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Choice without Consciousness: Women's Participation in Household Decisions and Gender Equality in Children's Education

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Abstract

In this paper, we test if households where women participate in decisions regarding children's education and allocation of household education budgets incur more equal expenditures on education of boys and girls. Moreover, we test if women's awareness of gender equality can reduce inequality between boys and girls at the household level. We estimate these effects using three rounds of longitudinal data of rural households in Pakistan. We use both household and year fixed effects to control for endogeneity of the dependent and explanatory variables. The results suggest that households where women participate in decisions regarding children's education spend higher shares of education expenditures on education of girls in the secondary school age group (11-16). The results of Heckman Selection Model, corroborated by an estimated logit model, suggest that in households where women participate in children's education decisions and where women are aware of gender equality in education, girl children are more likely to be enrolled in school. The paper contributes to the refinement of measures of women's empowerment and to understanding of the mechanisms to achieve gender equality in education.

Keywords: empowerment, inequality, gender, household decision-making, intra-household resource allocation

JEL classification: D19, D63, J16

1. Introduction

In development research, empowerment of women is discussed as mean to attain gender equality and in terms of its instrumental efficacy for development outcomes (Branisa, Klasen & Ziegler 2013; Rendall, 2013). This has led to a proliferation of measures of women's empowerment (Alkire, Meinzen-Dick, Peterman, Quisuimbing, Seymour & Vaz, 2013, Samman & Santos, 2009; Ibrahim & Alkire, 2007).

Women's role in household decisions is an oft-employed indicator of women's empowerment (Upadhyay et al, 2014; Prata et al, 2017; Pratley, 2016). In this paper, we test the efficacy of women's role in household decisions in terms of reducing inequality between boys and girls within households. We use households' expenditures on schooling of boys and girls to capture gender inequality. Additionally, we test if women's consciousness of gender equality plays a role in reduction of gender inequality within households. Women's role in household decisions, gender equality within households and women's consciousness are endogenous. That is, households where women exercise choices may treat boys and girls equally. We are able to exploit longitudinal data that allows us to compare the same households with and without women's decision participation. Women in households may experience a change in these roles due to factors such as migration or death of man/men previously responsible for taking household decisions. Hence, we can reliably attribute changes in gender inequality to women's decision participation. Similarly, women may experience a change in gender consciousness within the same household that leads them to reduce inequality between boys and girls.

Women's participation in household decisions is employed as indicative of empowerment due to the drawbacks of using indirect measures of women's empowerment that make it difficult to separate the causal factors and outcomes/consequences of empowerment (see Branisa, Klasen & Ziegler, 2013; Ferrant, & Tuccio, 2015; Sundström, Paxton, Wang, & Lindberg, 2017 for indirect measures and Cueva Beteta, 2006; Shüler, 2006 for critique). Index indicators of women's empowerment, based on household survey data on women's role in household decisions, popularized after the inclusion of household decision-making modules in the Demographic and Health Surveys (DHS) (see Kishor & Subaiya, 2008). The premise for the inclusion of these modules in household surveys is that this data captures women's control over their lives. This control over one's own life is conceptualized as empowerment (Ibrahim and Alkire, 2007; Alkire et al, 2013; Mahmud & Tasneem, 2014; Ahmed and Khan, 2016; Phan, 2016). These empowerment measures are used to assess the covariates of women's empowerment (Sathar and Kazi, 2000; Kishor & Gupta 2004; Garikipati, 2008; Afzal et al., 2009; Khan, Mann, Zafar, Hashmi, & Akhtar, 2010; Mahmud, Shah & Becker, 2012; Weber & Ahmad, 2014) and to assess the impact of women's empowerment on outcomes such as fertility and child health (Upadhyay et al., 2014; Pratley, 2016; Prata et al., 2017).

Women's participation in household decision-making as a measure of their empowerment is also criticized[1] (Vaz, Pratley, & Alkire, 2016; O'Hara & Clement, 2018). The two major critiques on the use household decision participation as a gauge of women's empowerment are that, on the one hand, it ignores the complexity of household-decision making process (Seymour & Peterman, 2018; Agarwal, 1997). The second critique is that women may not use their decision-making role to favour women (or girls) in households and continue to discriminate against them. This is more likely in contexts with high gender inequality where women have internalized their own inferior status (Sardenberg, 2016; O'Hara & Clement, 2018). It is the second critique that this paper attempts to engage with. That is, it attempts to assess if women's participation in households' decisions reduces inequality between boys and girls within households. Specifically, it is tested if women's participation in household decisions on children's education reduces inequality in household expenditures incurred for schooling and education of girls and boys. In order to take into account women's internalized inferior status, it is further tested if women's consciousness towards gender equality reduces gender inequality in education. It is hypothesized that women's participation in household decisions in highly gender unequal contexts may not reduce inequality between girls and boys in households unless it is accompanied by women's consciousness towards gender equality. Consciousness of gender equality can lead women to reduce gender inequalities as belief in the inferior status of women can be overcome through gender consciousness.

There is insufficient empirical evidence for the claim that women's empowerment, as measured by their participation in household decisions, reduces gender inequalities. It has been noted, in the context of health inequalities, that women's participation in household decisions has differential impact on boys' and girls' health and nutrition intake, typically favouring boys (Malapit & Quisimbing, 2015). In rural Pakistan, Mansuri (2006) analysed education outcomes of boys and girls comparing households with male head of the household with those with female head of the household and found significantly negative effects on schooling outcomes of girls in households with women as head of the household. Moreover, it is worthwhile to make this assessment in the context of Pakistan. Girls and women in rural Pakistan remain disadvantaged in terms of access to education and wide disparities exist in terms of education between girls and boys (see appendix Table A1). Furthermore, empirical research on women's empowerment stops short at estimating the effects of processes on outcomes such as women's participation in household decisions and does not link it to gender equality/inequality within households. This may be due to the endogenous nature of the two concepts. This paper attempts to take these links forward by assessing the potential of women's participation in household decisions in reducing gender inequality. This paper addresses the following two questions:

[1] Also see Gram, L., Morrison, J., & Skordis-Worrall, J. (2019). Organising concepts of 'women's empowerment' for measurement: a typology. Social indicators research, 143(3), 1349-1376.

