-0.02 (0.01)	0.00 (0.02)	0.01 (0.01)	-0.01 (0.02)	0.06** (0.02)	0.00 (0.00)	0.00 (0.01)	0.00 (0.01)
Stipend	-0.48*** (0.02)	-0.43*** (0.03)	-0.52*** (0.03)	0.04* (0.02)	0.00 (0.02)	0.08** (0.03)	-0.01 (0.04)	0.02 (0.04)	-0.07 (0.06)	-0.19*** (0.05)	-0.17*** (0.06)	-0.18*** (0.06)	0.04** (0.02)	-0.00 (0.02)	0.08** (0.03)
Household size	0.01* (0.00)	0.00 (0.00)	0.01** (0.01)	-0.01** (0.00)	-0.01*** (0.00)	-0.00 (0.00)	-0.01* (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.02)	-0.01*** (0.00)	-0.01*** (0.00)	-0.00 (0.00)
Multigeneration HH	0.01 (0.02)	0.01 (0.02)	0.02 (0.02)	-0.00 (0.02)	0.00 (0.02)	-0.01 (0.03)	-0.03 (0.04)	-0.01 (0.05)	-0.07 (0.06)	0.04 (0.05)	0.02 (0.06)	0.03 (0.10)	-0.00 (0.02)	0.00 (0.02)	-0.01 (0.03)
Durable assets (ln)	-0.03*** (0.00)	-0.03*** (0.01)	-0.02*** (0.01)	0.01 (0.00)	0.00 (0.01)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.02)	-0.00 (0.01)	0.00 (0.01)	-0.03 (0.02)	0.01 (0.00)	0.00 (0.00)	0.01* (0.01)
Monthly energy cost	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Monthly food cost	-0.00* (0.00)	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00** (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Monthly goods & services cost	-0.00 (0.00)	-0.00** (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Father's age	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00* (0.00)	0.00*** (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.01 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00** (0.00)
Father's education	-0.04*** (0.01)	-0.04*** (0.01)	-0.04*** (0.01)	0.02*** (0.01)	0.02* (0.01)	0.03** (0.01)	0.04*** (0.01)	0.04** (0.02)	0.04** (0.02)	0.03 (0.02)	0.03 (0.02)	0.00 (0.04)	0.02*** (0.01)	0.01 (0.01)	0.03*** (0.01)
Father's work dummy	-0.06*** (0.02)	-0.05** (0.02)	-0.06*** (0.02)	-0.00 (0.02)	0.01 (0.02)	-0.01 (0.02)	-0.04 (0.03)	-0.02 (0.04)	-0.03 (0.04)	-0.12** (0.05)	-0.15** (0.07)	-0.10 (0.07)	-0.01 (0.01)	0.00 (0.02)	-0.03 (0.02)
Mother's age	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00* (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.00* (0.00)	-0.00 (0.00)
Mother's education	-0.06*** (0.01)	-0.05*** (0.01)	-0.07*** (0.01)	0.02** (0.01)	0.03** (0.01)	0.01 (0.01)	0.06*** (0.01)	0.06*** (0.02)	0.05** (0.02)	0.01 (0.02)	0.01 (0.02)	0.03 (0.04)	0.02** (0.01)	0.02*** (0.01)	0.01 (0.01)
Mother's work dummy	0.13*** (0.02)	0.11*** (0.03)	0.13*** (0.03)	-0.07*** (0.02)	-0.11*** (0.03)	-0.01 (0.03)	-0.07 (0.05)	-0.04 (0.06)	-0.09 (0.07)	-0.07 (0.05)	-0.05 (0.08)	-0.01 (0.11)	-0.06*** (0.02)	-0.09*** (0.02)	-0.02 (0.03)
Constant	1.18*** (0.09)	1.39*** (0.11)	1.10*** (0.10)	-0.03 (0.10)	-0.00 (0.11)	-0.12 (0.13)	-0.61 (0.38)	-0.13 (0.51)	-1.79* (0.92)	1.30 (0.97)	0.61 (1.15)	2.17 (2.38)	-0.34*** (0.09)	-0.40*** (0.10)	-0.31** (0.13)
Observations	8386	4305	4081	3994	2303	1691	1410	906	504	703	469	234	4697	2772	1925
R-squared	0.42	0.39	0.45	0.43	0.45	0.42	0.39	0.42	0.41	0.30	0.31	0.42	0.58	0.60	0.58

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses are clustered at community level. * p<0.10, ** p<0.05, *** p<0.01.

Table 7. IV estimation stage one: washing machine.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Avg community washing machine ownership (no children)	0.16*** (0.02)	0.17*** (0.03)	0.14*** (0.03)	0.13*** (0.03)	0.14*** (0.04)	0.11** (0.05)	0.10* (0.06)	0.19*** (0.07)	-0.07 (0.11)	0.08 (0.09)	0.18* (0.10)	-0.20 (0.19)	0.12*** (0.03)	0.14*** (0.04)	0.06 (0.05)
Female	0.00 (0.01)			0.01 (0.01)			0.05** (0.02)			0.04 (0.04)			0.02 (0.01)		
Age in years	-0.01 (0.01)	-0.02** (0.01)	0.00 (0.01)	-0.01 (0.01)	-0.02 (0.02)	-0.01 (0.02)	0.02 (0.06)	-0.09 (0.07)	0.15 (0.10)	0.21 (0.14)	0.02 (0.17)	0.22 (0.36)	-0.02** (0.01)	-0.03** (0.01)	-0.01 (0.02)
Age squared	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.01* (0.00)	-0.01 (0.00)	-0.00 (0.01)	-0.01 (0.01)	0.00 (0.00)	0.00* (0.00)	0.00 (0.00)
No of siblings	0.01*** (0.00)	0.01 (0.00)	0.02*** (0.00)	0.02*** (0.01)	0.02** (0.01)	0.03*** (0.01)	0.04*** (0.01)	0.03*** (0.01)	0.05** (0.02)	0.03** (0.01)	0.02 (0.02)	0.04 (0.03)	0.02*** (0.00)	0.02** (0.01)	0.03*** (0.01)
Birth order	-0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)	-0.02*** (0.00)	-0.02*** (0.01)	-0.03*** (0.01)	-0.01* (0.01)	-0.00 (0.01)	-0.02 (0.02)	-0.02* (0.01)	-0.00 (0.02)	-0.04 (0.03)	-0.02*** (0.00)	-0.02*** (0.01)	-0.03*** (0.01)
Stipend	0.00 (0.01)	-0.02 (0.02)	0.03* (0.02)	-0.06*** (0.02)	-0.10*** (0.03)	-0.03 (0.03)	0.01 (0.03)	-0.03 (0.04)	0.02 (0.05)	0.06 (0.05)	0.08 (0.06)	0.01 (0.09)	-0.04** (0.02)	-0.06*** (0.02)	-0.01 (0.03)
Household size	-0.01*** (0.00)	-0.00 (0.00)	-0.01*** (0.00)	-0.01*** (0.00)	-0.01** (0.00)	-0.01*** (0.00)	-0.02*** (0.01)	-0.02** (0.01)	-0.03* (0.02)	-0.00 (0.01)	0.00 (0.01)	-0.02 (0.02)	-0.01*** (0.00)	-0.01** (0.00)	-0.02*** (0.00)
Multigeneration HH	0.05*** (0.01)	0.04*** (0.01)	0.06*** (0.02)	0.06*** (0.02)	0.06*** (0.02)	0.06** (0.03)	0.12*** (0.03)	0.14*** (0.04)	0.07 (0.06)	0.08 (0.05)	0.03 (0.06)	0.10 (0.10)	0.07*** (0.02)	0.06*** (0.02)	0.07*** (0.03)
Durable assets (ln)	0.05*** (0.00)	0.05*** (0.00)	0.05*** (0.00)	0.05*** (0.00)	0.04*** (0.00)	0.06*** (0.01)	0.05*** (0.01)	0.05*** (0.01)	0.06*** (0.01)	0.07*** (0.01)	0.07*** (0.01)	0.07*** (0.02)	0.05*** (0.00)	0.05*** (0.00)	0.06*** (0.01)
Monthly energy cost	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00** (0.00)	0.00 (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Monthly food cost	0.00 (0.00)	-0.00* (0.00)	0.00*** (0.00)	-0.00 (0.00)	-0.00*** (0.00)	0.00** (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00*** (0.00)	0.00*** (0.00)
Monthly goods & services cost	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00** (0.00)	0.00* (0.00)	0.00 (0.00)	0.00** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Father's age	0.00** (0.00)	0.00 (0.00)	0.00** (0.00)	0.00** (0.00)	0.00 (0.00)	0.00** (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00** (0.00)	0.00 (0.00)	0.00** (0.00)
Father's education	0.04*** (0.00)	0.03*** (0.01)	0.05*** (0.01)	0.04*** (0.01)	0.04*** (0.01)	0.04*** (0.01)	0.04*** (0.01)	0.03** (0.02)	0.06** (0.02)	0.03* (0.02)	0.02 (0.02)	0.07* (0.04)	0.04*** (0.01)	0.03*** (0.01)	0.05*** (0.01)
Father's work dummy	-0.01 (0.01)	-0.01 (0.02)	-0.01 (0.02)	-0.03 (0.02)	-0.03 (0.03)	-0.01 (0.03)	0.05 (0.03)	0.02 (0.04)	0.11* (0.06)	-0.02 (0.05)	-0.06 (0.06)	0.03 (0.09)	-0.03* (0.02)	-0.04* (0.02)	-0.00 (0.03)
Mother's age	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00** (0.00)	0.00 (0.00)	0.01** (0.00)	0.00* (0.00)	0.00 (0.00)	0.01 (0.00)	0.00** (0.00)	0.00 (0.00)	0.00 (0.00)
Mother's education	0.04*** (0.01)	0.05*** (0.01)	0.04*** (0.01)	0.04*** (0.01)	0.05*** (0.01)	0.03** (0.01)	0.04*** (0.02)	0.03* (0.02)	0.05* (0.03)	0.04* (0.02)	0.05* (0.03)	-0.01 (0.04)	0.04*** (0.01)	0.05*** (0.01)	0.03** (0.01)
Mother's work dummy	-0.07*** (0.01)	-0.05*** (0.02)	-0.08*** (0.02)	-0.07*** (0.02)	-0.06* (0.03)	-0.09** (0.04)	-0.15*** (0.04)	-0.11* (0.06)	-0.22*** (0.08)	-0.07 (0.07)	-0.03 (0.08)	-0.10 (0.14)	-0.07*** (0.02)	-0.04 (0.03)	-0.11*** (0.03)
Constant	-0.59*** (0.05)	-0.51*** (0.06)	-0.68*** (0.07)	-0.54*** (0.08)	-0.43*** (0.10)	-0.71*** (0.13)	-0.90** (0.41)	-0.06 (0.50)	-1.98*** (0.75)	-2.64** (1.13)	-1.19 (1.30)	-2.61 (2.84)	-0.58*** (0.07)	-0.47*** (0.09)	-0.74*** (0.12)
Observations	8386	4305	4081	3994	2303	1691	1410	906	504	703	469	234	4697	2772	1925
R-squared															

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 8. IV estimation stage two: washing machine.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Own washing machine	-0.25 (0.15)	-0.18 (0.19)	-0.39 (0.26)	0.65*** (0.25)	0.85** (0.35)	0.46 (0.40)	-0.29 (0.57)	0.05 (0.34)	1.46 (2.56)	-0.96 (1.39)	-0.55 (0.58)	0.82 (0.96)	0.56** (0.24)	0.65** (0.28)	0.48 (0.66)
Female	0.17*** (0.01)			-0.04*** (0.01)			-0.01 (0.04)			0.07 (0.07)			-0.04*** (0.01)		
Age in years	-0.13*** (0.01)	-0.16*** (0.01)	-0.09*** (0.01)	-0.04*** (0.01)	-0.04* (0.02)	-0.04** (0.02)	-0.00 (0.06)	-0.07 (0.07)	-0.07 (0.44)	0.00 (0.35)	-0.15 (0.18)	-0.46 (0.43)	0.03** (0.01)	0.05*** (0.02)	-0.00 (0.02)
Age squared	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.00* (0.00)	0.01*** (0.00)	0.01 (0.02)	0.00 (0.01)	0.01 (0.01)	0.02 (0.01)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
No of siblings	-0.00 (0.00)	-0.00 (0.01)	0.00 (0.01)	-0.02** (0.01)	-0.01 (0.01)	-0.02 (0.01)	0.02 (0.02)	0.01 (0.02)	-0.06 (0.12)	0.03 (0.05)	0.02 (0.02)	-0.05 (0.06)	-0.02** (0.01)	-0.01* (0.01)	-0.02 (0.02)
Birth order	0.00 (0.00)	0.01** (0.00)	-0.01 (0.01)	0.01* (0.01)	0.01 (0.01)	0.01 (0.01)	-0.02* (0.01)	-0.02** (0.01)	0.04 (0.06)	-0.02 (0.04)	-0.01 (0.02)	0.09* (0.05)	0.01* (0.01)	0.01 (0.01)	0.01 (0.02)
Stipend	-0.48*** (0.01)	-0.43*** (0.02)	-0.51*** (0.02)	0.08*** (0.03)	0.08* (0.05)	0.09*** (0.03)	-0.00 (0.03)	0.02 (0.05)	-0.10 (0.11)	-0.13 (0.10)	-0.12 (0.08)	-0.19** (0.09)	0.06*** (0.02)	0.04 (0.03)	0.08*** (0.03)
Household size	0.01** (0.00)	0.00 (0.00)	0.01** (0.00)	0.00 (0.00)	-0.00 (0.01)	0.00 (0.01)	-0.02 (0.01)	-0.01 (0.01)	0.03 (0.08)	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.03)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.01)
Multigeneration HH	0.02* (0.01)	0.02 (0.02)	0.04 (0.02)	-0.04* (0.02)	-0.04 (0.03)	-0.03 (0.04)	0.01 (0.08)	-0.01 (0.06)	-0.17 (0.21)	0.12 (0.12)	0.04 (0.06)	-0.04 (0.15)	-0.04* (0.02)	-0.04 (0.03)	-0.03 (0.05)
Durable assets (ln)	-0.02*** (0.01)	-0.03*** (0.01)	-0.01 (0.01)	-0.02* (0.01)	-0.03** (0.02)	-0.01 (0.02)	0.02 (0.03)	0.00 (0.02)	-0.07 (0.15)	0.07 (0.09)	0.04 (0.04)	-0.07 (0.07)	-0.02 (0.01)	-0.03* (0.01)	-0.01 (0.04)