1. Does women's participation in households regarding children's education reduce gender inequality in households' education expenditures by increasing girls' share in household education expenditures?
2. Does gender consciousness of women regarding gender equality in education reduce gender inequality in households' education expenditures by increasing girls' share in household education expenditures?

The study is able to estimate these effects by using three rounds of longitudinal data of rural households in Pakistan, the Pakistan Rural Household Panel Survey (PRHPS) (IFPRI & IDS; 2012-2014). Additional data from a sub-sample of the PRHPS was collected by one of the authors from a sub-sample of the survey that has been appended to the original panel. Another empirical challenge, however, is self-selection of households into sending children to school. High rates of children out of school are observed in rural Pakistan. We estimate the effect of women's participation in household decisions and women's consciousness on household's expenditures on girls' schooling after tackling households self-selection into sending children to school using the Heckman Selection model[2]. The selection variable used is households' distance to school. Distance to school is expected to affect households' decision to enrol children in school (Sathar & Lloyd, 1994; Alderman et al., 1996, Hazarika, 2001) but is not expected to affect households' expenditure on the girls' and boys' education[3]. Therefore, the study attempts to answer the following research question as well:

3. Do women's participation in household decisions and women's consciousness towards gender equality increase household expenditures on education of girl children after self-selecting into sending girls to school?

Our results suggest that, households with women's participation in children's education decisions spend higher shares of their education expenditures on girls. Also our results show that girl children in households with conscious women in decision making role are more likely to be sent to school and also receive significantly higher expenditures on their education. Our findings suggest that women's consciousness of gender inequality is a mechanism explaining the impact of women decision making on the reduction of gender inequality within the household.

[2] The dependent variable for the Heckman Selection Model is not the share of households' expenditures on girls' schooling but the actual expenditures incurred on the schooling of each child. Details are provided in the relevant sections.

[3] Households' expenditures on children's travel to school were not included in in the educational expenditures.

2. Literature review

Our analysis unifies various strands of literature including that on women's empowerment, studies delineating causal factors of low levels of girls' schooling in Pakistan, human capital accumulation (including children's education) and theories of gender that outline factors behind women's disadvantage in societies. We attempt at a unified reading of these various strands below.

Women's role in household decisions is used as an indicator of women's empowerment as women's empowerment is conceptualized as a change in women's situation from limited/no life choices to having more choices in life (Kabeer, 1994; 2005). This framework has influenced the use of women's role in household decisions to proxy women's choices. Limits to women's choice can be through coercive or non-coercive means. Having choice also rests on the availability and access to material and non-material resources (Kabeer, 1999). Hence, women can be empowered when they gain resources (Batliwala, 1995; Sen and Batliwala, 2000; Pradhan, 2003; Gupta and Yesudian, 2006). In empirical research, when women are observed taking small and large decisions regarding her life or within the household, it is assumed to be indicative of women's choice and control over her life and hence considered women's empowerment (Wilson, 2009).

Another component, of women's empowerment is women's consciousness. Consciousness refers to women's awareness of systematic gender inequalities. It means awareness of their actions as contributing towards the reduction (or exacerbation) of gender inequalities. This consciousness is women's understanding of processes that disempower women. Consciousness engenders action, individual and collective, towards the undoing of disempowering processes (Rowlands, 1995; Sen and Baltiwala, 2000; Mosedale, 2005; Batliwala, 2007; Beşpınar, 2010; Sardenberg, 2016).

Women's empowerment, reflected in women's role in decisions, women's participation in household production and control over income does not reflect its potential for reducing inequalities between men and women (O'Hara and Clement, 2018). Women in decision making roles can contribute to reduction in inequalities between men and women when these roles are accompanied by consciousness of gender equality (Batliwala & Dhanraj, 2004). When women are aware of the consequences of their own actions towards reduction of gender inequality, they will use their decision-making authority to reduce these inequalities. Although women's consciousness is conceptualized as an important component of women's empowerment, O'Hara and Clement (2018) are among the pioneering empirical studies that include consciousness indicators in women's empowerment valuations. In the analysis in this paper, therefore, we include women's role in household decisions as well as measure of their consciousness towards gender equality.

Effects of women's participation in household decisions nor the effect of women's consciousness has been explored in studies on girls' schooling in Pakistan. Studies have noted that disparities exist between education of girls and boys in Pakistan (Khan, 1997; Arif, Saqib & Zahid, 1999; Aslam & Kingdon, 2008; Khan, 2008). There are both supply side and demand side constraints to education attainment. On the supply side, low government investment in education infrastructure leads to unavailability of schools; a factor behind low levels of schooling (Khan, 1997). On the demand side, poverty and lack of financial resources limit schooling and education of children (Arif, Saqib & Zahid, 1999).

Girls disadvantage in education is noted at various levels of education. Girls are disadvantaged in enrolment, that is, they are less likely to be enrolled in school (Khan, 2008). This disadvantage is noted to be more pronounced in the rural areas (Arif, et al., 1999). It persists in expenditures on girls' schooling relative to boys (Aslam & Kingdon, 2008) as well as the quality of their schooling (Aslam, 2009). Factors that limit children's schooling, like poverty and low levels of parental education, are noted to affect girls more than boys. While the factors that increase children's schooling and education have a smaller effect on girls' schooling than that on the schooling of boys (Arif, et al., 1999; Khan, 2008).

Households spend on education when they expect returns to education in the form of wages/income earned in the future. Households invest in children's education if returns to investment exceed the costs. Labour market conditions vary for men and women that means that returns to investment in the education of boys and girls varies. This variation may lead to different investments towards education of boys and girls. Empirical studies on returns to education in Pakistan show that rate of return on girls' education is higher than the rate of return on boys' education for all levels of education. These differences are large and for some levels, the return to girls' education is more than double of boys. These differences persist after tackling self-selection of women in waged work and endogeneity of wages (Aslam, 2007). Despite higher returns to girls' education, households in Pakistan invest more in the education of boys. Boys are more likely to be enrolled in school, once enrolled they receive higher education expenditures and are more likely to be sent to expensive private schools (Aslam 2009, Aslam & Kingdon, 2008).

Low levels of household investment in girls' education, despite higher returns to this investment entails that other reasons need to be explored for this differential in the investment in education of girls and boys. Aslam (2007) suggests that in societies where women reside with their husband's family after marriage, girls' future earnings become a part of the husband's household earning and is therefore not of any benefit to her parents, this discourages households to invest in girls' education (Aslam, 2007). Moreover, households' lower investment in education of girls may also be due to gender roles. Gender roles are tasks, obligations, norms of behaviour and sanctions associated with a gender. That means, that gender roles shape expectations regarding functions appropriate for boys and girls (men and women) in social institutions such as the family. That it is the responsibility of men to work

outside the home and earn a living and that women's responsibility is domestic work are examples of gender roles. This implies that in societies where women are not expected to work for wages, households will not invest in their education if education is viewed by households as a mean to secure future earnings. In societies where men have more access and control of economic, political and intellectual resources, households may be discouraged from investing in the education of girls. That is, if households seek to improve their socio-economic status through educating their children, and if the societal contexts favours boys over girls, it is logical for households to invest in boys than in girls.

In summary, households have lower expenditures for girls' schooling because households perceive lower returns to education of girls. This can be because girls leave their natal homes after marriage and their earnings become a part of their affinal household. Perceptions of lower returns to girls' education can also be grounded in the conditions of the labour market. For the decision to invest household resources where the household expects maximum returns, the sex of the economic agent in the household taking the schooling expenditure decision is irrelevant. Lower returns to girls' education due to their lower participation in the labour markets and lower wages will lead to lower investments in their education. Similarly, if boys/men are expected to work to for wages, then households will invest more in the education of boys. These considerations will inform decisions of both male and female decision makers in households. Hence, women decision makers cannot be expected to reduce inequality of investments in education of boys and girls. Moreover, if the aim of decision makers in the household to increase their social standing, then women decision makers cannot be expected to divert household resources to girls.

Additionally, women's internalization of the inferior status of women/girls (and genders other than that of a man) would also lead women to ignore their own role in the perpetuation of gender inequalities. Women may perceive that their rights in societies are less than those of men due to their lowered perceived contribution to society (Sen, 1987). This internalized inferiority amongst women might additionally lead women (even in decision making position) to continue favouring boys in the household. It therefore suggests that empowered women, those who are not just in decision making roles but also conscious towards gender equality can actively reduce gender inequality.

In the following analysis therefore, we hypothesize that women in decision making roles may not use their role to reduce inequality in education expenditures between boys and girls. Furthermore, we hypothesize that women who exhibit consciousness of gender equality are more likely to reduce inequalities between boys and girls at the household level. We test these hypotheses using data from rural households in Pakistan. We restrict the analysis to inequality in households' investment in human capital of boys and girls proxied by the expenditures incurred by households for education and schooling of girls and boys. Furthermore, the explanatory variables of interest, that is, women's role in household decisions and women's consciousness are also restricted to the domain of education. That is, women's role in

household decisions regarding children's schooling and school budgets is the first explanatory variable and women's consciousness of equality in education is the second variable of interest. These variables and the empirical and identification strategies are explained in the sections below.

3. Data and Methods

3.1. Data

Our analysis is based on three rounds of Pakistan Rural Household Panel Survey (PRHPS) (IFPRI & IDS; 2012-2014). Primary data collected form the sub-sample of the panel collected in round 4 is appended to the original panel. The PRHPS is a longitudinal data of rural households from three provinces of Pakistan. It has a wide coverage of rural households in Pakistan even though it is not nationally representative. It covers 15 million rural households (Nazli & Haider, 2012). Round 4 was conducted in two districts of Khyber Pakhtunkhwa (KPK) Province of Pakistan; Districts Mansehra and Nowshera and, in District Attock of province of Punjab. Although administratively Attock district is in Punjab, it is culturally (and geographically) close to Khyber Pakhtunkhwa. Households in the PRHSP in the province of Khyber Pakhtunkhwa were surveyed for round 4 as differences between education attainment of boys and girls are more pronounced in the rural areas of Khyber Pakhtunkhwa than those in Punjab. The areas were also chosen for their ease of accessibility for the author.

The dataset is thematically extensive. The data gathering instrument consisted of two questionnaires, male and female. These questionnaires were filled by interviewing one adult man and one adult woman from each household. Respondents were households' self-reported head of the household and the spouse of the head of the household. In majority households, a man was reported as being the head, hence, the male questionnaire was filled by interviewing the head of the household and the female questionnaire was filled after interviewing his wife. Households that did not have an adult man (woman) available for interview, sections of the male (female) questionnaire was filled by interviewing the woman (man) respondent, these sections are called supplementary questionnaire. The variables used in the analyses are not consistently available for all rounds. Therefore, the number of rounds used for different analyses differ, these are detailed in the relevant sections.

Households' expenditure on schooling of children is the dependent variable of the analysis. Its two variants are used, the share of households' total schooling expenditure spent on schooling of girls and the total annual expenditure on schooling of an individual child. Data of schooling of all children in the household are available. This data includes if children aged 5-16 in the household were attending school at the time of the survey. For children who were not attending school, the data reports if these children had ever attended school. For children who were attending school, expenditures incurred by the household per year on 1. School fee 2. Expenditure on books and stationery and 3. School uniform[4] for each child is reported.

[4] Households have also reported the expenditures incurred by the household on children's travel to and from school, these are not included in the calculation of household expenditures due to the inclusion of distance to school as selection variable in the Heckman Model.

Children's schooling and related expenditures are used to construct both variants of the dependent variable.

The first variant of the dependent variable is the share of households' total schooling expenditure spent on schooling of girls. To construct this variable, households' expenditure on school fee, books and stationery and school uniform is combined for all children of the school age group. Then, this total expenditure is divided by the number of children of that age for household's per child education expenditure. Then, households' expenditures on these heads is added for girl children of the school age group. This expenditure is then divided by the number of girls in the school age to arrive at the per girl expenditure. The per girl expenditure is then divided by the per child expenditure to arrive at the share of households' expenditure spent on the schooling of girls. The per child and per girl expenditures are used to calculate households' share of education expenditures spent on girls, to adjust the shares for the number of children of each sex. The analysis is conducted for children in two age groups, children of the primary school age (ages 5-10) and children of secondary school age (ages 11-16). To calculate the shares, all children of the school age who were not attending school or had never been to school are treated as having zero expenditures on their schooling. Table 1 shows average shares of households' expenditures spent on schooling of girls and boys as well as the annual per child expenditures of households separately for boys and girls.