Monthly energy cost	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00** (0.00)	-0.00** (0.00)	-0.00 (0.00)
Monthly food cost	-0.00** (0.00)	-0.00** (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
Monthly goods & services cost	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00** (0.00)	-0.00* (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00* (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)
Father's age	0.00* (0.00)	0.00* (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00** (0.00)	0.00*** (0.00)	0.00 (0.00)	0.00 (0.00)	0.01** (0.00)	-0.01 (0.01)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
Father's education	-0.04*** (0.01)	-0.04*** (0.01)	-0.03* (0.02)	-0.00 (0.01)	-0.01 (0.02)	0.01 (0.02)	0.05** (0.03)	0.04* (0.02)	-0.03 (0.15)	0.06 (0.05)	0.05* (0.03)	-0.05 (0.08)	0.00 (0.01)	-0.01 (0.01)	0.01 (0.04)
Father's work dummy	-0.06*** (0.01)	-0.05** (0.02)	-0.07*** (0.02)	0.02 (0.02)	0.04 (0.03)	-0.01 (0.03)	-0.02 (0.05)	-0.02 (0.04)	-0.18 (0.30)	-0.14* (0.07)	-0.18** (0.07)	-0.11 (0.10)	0.01 (0.02)	0.03 (0.03)	-0.02 (0.03)
Mother's age	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.01)	0.00 (0.01)	-0.00 (0.00)	-0.00 (0.01)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
Mother's education	-0.05*** (0.01)	-0.05*** (0.01)	-0.06*** (0.01)	-0.01 (0.01)	-0.01 (0.02)	-0.00 (0.02)	0.07** (0.03)	0.06*** (0.02)	-0.02 (0.14)	0.06 (0.06)	0.04 (0.04)	0.03 (0.04)	-0.00 (0.01)	-0.01 (0.02)	0.00 (0.02)
Mother's work dummy	0.12*** (0.02)	0.11*** (0.02)	0.11*** (0.03)	-0.03 (0.03)	-0.06 (0.04)	0.03 (0.05)	-0.12 (0.09)	-0.04 (0.07)	0.22 (0.60)	-0.14 (0.13)	-0.06 (0.09)	0.08 (0.18)	-0.03 (0.03)	-0.06** (0.03)	0.03 (0.08)
Constant	1.09*** (0.11)	1.35*** (0.12)	0.92*** (0.19)	0.29* (0.16)	0.34* (0.20)	0.15 (0.31)	-0.99 (0.65)	-0.16 (0.49)	0.85 (5.35)	-1.43 (3.92)	-0.09 (1.53)	3.93 (3.94)	-0.05 (0.16)	-0.11 (0.16)	-0.03 (0.49)
Observations	8386	4305	4081	3994	2303	1691	1410	906	504	703	469	234	4697	2772	1925
R-squared	0.40	0.38	0.40	0.16	0.01	0.29	0.31	0.42	-0.88	-0.57	0.05	-0.03	0.43	0.39	0.47

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 9. IV estimation stage one: freezer.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Avg community freezer ownership (no children)	0.24*** (0.02)	0.25*** (0.03)	0.22*** (0.05)	0.28*** (0.03)	0.28*** (0.04)	0.27*** (0.07)	0.43*** (0.06)	0.39*** (0.07)	0.47*** (0.14)	0.44*** (0.09)	0.41*** (0.11)	0.42* (0.25)	0.30*** (0.03)	0.30*** (0.04)	0.30*** (0.07)
Female	0.00 (0.00)			0.01 (0.01)			0.02 (0.01)			0.03 (0.02)			0.01* (0.01)		
Age in years	-0.00 (0.00)	0.00 (0.01)	-0.01 (0.01)	0.01 (0.01)	0.02* (0.01)	-0.01 (0.01)	0.05 (0.04)	0.03 (0.04)	0.07 (0.06)	0.04 (0.10)	-0.07 (0.12)	0.08 (0.21)	0.00 (0.01)	0.01 (0.01)	-0.01 (0.01)
Age squared	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.01)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
No of siblings	-0.00** (0.00)	-0.01** (0.00)	-0.00 (0.00)	-0.01* (0.00)	-0.01** (0.00)	-0.00 (0.01)	-0.01 (0.01)	0.01 (0.01)	-0.03*** (0.01)	-0.02** (0.01)	-0.02 (0.01)	-0.03 (0.02)	-0.01** (0.00)	-0.01** (0.00)	-0.01 (0.01)
Birth order	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.01 (0.01)	-0.01* (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	0.02 (0.02)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
Stipend	0.01* (0.01)	-0.01 (0.01)	0.04*** (0.01)	0.00 (0.01)	-0.01 (0.02)	0.02 (0.02)	0.02 (0.02)	0.00 (0.03)	0.02 (0.03)	-0.01 (0.03)	-0.02 (0.04)	0.03 (0.06)	0.00 (0.01)	-0.02 (0.01)	0.02 (0.02)
Household size	0.00 (0.00)	0.00** (0.00)	0.00 (0.00)	0.00* (0.00)	0.01*** (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.01)	0.01** (0.01)	0.02** (0.01)	0.01 (0.02)	0.00* (0.00)	0.01*** (0.00)	-0.00 (0.00)
Multigeneration HH	0.01 (0.01)	0.00 (0.01)	0.01 (0.01)	0.03** (0.01)	0.02 (0.01)	0.04* (0.02)	0.03 (0.02)	0.05** (0.02)	-0.02 (0.04)	-0.04 (0.03)	-0.04 (0.04)	-0.04 (0.08)	0.02* (0.01)	0.01 (0.01)	0.03* (0.02)
Durable assets (ln)	0.02*** (0.00)	0.02*** (0.00)	0.02*** (0.00)	0.02*** (0.00)	0.02*** (0.00)	0.02*** (0.00)	0.02*** (0.00)	0.02*** (0.01)	0.03*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02 (0.02)	0.02*** (0.00)	0.02*** (0.00)	0.02*** (0.00)
Monthly energy cost	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00** (0.00)	0.00* (0.00)	0.00** (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00** (0.00)
Monthly food cost	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00* (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00** (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00*** (0.00)	0.00** (0.00)	0.00* (0.00)