Table 1: Share of Households' Education Expenditures for Boys and Girls and Expenditures incurred per Child

Variable	Girls (N)	Boys (N)
Share of Households' Education Expenditures (Ages 5-10)	0.58*** (2301)	0.79 *** (2463)
Share of Households' Education Expenditures (Ages 11-16)	0.43*** (2055)	0.82*** (2175)
Annual expenditure per Child (Ages 5-10)	1571*** (2300)	2215*** (2463)
Annual expenditure per Child (Ages 11-16)	1656*** (2055)	3064*** (2175)

Note: Asterisks show that the difference in the mean values of the categories is significant.
*** p<0.01, ** p<0.05, * p<0.1
Note: Expenditures are in Pakistani Rupee.

Table 1 shows that households spend higher shares of their schooling expenditures on boys. If girls and boys received similar expenditures then these shares would be 1, that is, the per girl or the per boy expenditure would equal households per child expenditures. However, the per girl expenditures are considerably lower than 1, for both age categories of children. That means that girl children receive less than the households' average expenditures on the education. Table 1 also shows the average per child expenditures of household. The per girl expenditures are significantly lower than households' expenditures per boy. In the age group (11-16) the per boy expenditures are 46 percent higher than the per girl expenditures.

In the rural areas of Pakistan, a number of children of the school age do not attend school. This is corroborated by our dataset. Expenditure on schooling for children out of school in the dataset is missing. If these expenditures are allowed to remain missing and households' shares of expenditures for boys and girls are calculated, these shares take the form shown in Table 2[5]. That is, Table 2 compares the respective shares of expenditures and the average expenditure received by boys and girls in households where children attend school.

Table 2: Share of Households' Education Expenditures for Boys and Girls and Expenditures incurred per Child (Missing Data not accommodated)

Variable	Girls (N)	Boys (N)
Ages 5-10	1.0*** (1326)	1.17*** (1656)
Ages 11-16	1.0*** (881)	1.3*** (1400)
Annual expenditure per Child (Ages 5-10)	2659*** (1359)	3196*** (1707)
Annual expenditure per Child (Ages 11-16)	3833*** (888)	4693*** (1420)

*** p<0.01, ** p<0.05, * p<0.1
Note: Expenditures are in Pakistani Rupee.

Table 2 indicates fewer households have positive girls' expenditure shares as compared to Table 1. That is, there are a number of households that have no expenditures on the education of school aged girls or that the girls are out of school. Second, for households that send girls to school, the average share of education expenditures received by the girls is lower than that received by the boys. The large number of children out of school suggest that there is a type of household that sends children to school. The above comparisons are based on households' expenditures on school fee, school uniform and books and stationery. These expenditures do not include the expenditures incurred by households on children's travel to and from school. An argument can be made that households spend higher on travel of girls to and from school as girls are provided with safer and reliable means. Appendix table A2 compares the shares and average expenditures of households for boys and girls including the travel costs. The table compares expenditures of households that have children of the both sexes present in the respective age groups and were attending school at the time of the survey. As evident from the table (A2), the differences in the shares of education expenditures received by girls and boys remain significant.

Table 3: Percentage of Children Aged 5-16 not attending School, by Sex

Children out of School	Boys (Age 5-16)	Girls (5-16)
Out of School	39***	60***
Total	2976	2788

***Fisher's exact = 0.000

[5] In Table 1 above, schooling expenditures for children not attending school are considered zero.

Table 3 shows percentage of children of the school age (5-16) not attending school either because they had never enrolled or had dropped out. The table shows that the out of the 2976 observations for boys aged 5-16 across the four rounds of the survey, 40 percent were not attending school. The table also shows that of the 2788 observations for girls aged 5-16, 60 percent were not attending school.

The two explanatory variables of interest for this analysis is women's role in household decisions regarding children's education and women's consciousness of gender quality. Decision-making module in the female questionnaire of the survey required the female respondent to state who were the decision makers of the household regarding various aspects of household life. A dummy variable is created based on the responses of the woman respondent of the household to the following four questions: 1. Who in the household has the final say about whether children attend school? 2. Who in the household allocates budget for children's education? 3. Who in the household decides/decided how much education girl children can attain? 4. Who in the household decides/decided how much education boy children can attain? Data on the former two is available for round 3 and round 4 only. Data on the latter two are available for rounds 2, round 3 and round 4 (Table 4). The variable takes value 1 if the respondent reported participation in all decisions that were asked in that round. This criterion is set as all rounds do not have all four questions. This binary variable allows to use all available data while giving equal weightage to each decision. Table 4 shows the percentage of women out of the total respondent women who reported that they alone or with other members of the family participated in the decisions.

Table 4: Household Decisions Regarding Education and Women's Participation

Decisions Category	Percentage in category "Yes" (%)
Who in the household decides to allocate budget for Children's Education	45
Who in the household decided/decides how much education should female children of the household should receive?	46.7
Who in the household decided/decides how much education should male children in the household should receive?	47
Who has the final say in the household whether children should attend school or not?	60

Note: The table shows proportion of households where women report participation in decisions (1=Yes) and where women report no participation in decisions (0=No). The Binary categories have been created from list of responses of women, this list included responses as "myself", "My husband and I", "My husband", etc. All those responses where women (not necessarily the respondent woman, for example if the response was "My mother") are reported to have participated in the above decision are treated as (1=Yes). These responses are of the main female respondent from the household.

Table 4 shows that over half of the women respondents did not participate in decisions regarding schooling expenditures and education of boys and girls. Women seem to have more say in household decisions regarding sending children to school. In sixty percent of households, women had the final say on whether their children go to school or not. Women's responses varied to expressions such as "myself", "me and my husband", "my husband" etc.

All responses where the woman included herself as a decision maker are translated into the category "yes" that means that the woman participated/participates in these decisions.