Monthly goods & services cost	0.00*** (0.00)	0.00** (0.00)	0.00* (0.00)	0.00** (0.00)	0.00 (0.00)	0.00* (0.00)	0.00** (0.00)	0.00* (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00** (0.00)	0.00 (0.00)	0.00** (0.00)
Father's age	-0.00 (0.00)	-0.00*** (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00** (0.00)	-0.00 (0.00)	-0.00** (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
Father's education	0.02*** (0.00)	0.01*** (0.00)	0.03*** (0.01)	0.01** (0.00)	0.01 (0.01)	0.02* (0.01)	0.03*** (0.01)	0.03*** (0.01)	0.05** (0.02)	0.03*** (0.01)	0.04** (0.02)	0.02 (0.03)	0.02*** (0.00)	0.02*** (0.01)	0.02* (0.01)
Father's work dummy	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.02)	0.00 (0.02)	0.02 (0.02)	0.04 (0.03)	0.02 (0.04)	0.05 (0.03)	0.05 (0.04)	0.04 (0.06)	0.01 (0.01)	0.02 (0.01)	0.01 (0.02)
Mother's age	0.00 (0.00)	0.00*** (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00*** (0.00)	-0.00 (0.00)	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00*** (0.00)
Mother's education	0.01*** (0.00)	0.02*** (0.01)	0.01 (0.01)	0.01* (0.01)	0.02* (0.01)	0.01 (0.01)	0.01 (0.01)	0.02* (0.01)	-0.01 (0.02)	0.01 (0.02)	0.00 (0.02)	0.02 (0.03)	0.01** (0.01)	0.01** (0.01)	0.01 (0.01)
Mother's work dummy	-0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)	0.02 (0.01)	0.01 (0.02)	0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.06)	-0.07 (0.05)	-0.04 (0.05)	-0.11 (0.10)	0.01 (0.01)	0.00 (0.02)	0.02 (0.02)
Constant	-0.19*** (0.03)	-0.23*** (0.04)	-0.14*** (0.04)	-0.27*** (0.05)	-0.34*** (0.07)	-0.13 (0.08)	-0.52** (0.26)	-0.39 (0.31)	-0.59 (0.43)	-0.39 (0.78)	0.40 (0.91)	-0.47 (1.65)	-0.25*** (0.05)	-0.31*** (0.06)	-0.12 (0.07)
Observations	11547	6031	5516	5261	3061	2200	1783	1152	631	865	579	286	6126	3640	2486
R-squared															

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 10. IV estimation stage two: freezer.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Own freezer	0.18 (0.13)	0.24 (0.18)	0.06 (0.21)	0.29** (0.13)	0.20 (0.18)	0.43* (0.22)	-0.18 (0.18)	-0.18 (0.25)	-0.11 (0.27)	-0.29 (0.25)	-0.08 (0.33)	-0.57 (0.50)	0.23** (0.11)	0.17 (0.15)	0.32* (0.17)
Female	0.15*** (0.01)			-0.04*** (0.01)			-0.02 (0.02)			0.05* (0.03)			-0.04*** (0.01)		
Age in years	-0.12*** (0.01)	-0.15*** (0.01)	-0.09*** (0.01)	-0.05*** (0.01)	-0.05*** (0.01)	-0.05*** (0.02)	0.02 (0.05)	-0.06 (0.06)	0.19** (0.08)	-0.24** (0.12)	-0.26* (0.14)	-0.14 (0.25)	0.01 (0.01)	0.03*** (0.01)	-0.02 (0.01)
Age squared	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.00* (0.00)	0.01*** (0.00)	-0.00 (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01 (0.01)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
No of siblings	-0.00 (0.00)	-0.00 (0.00)	-0.01 (0.00)	0.00 (0.00)	0.00 (0.01)	0.00 (0.01)	0.02* (0.01)	0.02* (0.01)	0.00 (0.02)	-0.01 (0.01)	-0.00 (0.01)	-0.02 (0.03)	0.00 (0.00)	0.00 (0.00)	0.00 (0.01)
Birth order	0.00 (0.00)	0.01** (0.00)	-0.00 (0.00)	-0.01 (0.00)	-0.01 (0.00)	-0.00 (0.01)	-0.02*** (0.01)	-0.03*** (0.01)	0.00 (0.01)	0.01 (0.01)	-0.00 (0.01)	0.06** (0.03)	-0.00 (0.00)	-0.01 (0.00)	-0.00 (0.00)
Stipend	-0.50*** (0.01)	-0.45*** (0.02)	-0.53*** (0.02)	0.05*** (0.01)	0.03 (0.02)	0.07*** (0.02)	-0.01 (0.03)	-0.02 (0.04)	-0.05 (0.04)	-0.20*** (0.04)	-0.21*** (0.05)	-0.15** (0.06)	0.05*** (0.01)	0.02 (0.02)	0.08*** (0.02)
Household size	0.01*** (0.00)	0.00 (0.00)	0.01*** (0.00)	-0.01*** (0.00)	-0.01*** (0.00)	-0.00 (0.00)	-0.02*** (0.01)	-0.02** (0.01)	-0.02 (0.01)	-0.00 (0.01)	-0.00 (0.01)	-0.02 (0.02)	-0.01*** (0.00)	-0.01*** (0.00)	-0.00* (0.00)
Multigeneration HH	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.02* (0.01)	-0.01 (0.02)	-0.03 (0.02)	-0.02 (0.03)	0.00 (0.04)	-0.07 (0.05)	0.01 (0.04)	-0.02 (0.05)	0.03 (0.08)	-0.02 (0.01)	-0.01 (0.02)	-0.02 (0.02)
Durable assets (ln)	-0.03*** (0.00)	-0.04*** (0.00)	-0.03*** (0.00)	0.00 (0.00)	0.00 (0.01)	-0.00 (0.01)	0.01* (0.01)	0.01 (0.01)	0.03** (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.02)	0.01 (0.00)	0.01 (0.00)	0.01 (0.01)
Monthly energy cost	-0.00*** (0.00)	-0.00** (0.00)	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Monthly food cost	-0.00*** (0.00)	-0.00*** (0.00)	-0.00 (0.00)	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00*** (0.00)	0.00 (0.00)	0.00* (0.00)	-0.00 (0.00)	-0.00* (0.00)	-0.00* (0.00)	-0.00 (0.00)
Monthly goods & services cost	-0.00** (0.00)	-0.00*** (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00* (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Father's age	0.00** (0.00)	0.00** (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00 (0.00)	0.00 (0.00)	0.00** (0.00)	-0.00 (0.00)	0.00* (0.00)	-0.00 (0.00)	0.00*** (0.00)
Father's education	-0.05*** (0.01)	-0.06*** (0.01)	-0.04*** (0.01)	0.02*** (0.01)	0.02*** (0.01)	0.02* (0.01)	0.04*** (0.01)	0.04** (0.02)	0.05** (0.02)	0.04** (0.02)	0.03 (0.02)	0.02 (0.04)	0.02*** (0.01)	0.02*** (0.01)	0.02** (0.01)