Women's consciousness is gauged from their response to the following statement *"It is more important to send a boy to school than a girl",* if a woman disagrees to the statement, she is considered having consciousness of gender equality, otherwise not. A binary variable indicating woman's consciousness is used. The variable takes value 1 if the woman exhibits consciousness towards gender equality. However, data on this variable is available in Rounds 3 and 4 only. For round 2 of the survey, woman's consciousness is gauged from her response to the following question *"How much education would you want your daughter to attain?".* If a woman's response is that she wants her daughter to complete at least high school level of education (10 years of schooling), she is coded as having consciousness towards gender equality. Table 5 shows frequency of women's responses[6].

Table 5: Women respondents' consciousness of gender equality

	Percent %
It is more important to send a boy to school than a girl. (Disagree; Binary Indicator "Conscious=1")	67
How much education would you like your daughter to have? (Aspirations > 10 Grade)	51

Table 5 shows that a majority (67 percent) of women disagree to the statement that it is more important to send boys to school than girls. Women who agree to the statement may hold that opinion because they believe that returns to girls' education are lower than those of boys. They may hold the opinion that girls do not benefit from receiving education as their tasks are household activities that do not require formal schooling. Or women who agree to the statement may discriminate against girls and women due to their internalized inferior status. We recognize that an agreement or a disagreement to the statement does not linearly reflect women's consciousness of gender equality. However, it reflects that women believe that boys and girls deserve different treatment because of their sex. The education aspirations, similarly, do not reflect women's consciousness of gender inequality unambiguously. The idea behind it was that in round 1 of the survey, women were asked to state their aspirations for the education of boys and girls both. If women respondents reported lower aspirations for the education of girls than boys, it was taken as indicative of women's beliefs that boys and girls deserve different treatments. However, as the data on women's decision participation is not available for round 1 we don't use round 1 in our analysis. For round 2 of the survey, women's education aspirations were asked only for their girl children. Hence, a comparison with their aspirations regarding boys cannot be made. However, we believe that the 10 years of schooling benchmark is reasonable indicator of women's consciousness of gender equality in education. Aspiring for 10 years of schooling for girls means that women aspire that their daughters educate over and above just reading and writing. Furthermore, by aspiring to keep

[6] Round 1 of the panel does not have a decision-making module; hence it is excluded from the analysis.

their daughters in school until age 16/17 when 10 years of schooling is completed, women exhibit that they do not wish for their daughters to be married off in their teenage years.

There are limitations of the dataset. The panel is unbalanced as round 4 was limited to only a sub-set of the sample. Household consumption expenditures as an important explanatory/control variable is not available for round 4[7], hence household income is used instead. Data on women's decision-making participation is not available for round 1 of the survey. So, for the analysis below, rounds 2, 3 and 4 are used.

3.2. Estimation Strategy

The following equation is estimated to assess the effects of women's decision-making and women's consciousness on households share of education expenditures spent on girls:

$$GirlsShare_{i,t} = \alpha_{i,0} + \alpha_1 Dec_{i,t} + \alpha_2 Conscious_{i,t} + \alpha_3 Dec * Conscious_{i,t} + \alpha_4 X_{i,t} + \omega_i + \Phi_t + \epsilon_{i,t}$$ ……Equation (1)

$GirlsShare_{i,t}$ is share of household i's education expenditure spent on the education of girls in time period t. $Dec_{i,t}$ is a binary variable that takes value 1 if women respondent from household i at time period t reports participating in decisions regarding education of children. $Conscious_{i,t}$is a binary variable that takes value 1 if woman in household i at time period t exhibits consciousness towards gender equality in education. $X_{i,t}$ are characteristics of household i at time period t including households annual per person income, household size, ratio of adult women to men in the household, ratio of girls to boys in the household. ω_i are the household fixed effects and Φ_t are year fixed effects.

To estimate the effect of the explanatory variables on the dependent variable after controlling for selection of households into sending children to school, the following equation is estimated.

$$lnEduexp *_{j,i,t} = \beta_0 + \beta_1 GirlChild_{j,i,t} + \beta_2 Dec_{i,t} + \beta_3 Dec_{i,t} * GirlChild_{j,i,t} + \beta_4 Conscious_{i,t} + \beta_5 Conscious_{i,t} * GirlChild_{j,i,t} + \beta_6 Dec_{i,t} * GirlChild_{j,i,t} * Conscious_{i,t} + \lambda C_{j,i,t} + \theta X_{i,t} + \pi_i + \Omega_t + \varepsilon_{i,t}$$.……Equation (2)

Where, $lnEduexp_{j,i,t}$ is the log of education expenditure of household i at time period t on child j. $GirlChild_{j,i,t}$ is a dummy variable that equals 1 if the child j, in the household i, at time period t is a girl. $Dec_{i,t}$ is women's participation in children's education decisions in household i at time period t. $Conscious_{i,t}$ is the consciousness of women in household i, at time period t. The estimated coefficient on the interaction of indicators of women's participation in decision-making and dummy variable $GirlChild_{j,i,t}$, β_3, shows the impact of women's participation in decisions concerning children's education on expenditures on girls. Furthermore, the coefficient on the interaction between indicator of women's consciousness of gender equality in education and dummy variable $GirlChild_{j,i,t}$, β_4, captures the impact of women's consciousness on households' expenditure on girls' education. The coefficient of the

[7] Households' expenditures on children's schooling are available for all rounds.

interaction of three terms, $Dec_{i,t} * GirlChild_{j,i,t} * Conscious_{i,t}$, β_6 captures the effect of conscious women in decision making roles on the education expenditures for girls education. $X_{i,t}$ is a vector of household i's demographic and economic characteristics in time period t, $C_{j,i,t}$are the characteristics of child j, in household i, at time period t, π_i are the village fixed effects, Ω_t are the year fixed effects and $\mu_{i,t}$ is the error term.

3.3. Identification strategy

As mentioned earlier, the dataset includes children of the school-going age group who do not attend school (Table 3)[8]. This represents that households where children attend school self-select. We therefore tackle selection into the sample using Heckman selection model. The exogenous variable used in the selection equation is the households' distance to school. Households' distance to school is correlated with school enrolment but it is unlikely to be correlated with households' expenditure on schooling[9].