Father's work dummy	-0.06*** (0.01)	-0.06*** (0.02)	-0.05*** (0.01)	0.01 (0.02)	0.02 (0.02)	-0.00 (0.02)	0.01 (0.03)	0.02 (0.04)	0.02 (0.05)	-0.06 (0.04)	-0.09* (0.05)	-0.02 (0.07)	-0.00 (0.01)	0.01 (0.02)	-0.01 (0.02)
Mother's age	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00** (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)	0.00 (0.00)	0.00* (0.00)	0.00** (0.00)	-0.00 (0.00)
Mother's education	-0.07*** (0.01)	-0.06*** (0.01)	-0.07*** (0.01)	0.03*** (0.01)	0.04*** (0.01)	0.01 (0.01)	0.07*** (0.01)	0.08*** (0.02)	0.05** (0.02)	0.02 (0.02)	0.02 (0.02)	0.04 (0.04)	0.03*** (0.01)	0.03*** (0.01)	0.02* (0.01)
Mother's work dummy	0.11*** (0.01)	0.10*** (0.02)	0.11*** (0.02)	-0.08*** (0.02)	-0.10*** (0.02)	-0.03 (0.03)	-0.07* (0.04)	-0.06 (0.05)	-0.09 (0.06)	-0.07 (0.06)	-0.04 (0.07)	-0.03 (0.11)	-0.06*** (0.02)	-0.08*** (0.02)	-0.03 (0.02)
Constant	1.24*** (0.05)	1.44*** (0.07)	1.16*** (0.07)	-0.01 (0.07)	-0.03 (0.10)	-0.06 (0.10)	-1.02*** (0.36)	-0.35 (0.45)	-2.40*** (0.56)	1.20 (0.95)	1.25 (1.11)	0.65 (1.87)	-0.31*** (0.06)	-0.38*** (0.08)	-0.28*** (0.08)
Observations	11547	6031	5516	5261	3061	2200	1783	1152	631	865	579	286	6126	3640	2486
R-squared	0.42	0.39	0.46	0.40	0.44	0.34	0.36	0.40	0.37	0.25	0.32	0.23	0.57	0.59	0.54

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 11. IV estimation stage one: refrigerator.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Avg community refrigerator ownership (no children)	0.26*** (0.02)	0.26*** (0.03)	0.27*** (0.03)	0.22*** (0.03)	0.17*** (0.04)	0.28*** (0.05)	0.20*** (0.06)	0.24*** (0.06)	0.15 (0.11)	0.37*** (0.09)	0.42*** (0.10)	0.30* (0.18)	0.24*** (0.03)	0.22*** (0.04)	0.28*** (0.04)
Female	0.00 (0.01)			0.00 (0.01)			0.04** (0.02)			0.06* (0.03)			0.01 (0.01)		
Age in years	-0.01 (0.00)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.02)	0.09* (0.05)	0.08 (0.06)	0.10 (0.09)	-0.04 (0.14)	0.01 (0.16)	0.01 (0.31)	-0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)
Age squared	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.01)	-0.00 (0.01)	0.00* (0.00)	0.00 (0.00)	0.00* (0.00)
No of siblings	-0.00 (0.00)	-0.01* (0.00)	0.00 (0.00)	0.00 (0.00)	-0.01 (0.01)	0.01* (0.01)	0.02** (0.01)	0.00 (0.01)	0.06*** (0.02)	0.03** (0.01)	0.02 (0.02)	0.07** (0.03)	0.00 (0.00)	-0.00 (0.01)	0.01** (0.01)
Birth order	-0.00* (0.00)	-0.00 (0.00)	-0.01** (0.00)	-0.01** (0.00)	-0.00 (0.00)	-0.02*** (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.00 (0.02)	0.01 (0.02)	-0.01* (0.00)	-0.00 (0.00)	-0.01** (0.01)
Stipend	-0.01 (0.01)	0.00 (0.01)	-0.01 (0.02)	-0.07*** (0.02)	-0.06*** (0.02)	-0.08*** (0.02)	-0.07** (0.03)	-0.11*** (0.04)	-0.05 (0.05)	-0.04 (0.04)	-0.00 (0.06)	-0.17** (0.08)	-0.06*** (0.02)	-0.05** (0.02)	-0.08*** (0.02)
Household size	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.02*** (0.01)	-0.01* (0.01)	-0.03* (0.01)	-0.02*** (0.01)	-0.02** (0.01)	-0.03 (0.02)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
Multigeneration HH	0.03*** (0.01)	0.03** (0.01)	0.03** (0.01)	0.03** (0.01)	0.04** (0.02)	0.03 (0.02)	0.05* (0.03)	0.03 (0.04)	0.09 (0.06)	0.10** (0.04)	0.07 (0.05)	0.13 (0.09)	0.04*** (0.01)	0.04** (0.02)	0.03 (0.02)
Durable assets (ln)	0.05*** (0.00)	0.05*** (0.00)	0.05*** (0.00)	0.05*** (0.00)	0.05*** (0.00)	0.05*** (0.00)	0.05*** (0.01)	0.05*** (0.01)	0.05*** (0.01)	0.05*** (0.01)	0.05*** (0.01)	0.07*** (0.02)	0.06*** (0.00)	0.05*** (0.00)	0.06*** (0.00)
Monthly energy cost	0.00** (0.00)	0.00*** (0.00)	0.00 (0.00)	0.00* (0.00)	0.00*** (0.00)	0.00 (0.00)	0.00*** (0.00)	0.00** (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00** (0.00)	0.00*** (0.00)	0.00 (0.00)
Monthly food cost	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00** (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)	0.00 (0.00)
Monthly goods & services cost	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00** (0.00)	0.00** (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Father's age	0.00*** (0.00)	0.00 (0.00)	0.00** (0.00)	0.00* (0.00)	0.00 (0.00)	0.00** (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00* (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00** (0.00)	0.00 (0.00)	0.00 (0.00)
Father's education	0.01** (0.00)	0.01 (0.01)	0.01** (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.02 (0.02)	0.00 (0.02)	-0.01 (0.02)	0.04 (0.04)	0.01 (0.01)	0.00 (0.01)	0.02** (0.01)
Father's work dummy	0.03*** (0.01)	0.02 (0.01)	0.04*** (0.01)	0.02 (0.02)	0.02 (0.02)	0.02 (0.03)	0.08*** (0.03)	0.07** (0.04)	0.07 (0.05)	0.06 (0.05)	0.03 (0.06)	0.10 (0.08)	0.03* (0.02)	0.02 (0.02)	0.03 (0.03)
Mother's age	0.00** (0.00)	0.00* (0.00)	0.00 (0.00)	0.00** (0.00)	0.00 (0.00)	0.00** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.00* (0.00)	0.00 (0.00)	0.00*** (0.00)	0.00** (0.00)	0.00*** (0.00)