Selection Equation

$$ChildSchool_{j,i,t} = \rho_1 X_{i,t} + \rho_2 C_{j,i,t} + \rho_3 SchoolDistance_{i,t} + \varepsilon_{i,t} \quad \text{..... Equation (3)}$$

$$ChildSchool = \begin{cases} ChildSchool = 1, \; if \;\; \rho_1 X_{i,t} + \rho_2 C_{j,i,t} + \rho_3 SchoolDistance_{i,t} > 0 \\ ChildSchool = 0, \; if \;\; \rho_1 X_{i,t} + \rho_2 C_{j,i,t} + \rho_3 SchoolDistance_{i,t} \leq 0 \end{cases}$$

$$LnEduexp_{j,i,t} = LnEduExp^{*}_{j,i,t} \; if \; ChildSchool_{j,i,t} = 1$$

In the selection equation $X_{i,t}$is a vector of household characteristics in time period t, $C_{j,i,t}$ are the characteristics of child j from household i in time period t and $SchoolDistance_{i,t}$ is the household's distance to school. Equation (1) is estimated at the household level. That is, households' shares of expenditure spent on schooling of all girls in the household are calculated and are regressed on explanatory and control variables. Equation (2) is estimated at the individual level. That is, sample of all children in the school age groups (ages 5-10 and ages 11-16) in the households is used to estimate the effect of explanatory variables. All children of the age groups not attending school have missing values for their schooling expenditures.

Equation (1) is estimated separately for households with children in the primary school age group (ages 5-10) and those with children in the secondary school age group (11-16). Similarly, equation (2) is estimated for sample of children in primary school age group and separately for children in the secondary school age groups.

[8] Respondents were asked to report on the schooling of all children in the 5-16 age bracket residing in the household at the time of the survey. The households reported if the child was attending school and if the child was attending school, the details of school and school related expenditures were recorded. If the child was not attending school at the time of the survey, it was inquired if the child had ever attended school. Children in the age bracket 5-16 who were either not attending school at the time of the survey or had never attended school are out of school children with missing schooling and school related expenditures.

[9] Households' expenditure on travel to school were excluded from expenditures on schooling for this analysis.

Robustness Checks

It is pointed out in Barcellos, Carvalho & Lleras-Muney (2014) and Choi & Hwang (2015) that fertility decisions based on son preference influences the number of children in the household. Scarcity of resources leads expenditures to be influenced by the number of children in the household thereby affecting household expenditures on children's education. Choi & Hwang (2015) suggest that in the absence of sex-selective abortions, the sex of the first child is exogenously determined. In this way, systematic differences in expenditures incurred by households for education of boys and girls can be attributed to gender discrimination. And hence factors that alter households' expenditures on girl children can be noted to have the potential of reducing gender inequality. For rural Pakistan, there is no evidence of sex-selective abortions taking place as reported in Zaidi & Morgan (2016). Son preference may also lead to increased mortality of girl children due to neglect. We rule this out by testing if the neo-natal mortality of girls is higher than boys and by comparing the average number of children of the both sexes in the households. These comparisons are shown in Appendix tables A3 and A4. It does not appear that there is excess mortality of girl children or there are significant differences in the number of children of the two sexes in the households.

We therefore estimate equation (2) for first child selected from each household. This first child is not necessarily the eldest child in the household but the eldest child of the school-going age group in the household at the time of the survey in round 1. We follow this first child in the subsequent three rounds. The dependent variable therefore becomes the log of household's annual expenditure on schooling and school related expenses for this child in each time period.

4. Results

4.1. Share of Girls in Household Education Expenditure

Equations 1 is estimated for households with children of both sexes in the primary school level age group (5-10) and separately for households in the secondary school level age group (11-17). Table 6 below shows the results of estimation of equation 1 for households that had children of the both sexes in the age group 11-16 at the time of the survey[10]. Robust standard errors are estimated. Sampling weights from round 1 of the survey have been included in the estimates. The estimates are controlled for household fixed effects and year fixed effects. Household fixed effects allows us to compare the same households in two time periods thereby reducing endogeneity of the explanatory and dependent variables. All three columns of Table 6 show estimates controlled for household characteristics that are expected to affect households' shares of expenditures spent on the education of girls. These include household size, sex of the household head, ratio of adult women to men in the household and log of household's annual income per person[11].

Table 6: Dependent variable: Household's Share of Education Expenditures Spent on Girls (Ages 11-16)

	(1)	(2)	(3)
VARIABLES	Girls Share	Girls Share	Girls Share
Woman's Participation in Edu Decisions, Binary Variable	0.282*	0.286*	0.0597
	(0.162)	(0.166)	(0.243)
Woman's Consciousness, Binary Variable		0.0410	-0.0101
		(0.0838)	(0.0866)
*Decide * Conscious*			0.266
			(0.197)
Constant	0.489	0.448	0.445
	(0.490)	(0.484)	(0.482)
Observations	695	695	695
R-squared	0.033	0.034	0.039
Number of hid	431	431	431
Household FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes

Robust standard errors in parentheses

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

Control Variables: Household size, Sex of the household head, Ratio of Adult Women to Men and Log of household per Person Annual Income

The results suggest that households where the primary woman respondent reported participation in decisions regarding education of children have higher shares of their

[10] Results of estimation of equation 1 for households with children of the primary school level are not being reported here as there are no significant effects. These are provided in the appendix, Table A5.

[11] Data for Households' annual consumption expenditure per person is not available for Round 4 of the survey that is why income estimates have been used.

education expenditures spent on education of their girl children. The average share of households' education expenditures spent on the education of girls in the sample is 0.44[12]. Households where women respondents have reported participating in decisions, indicated by value 1 of the binary variable "Woman's participation in Edu Decisions" have significantly higher shares. The value of the coefficient is 0.282 which means that households where women participate in decisions have up to 64 percent higher shares for girls. The coefficient of women's consciousness is insignificant contrary to our expectations. So, the hypothesis that women in household decisions do not use their role in household decisions to reduce gender inequality within the households unless it is accompanied by consciousness of gender equality does not appear to be supported by our data.