Mother's education	0.05*** (0.01)	0.05*** (0.01)	0.04*** (0.01)	0.04*** (0.01)	0.05*** (0.01)	0.02* (0.01)	0.04*** (0.01)	0.04** (0.02)	0.03 (0.03)	0.04** (0.02)	0.07*** (0.03)	-0.01 (0.04)	0.04*** (0.01)	0.05*** (0.01)	0.02 (0.01)
Mother's work dummy	-0.06*** (0.01)	-0.06*** (0.02)	-0.06*** (0.02)	-0.09*** (0.02)	-0.09*** (0.02)	-0.08*** (0.03)	-0.12*** (0.04)	-0.10** (0.05)	-0.12* (0.07)	-0.03 (0.06)	0.03 (0.08)	-0.06 (0.12)	-0.08*** (0.02)	-0.07*** (0.02)	-0.10*** (0.03)
Constant	-0.65*** (0.04)	-0.59*** (0.05)	-0.71*** (0.06)	-0.73*** (0.07)	-0.65*** (0.09)	-0.84*** (0.11)	-1.59*** (0.36)	-1.49*** (0.44)	-1.68*** (0.64)	-0.66 (1.07)	-1.05 (1.28)	-1.39 (2.38)	-0.77*** (0.06)	-0.68*** (0.08)	-0.88*** (0.10)
Observations	11547	6031	5516	5261	3061	2200	1783	1152	631	865	579	286	6126	3640	2486
R-squared															

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 12. IV estimation stage two: refrigerator.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Own refrigerator	-0.16*	-0.10	-0.19	0.12	0.17	-0.01	0.15	0.08	0.31	0.14	0.23	-0.21	0.11	0.16	-0.00
	(0.09)	(0.13)	(0.12)	(0.12)	(0.21)	(0.13)	(0.27)	(0.27)	(0.71)	(0.20)	(0.22)	(0.50)	(0.10)	(0.14)	(0.13)
Female	0.15***			-0.04***			-0.04			0.04			-0.03***		
	(0.01)			(0.01)			(0.02)			(0.03)			(0.01)		
Age in years	-0.12***	-0.15***	-0.10***	-0.05***	-0.04***	-0.06***	0.00	-0.07	0.15	-0.25**	-0.27*	-0.12	0.01	0.03***	-0.02*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.06)	(0.07)	(0.11)	(0.12)	(0.14)	(0.25)	(0.01)	(0.01)	(0.01)
Age squared	0.01***	0.01***	0.01***	0.01***	0.01***	0.01***	0.00**	0.01***	-0.00	0.01***	0.01***	0.01	0.00***	0.00***	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)
No of siblings	-0.00	-0.00	-0.00	-0.00	0.00	-0.00	0.01	0.02*	-0.01	-0.00	-0.00	0.02	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.05)	(0.01)	(0.01)	(0.04)	(0.00)	(0.00)	(0.01)
Birth order	0.00	0.01**	-0.00	-0.00	-0.01	-0.00	-0.02***	-0.03***	0.00	0.01	-0.00	0.05**	-0.00	-0.01	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.00)	(0.00)	(0.00)
Stipend	-0.49***	-0.45***	-0.53***	0.06***	0.04	0.08***	-0.00	-0.01	-0.04	-0.20***	-0.21***	-0.21*	0.06***	0.03	0.09***
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.05)	(0.05)	(0.04)	(0.05)	(0.11)	(0.01)	(0.02)	(0.02)
Household size	0.01***	0.00	0.01***	-0.01***	-0.01***	-0.00	-0.02**	-0.01*	-0.01	-0.00	0.00	-0.03	-0.01***	-0.01***	-0.01*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.00)	(0.00)	(0.00)
Multigeneration HH	-0.00	0.00	-0.00	-0.02	-0.02	-0.01	-0.04	-0.01	-0.09	0.00	-0.04	0.08	-0.02	-0.02	-0.01
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.03)	(0.04)	(0.08)	(0.04)	(0.05)	(0.09)	(0.01)	(0.02)	(0.02)
Durable assets (ln)	-0.02***	-0.03***	-0.02***	0.00	-0.00	0.01	0.00	-0.00	0.01	-0.00	-0.00	0.01	0.00	0.00	0.01
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.04)	(0.01)	(0.01)	(0.04)	(0.01)	(0.01)	(0.01)
Monthly energy cost	-0.00**	-0.00	-0.00*	-0.00	-0.00	-0.00	0.00	-0.00	0.00	-0.00	-0.00	0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Monthly food cost	-0.00***	-0.00**	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	0.00**	0.00	0.00*	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Monthly goods & services cost	-0.00	-0.00	0.00	-0.00	-0.00	0.00	0.00**	0.00**	0.00	0.00	-0.00	0.00	0.00	-0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Father's age	0.00**	0.00**	0.00	0.00	-0.00	0.00***	0.00***	0.00***	0.00	0.00	0.00**	-0.00	0.00	-0.00	0.00***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Father's education	-0.05***	-0.05***	-0.04***	0.03***	0.02***	0.03***	0.04***	0.03**	0.04*	0.03*	0.02	0.01	0.02***	0.02***	0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.01)	(0.01)	(0.01)
Father's work dummy	-0.05***	-0.06***	-0.05***	0.01	0.02	-0.00	-0.01	0.01	-0.01	-0.08*	-0.10**	-0.02	-0.00	0.01	-0.01
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.04)	(0.04)	(0.07)	(0.04)	(0.05)	(0.08)	(0.01)	(0.02)	(0.02)
Mother's age	0.00	0.00	0.00	0.00	0.00**	-0.00	0.00	0.00	0.00	-0.00*	-0.01**	0.00	0.00	0.00**	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Mother's education	-0.06***	-0.05***	-0.06***	0.03***	0.03**	0.02	0.06***	0.07***	0.04	0.01	0.00	0.03	0.02***	0.02**	0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)	(0.03)	(0.01)	(0.01)	(0.01)
Mother's work dummy	0.10***	0.10***	0.10***	-0.06***	-0.08***	-0.02	-0.05	-0.05	-0.05	-0.05	-0.04	0.01	-0.05***	-0.07***	-0.03
	(0.01)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.05)	(0.05)	(0.11)	(0.05)	(0.07)	(0.10)	(0.02)	(0.02)	(0.03)
Constant	1.11***	1.34***	1.03***	0.01	0.02	-0.10	-0.70	-0.17	-1.84	1.40	1.50	0.11	-0.27***	-0.32***	-0.30**