The results presented in Table 6 above are based on an unbalanced sample, to assess the robustness of our estimates, we restrict the panel to the panel of households surveyed in round 4 only. Moreover, the panel is restricted to rounds 3 and 4 only because our consciousness indicator is constructed differently for round 2 than in rounds 3 and 4. Moreover, the results presented earlier correspond to expenditures on children's schooling without the expenditures incurred by households on travel. If we calculate girls' shares including households' expenditures on travel to and from school, restrict the sample to a balanced panel and use only rounds 3 and 4 for the estimation. We get the results shown in Table 7. All estimates are controlled for household characteristics, household fixed effects and year fixed effects[13].

Our number of observations naturally reduce. These results suggest that households where women participate in decisions and exhibit consciousness towards gender equality in education spend higher shares of their education expenditures on girls than the average household. This is evidenced by a significant and positive coefficient of the interaction of the two variables, women's decision participation and women's consciousness. The coefficient is 0.63, compared to the average share of 1 (shown in Appendix table A2) it means that households where women participate and are conscious have 63 percent higher shares for girls compared with the average shares received by girls.

[12] The sample is of households that had children of the both sexes of the ages 11-16 present in the household at the time of the survey and excluding Round 1. The average for the full sample shown in 1 Table 1is 0.43.

[13] When we include households' expenditures on travel to and from school and estimate the equation for an unbalanced panel, the coefficient of the interaction is not significant but retains its sign. The result is shown in the appendix A6.

Table 7: Dependent variable: Household's Share of Education Expenditures Spent on Girls (Ages 11-16, Balanced Panel, Expenditures include Travel Expenditures)

VARIABLES	(1) Girls Share	(2) Girls Share	(3) Girls Share
Woman's Participation in Edu Decisions, Binary Variable	-0.0225	-0.0939	-0.299
	(0.195)	(0.260)	(0.284)
Woman's Consciousness, Binary Variable		-0.0814	-0.125
		(0.218)	(0.227)
*Decide * Conscious*			0.623*
			(0.367)
Constant	1.508**	1.572**	1.559**
	(0.639)	(0.727)	(0.703)
Observations	171	171	171
R-squared	0.135	0.139	0.158
Number of hid	120	120	120
Household FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes

Robust standard errors in parentheses

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

Control Variables: Household size, Sex of the household head, Ratio of Adult Women to Men and Log of household per person annual income

4.2. Secondary School Age Children (11-16) and Heckman Selection

In the estimates above, selection of households into sending children to school has not been taken into account. To take households self-selection into consideration, equation (2) and (3) are estimated. The equations are estimated for all children aged 11-16 in the surveyed households[14]. Individual data is used for this analysis. That is, the dependent variable is the log of household's annual expenditure on the education of the child. Children aged 11-16 who were not attending school at the time of the survey either because they had dropped out or had never enrolled in a school have missing values of the dependent variable. Individual level controls are added to both equations including a dummy variable, "Girl Child" showing sex of the child and child's age. Household level control variables are also included in both the equations. These control variables include household size, log of household's annual per person income, number of boys (age<18) in the household, number of girls (age<18) in the household. Additionally, in equation (2) village fixed effects are captured by including village level dummies. Year fixed effects are also included.

For equation (3) selection variables, distance of the household from the boys' and girls' primary (grade 1-5) and secondary school (grade 6-10) are included. Distances are calculated using households' reported distances to the schools that their children were attending. For

[14] Estimates of equations 2 and 3 for children in the primary school age group are shown in appendix. Table A7

households that did not send their children to school, the average distance to the schools in the village is used.

The explanatory variables of interest are women's participation in household decisions regarding children's education captured by a binary variable that takes value 1 if the main woman respondent from the household reported that she herself or along with other members of the household took these decisions. This woman's consciousness of gender equality is indicated by a binary variable "Woman's consciousness". The interaction terms of these indicators with the binary indicator showing the sex of the child are added to capture if a girl child, in a household where a woman takes decision regarding children's education is more likely to be sent to school and if she receives higher expenditures on her schooling. Similarly, interaction of women's consciousness and sex of the child is included to capture the effect of women's consciousness on household's expenditures on the education of girls. An interaction of three variables, women's decision-making role, women's consciousness and sex of the child is further included to capture the effect of conscious decision makers on households' expenditures on the education of girls.

Table 8 shows that on average households spend significantly less on the education of the child if the child is a girl. This is evidenced a by a negative and significant coefficient of the dummy variable that takes value 1 if the child is a girl. The interaction term, *Girl Child and Decide*, shows the effect of being a girl child in a household where woman reports participating in household decisions regarding education of girls. The coefficient is significant and positive, that says that girls in households where women decide on children's education receive significantly higher investments in their education than girls in households where women do not participate in these decisions. The estimated coefficient is 0.321, that means that girls in households where women are in decision making roles receive 32 percent higher expenditures than girls in households where women do not participate in these decisions. The coefficient of the interaction term in the third column of the table shows that girl children in households where women decide and are not conscious still receive higher expenditures. This is shown as the interaction term of girl child, decides and conscious is present in the equation. Therefore, the interaction term, girl child and decides shows the effects of girls living in households where women did not exhibit consciousness towards gender equality. On the other hand, the coefficient on the variable women's consciousness remains significant and positive. That means that boys in households where women are more conscious receive higher expenditures for their education. This is shown because the variable girl captures the effect of being a girl and the interaction term girl child into consciousness captures the effect of being a girl in a household with conscious woman. So, the coefficient on the variable consciousness captures the effect of woman's consciousness on education expenditures on boys.