	(0.07)	(0.09)	(0.11)	(0.11)	(0.16)	(0.14)	(0.56)	(0.61)	(1.35)	(0.93)	(1.14)	(2.12)	(0.09)	(0.12)	(0.14)
Observations	11547	6031	5516	5261	3061	2200	1783	1152	631	865	579	286	6126	3640	2486
R-squared	0.43	0.41	0.45	0.43	0.43	0.43	0.36	0.41	0.35	0.30	0.31	0.31	0.58	0.59	0.58

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 13. IV estimation stage one: any time savings appliances.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Avg community any time saving appliance ownership (no children)	0.16*** (0.02)	0.16*** (0.03)	0.15*** (0.03)	0.13*** (0.03)	0.12*** (0.04)	0.14*** (0.05)	0.09 (0.06)	0.11 (0.07)	0.06 (0.12)	0.15 (0.09)	0.18* (0.11)	-0.02 (0.17)	0.14*** (0.03)	0.13*** (0.04)	0.14*** (0.05)
Female	0.01 (0.01)			0.01 (0.01)			0.08*** (0.02)			0.12*** (0.04)			0.03** (0.01)		
Age in years	-0.01* (0.01)	-0.02 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.02)	-0.00 (0.02)	0.12** (0.06)	0.02 (0.07)	0.29*** (0.10)	0.25* (0.15)	0.08 (0.18)	0.45 (0.31)	-0.01 (0.01)	-0.02 (0.01)	-0.02 (0.02)
Age squared	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00** (0.00)	-0.00 (0.00)	-0.01*** (0.00)	-0.01* (0.00)	-0.00 (0.01)	-0.01 (0.01)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
No of siblings	0.00 (0.00)	-0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)	0.01 (0.01)	0.02** (0.01)	0.02* (0.01)	0.01 (0.02)	0.01 (0.01)	-0.00 (0.02)	0.02 (0.03)	0.01 (0.01)	-0.00 (0.01)	0.01 (0.01)
Birth order	-0.00 (0.00)	0.00 (0.00)	-0.01** (0.00)	-0.01** (0.00)	-0.01 (0.01)	-0.02** (0.01)	-0.00 (0.01)	0.00 (0.01)	-0.01 (0.02)	0.00 (0.01)	0.02 (0.02)	0.02 (0.02)	-0.01** (0.00)	-0.00 (0.01)	-0.02*** (0.01)
Stipend	0.01 (0.01)	0.00 (0.02)	0.03* (0.02)	-0.07*** (0.02)	-0.07** (0.03)	-0.07** (0.03)	0.04 (0.03)	0.03 (0.05)	0.01 (0.05)	0.10** (0.05)	0.13* (0.07)	0.00 (0.07)	-0.04* (0.02)	-0.03 (0.03)	-0.04 (0.03)
Household size	0.00 (0.00)	0.01* (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.01 (0.01)	-0.02*** (0.01)	-0.02*** (0.01)	-0.02 (0.02)	-0.01 (0.01)	0.00 (0.01)	-0.03 (0.02)	-0.00 (0.00)	0.00 (0.00)	-0.01 (0.01)
Multigeneration HH	0.03*** (0.01)	0.01 (0.02)	0.06*** (0.02)	0.05*** (0.02)	0.03 (0.02)	0.07** (0.03)	0.10*** (0.03)	0.08** (0.04)	0.09 (0.06)	0.05 (0.05)	-0.03 (0.06)	0.17** (0.09)	0.05*** (0.02)	0.02 (0.02)	0.08*** (0.03)
Durable assets (ln)	0.07*** (0.00)	0.06*** (0.00)	0.07*** (0.00)	0.07*** (0.00)	0.07*** (0.01)	0.07*** (0.01)	0.07*** (0.01)	0.07*** (0.01)	0.09*** (0.01)	0.08*** (0.01)	0.07*** (0.01)	0.11*** (0.02)	0.08*** (0.00)	0.07*** (0.00)	0.08*** (0.01)
Monthly energy cost	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Monthly food cost	0.00*** (0.00)	-0.00 (0.00)	0.00*** (0.00)	0.00 (0.00)	-0.00* (0.00)	0.00*** (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00*** (0.00)
Monthly goods & services cost	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00** (0.00)	0.00** (0.00)	0.00 (0.00)	0.00 (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
Father's age	0.00** (0.00)	0.00 (0.00)	0.00*** (0.00)	0.00** (0.00)	0.00 (0.00)	0.00** (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00** (0.00)	0.00 (0.00)	0.00* (0.00)
Father's education	0.05*** (0.01)	0.04*** (0.01)	0.06*** (0.01)	0.04*** (0.01)	0.04*** (0.01)	0.04*** (0.01)	0.05*** (0.01)	0.05*** (0.02)	0.06*** (0.02)	0.04** (0.02)	0.04 (0.02)	0.05 (0.03)	0.04*** (0.01)	0.03*** (0.01)	0.05*** (0.01)
Father's work dummy	0.02* (0.01)	0.01 (0.02)	0.04** (0.02)	-0.00 (0.02)	-0.01 (0.03)	0.01 (0.04)	0.09** (0.04)	0.10** (0.05)	0.13** (0.06)	0.02 (0.05)	-0.04 (0.07)	0.14* (0.08)	-0.00 (0.02)	-0.02 (0.03)	0.04 (0.03)
Mother's age	0.00** (0.00)	0.00*** (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00** (0.00)	-0.00 (0.00)	0.00*** (0.00)	0.00** (0.00)	0.01** (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	0.00** (0.00)	0.00** (0.00)	0.00 (0.00)
Mother's education	0.05*** (0.01)	0.05*** (0.01)	0.04*** (0.01)	0.05*** (0.01)	0.06*** (0.01)	0.04** (0.02)	0.04*** (0.02)	0.05** (0.02)	0.01 (0.03)	0.03 (0.02)	0.04 (0.03)	-0.02 (0.03)	0.04*** (0.01)	0.05*** (0.01)	0.03** (0.01)
Mother's work dummy	-0.05*** (0.02)	-0.04* (0.02)	-0.07*** (0.02)	-0.05* (0.03)	-0.06* (0.03)	-0.04 (0.04)	-0.14*** (0.05)	-0.10* (0.06)	-0.23*** (0.08)	-0.04 (0.07)	0.05 (0.09)	-0.07 (0.12)	-0.04* (0.02)	-0.03 (0.03)	-0.07* (0.04)
Constant	-0.85*** (0.05)	-0.77*** (0.07)	-0.94*** (0.08)	-0.88*** (0.09)	-0.83*** (0.12)	-0.93*** (0.14)	-1.84*** (0.42)	-1.16** (0.52)	-3.15*** (0.73)	-2.97*** (1.14)	-1.70 (1.38)	-4.75** (2.39)	-0.89*** (0.08)	-0.80*** (0.10)	-0.97*** (0.13)
Observations	8386	4305	4081	3994	2303	1691	1410	906	504	703	469	234	4697	2772	1925
R-squared															

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01.

Table 14. IV estimation stage two: any time savings appliances.

	Dropout rate			Primary to lower secondary			Lower secondary to secondary			Secondary to upper secondary			Educational transition		
	All (1)	Boys (2)	Girls (3)	All (4)	Boys (5)	Girls (6)	All (7)	Boys (8)	Girls (9)	All (10)	Boys (11)	Girls (12)	All (13)	Boys (14)	Girls (15)
Own any time savings appliances	-0.30** (0.15)	-0.19 (0.20)	-0.49** (0.24)	0.76*** (0.27)	0.89** (0.42)	0.67* (0.36)	-0.94 (0.87)	-0.46 (0.70)	-1.88 (3.78)	-0.59 (0.65)	-0.52 (0.60)	10.49 (82.36)	0.58*** (0.21)	0.65** (0.31)	0.53* (0.32)
Female	0.17*** (0.01)			-0.04*** (0.01)			0.05 (0.08)			0.11 (0.09)			-0.05*** (0.01)		
Age in years	-0.13*** (0.01)	-0.16*** (0.01)	-0.10*** (0.01)	-0.05*** (0.01)	-0.05** (0.02)	-0.04** (0.02)	0.10 (0.13)	-0.07 (0.08)	0.69 (1.09)	-0.05 (0.23)	-0.11 (0.18)	-4.94 (36.91)	0.02** (0.01)	0.05*** (0.01)	0.00 (0.02)
Age squared	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.01*** (0.00)	0.00 (0.00)	0.01** (0.00)	-0.02 (0.04)	0.00 (0.01)	0.01 (0.01)	0.17 (1.24)	0.00*** (0.00)	0.00*** (0.00)	0.00*** (0.00)
No of siblings	-0.01 (0.00)	-0.00 (0.01)	-0.00 (0.01)	-0.01 (0.01)	-0.00 (0.01)	-0.01 (0.01)	0.03 (0.02)	0.02 (0.02)	0.03 (0.06)	0.01 (0.02)	0.01 (0.02)	-0.24 (1.83)	-0.01 (0.00)	-0.00 (0.01)	-0.01 (0.01)
Birth order	0.00 (0.00)	0.01*** (0.00)	-0.00 (0.01)	0.01 (0.01)	0.00 (0.01)	0.01 (0.01)	-0.02 (0.01)	-0.02* (0.01)	-0.02 (0.06)	0.01 (0.01)	0.00 (0.02)	-0.14 (1.59)	0.01 (0.00)	0.00 (0.01)	0.01 (0.01)
Stipend	-0.48*** (0.01)	-0.43*** (0.02)	-0.51*** (0.02)	0.09*** (0.03)	0.07 (0.05)	0.12*** (0.04)	0.03 (0.06)	0.04 (0.05)	-0.06 (0.11)	-0.13 (0.08)	-0.10 (0.10)	-0.22 (0.76)	0.06*** (0.02)	0.02 (0.03)	0.10*** (0.03)
Household size	0.01*** (0.00)	0.00 (0.00)	0.01*** (0.00)	-0.00 (0.00)	-0.01* (0.01)	0.00 (0.01)	-0.04* (0.02)	-0.02 (0.02)	-0.04 (0.07)	-0.02 (0.01)	-0.01 (0.01)	0.30 (2.53)	-0.00 (0.00)	-0.01* (0.00)	-0.00 (0.01)
Multigeneration HH	0.02 (0.01)	0.01 (0.02)	0.04* (0.02)	-0.04* (0.02)	-0.02 (0.03)	-0.06 (0.04)	0.07 (0.10)	0.03 (0.07)	0.11 (0.37)	0.07 (0.06)	0.00 (0.06)	-1.78 (14.40)	-0.03 (0.02)	-0.02 (0.02)	-0.04 (0.03)
Durable assets (ln)	-0.01 (0.01)	-0.02* (0.01)	0.01 (0.02)	-0.05** (0.02)	-0.06* (0.03)	-0.04 (0.03)	0.07 (0.06)	0.03 (0.05)	0.18 (0.35)	0.05 (0.05)	0.04 (0.04)	-1.21 (9.39)	-0.03** (0.02)	-0.04* (0.02)	-0.03 (0.03)
Monthly energy cost	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00** (0.00)	-0.00* (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00** (0.00)	-0.00* (0.00)	-0.00 (0.00)
Monthly food cost	-0.00 (0.00)	-0.00** (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)
Monthly goods & services cost	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	-0.00** (0.00)	-0.00* (0.00)	-0.00 (0.00)	0.00* (0.00)	0.00* (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00* (0.00)	-0.00 (0.00)	-0.00 (0.00)
Father's age	0.00** (0.00)	0.00* (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00** (0.00)	-0.00 (0.01)	0.00 (0.00)	0.01** (0.00)	0.02 (0.21)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)
Father's education	-0.03*** (0.01)	-0.04*** (0.01)	-0.02 (0.02)	-0.00 (0.01)	-0.01 (0.02)	0.00 (0.02)	0.09* (0.05)	0.06 (0.04)	0.17 (0.24)	0.06* (0.03)	0.05 (0.03)	-0.53 (4.26)	-0.00 (0.01)	-0.01 (0.01)	0.01 (0.02)
Father's work dummy	-0.05*** (0.01)	-0.04** (0.02)	-0.05** (0.02)	0.00 (0.02)	0.02 (0.03)	-0.02 (0.03)	0.05 (0.09)	0.02 (0.08)	0.22 (0.49)	-0.10* (0.06)	-0.17** (0.07)	-1.52 (11.27)	-0.01 (0.02)	0.01 (0.03)	-0.04 (0.03)
Mother's age	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.01 (0.00)	0.00 (0.00)	0.01 (0.02)	0.00 (0.00)	-0.00 (0.00)	-0.04 (0.30)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Mother's education	-0.05*** (0.01)	-0.04*** (0.01)	-0.05*** (0.01)	-0.02 (0.02)	-0.02 (0.03)	-0.02 (0.02)	0.10** (0.05)	0.09** (0.04)	0.07 (0.07)	0.04 (0.03)	0.03 (0.04)	0.25 (1.81)	-0.00 (0.01)	-0.01 (0.02)	-0.00 (0.02)
Mother's work dummy	0.12*** (0.02)	0.11*** (0.02)	0.11*** (0.03)	-0.04 (0.03)	-0.06 (0.05)	0.01 (0.04)	-0.21 (0.14)	-0.09 (0.09)	-0.53 (0.86)	-0.10 (0.08)	-0.02 (0.09)	0.72 (5.90)	-0.04* (0.02)	-0.07** (0.03)	0.01 (0.04)
Constant	0.99*** (0.14)	1.30*** (0.16)	0.74*** (0.23)	0.58** (0.24)	0.70* (0.36)	0.43 (0.35)	-2.45 (1.68)	-0.69 (0.97)	-7.96 (11.81)	-0.69 (2.31)	-0.36 (1.73)	51.59 (393.07)	0.13 (0.19)	0.09 (0.26)	0.12 (0.32)
Observations	8386	4305	4081	3994	2303	1691	1410	906	504	703	469	234	4697	2772	1925
R-squared	0.39	0.38	0.37	-0.05	-0.17	0.05	-0.28	0.27	-1.98	-0.08	0.05	-61.23	0.38	0.33	0.42

Note: All specification used Tehsil and survey round fixed effects. Standard errors in parentheses are clustered at community level. * p<0.10, ** p<0.05, *** p<0.01.