Table 8: Dependent Variable: Log of Expenditure on Education and Schooling, Heckman Selection Model

	(1)	(2)	(3)
VARIABLES	Log Edu Exp	Log Edu Exp	Log Edu Exp
Girl Child, Binary Variable	-0.352***	-0.274	-0.251
	(0.103)	(0.168)	(0.172)
Woman's Consciousness, Binary Variable	0.344***	0.410***	0.355***
	(0.113)	(0.131)	(0.126)
Woman's Participation in Edu Decisions, Binary Variable	0.0117	-0.117	-0.329
	(0.117)	(0.130)	(0.318)
*Woman Conscious * Girlchild*		-0.211	-0.228
		(0.168)	(0.172)
*Woman Decides * Girlchild*		0.321**	0.312**
		(0.145)	(0.142)
*Woman Conscious * Decide * Girl Child*			0.243
			(0.299)
Constant	7.413***	7.440***	7.492***
	(0.428)	(0.427)	(0.418)
Selection Equation			
Distance to Girls' Primary School	-0.0427	-0.0444	-0.0485*
	(0.0277)	(0.0277)	(0.0280)
Distance to Boys' Secondary School	-0.0288*	-0.0285*	-0.0255*
	(0.0156)	(0.0156)	(0.0154)
Girl Child, Binary Variable	-0.597***	-0.770***	-0.748***
	(0.0661)	(0.119)	(0.119)
Woman's Consciousness, Binary Variable	0.463***	0.387***	0.300***
	(0.0741)	(0.0940)	(0.102)
Woman's Participation in Edu Decisions, Binary Variable	0.226***	0.145	-0.206
	(0.0694)	(0.0955)	(0.166)
*Woman Conscious * Girlchild*		0.171	0.146
		(0.129)	(0.131)
*Woman Decides * Girlchild*		0.162	0.150
		(0.118)	(0.121)
*Woman Conscious * Decide * Girl Child*			0.443**
			(0.179)
Constant	2.621***	2.708***	2.819***
athrho	(0.385)	(0.392)	(0.394)
Constant	0.282**	0.280**	0.260**
lnsigma	(0.121)	(0.121)	(0.125)
Constant	0.173***	0.170***	0.167***
	(0.0473)	(0.0471)	(0.0472)
Observations	3,630	3,630	3,630
Village FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Household Controls	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes

Robust standard errors in parentheses

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

Control Variables: Child's Age, Log of Household Annual per person Income, Number of Boys in the Household (Age<18), Number of Girls in the Household (Age<18).

Selection Equation: Child's Age, Log of Household Annual per person Income, Number of Boys in the Household (Age<18), Number of Girls in the Household (Age<18).

Variables in italics are interaction terms.

The results of the selection equation are also interesting in the context of this study. The results suggest that the farther a household is a from girls' primary school, the less likely is the household to send their children to school. Furthermore, a household are less likely to send their child to school if the child is a girl. However, households, where women report participating in decisions regarding education of children, are more likely to send their children to school and so are households where women exhibit consciousness towards gender equality. The most interesting result is the positive and significant coefficient of the interaction term *girlchild, women's consciousness and women's role in decisions*, this coefficient suggests that households where the women are more conscious towards gender equality in education are more likely to send their girl children to school. The estimates of the selection equation suggest that households are significantly less likely to enrol girl children to school. Longer distances to school also discourage households to enrol children to school. However, what is interesting is that households where women exhibit consciousness, children are more likely to be enrolled in school.

Equations 1 and 2 are estimated separately for children aged 5-10. The results are shown in the appendix (Table A5 and A7). The results for the sub-sample of 5-10 year olds suggest that the share of households' education expenditure spent on the education of girls are not significantly affected by either women's decision making or women's consciousness. Estimates of the Heckman selection model suggest that, households where women exhibit greater consciousness towards gender equality, girls are more likely to be enrolled in school. Different effects of women's decision-making role for girls aged 11-16 and girls aged 5-10 can be explained. The significance of women's role in household decisions and women's consciousness on education of girl children of the secondary school age group and not for girl children of primary school age group can be because households restrict girls' mobility more strictly when girls reach puberty. It may be that women's voice in household decisions becomes an important factor influencing girls' education for secondary school aged girls when there is resistance to girl's education. In the absence of this resistance, such as for girls aged 5-10, this voice or consciousness is not needed.

Robustness Checks

To see the effect of these variables on the likelihood that girls attend school a logistic regression model is estimated. A random effects logistic regression is estimated after keeping the sample for girls aged 11-16. Year fixed effects are included. Control variables include household size, ratio of adult men to women, log of household's annual per person income, sex of the head of the household, education of the head of the household, education of the spouse of the head of the household (respondent/decider woman), household's distance to girls primary school and the child's age. The explanatory variable of interest is woman's role in household decisions regarding children's education and woman's consciousness. Table 9

below shows the signs and significance of the estimated logit coefficients and the odds ratios[15].

Table 9: Binary Dependent Variable: Girl Child Enrolled in School

VARIABLES	(1) Logit RE	(2) Odds Ratio
Woman's Participation in Edu Decisions, Binary Variable	positive***	4.829***
		(1.961)
Woman's Consciousness, Binary Variable = 1	positive***	8.075***
		(3.451)
Observations	1,720	1,720
Number of person_id	1,090	1,090
Household Controls	Yes	Yes
Year Fixed Effects	Yes	Yes

Robust standard errors in parentheses

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

Control Variables: household size, ratio of adult men to women, log of household's annual per person income, sex of the head of the household, education of the head of the household, education of the spouse of the head of the household (respondent/decider woman), household's distance to girls primary school and the child's age

The dependent variable is a binary variable that takes value 1 if the child was enrolled in school and 0 otherwise. Column 1 of the table shows the signs and significance of the estimated coefficients and column 2 show the odds ratio. The results suggest that girls in households where women exhibit a consciousness towards gender and participate in decisions regarding education of girls, are more likely to be enrolled in school. The odds ratio suggest that for girls in households with conscious women, the odds of being enrolled in school are 8 times higher as compared to girls in households without conscious women. The odds ratio also suggest that for girls in households with women as decision makers, the odds of being enrolled in school are 5 times higher as compared to girls in households without women in decision making roles.

As an additional robustness check, Table 10 shows the results of the Heckman selection model estimated for the first child selected form each household. As mentioned earlier, in the absence of sex-selective abortions, the sex of the first child is exogenously determined, any observed differences in girls and boys can then be attributed to discrimination on the basis of sex. However, the first child in our case may not always be the first-born child but was the first child of the school going age in round 1. Sampling weights from round 1 are included in the regression. Robust standard errors are estimated.

[15] Marginal effects are not estimated as random effects model in STATA estimates the marginal effects assuming that the random effect is zero. Similarly, marginal effects calculated after the estimation of a fixed effects logistic model assume that that the fixed effects are zero.

Table 10: Dependent Variable: Natural log of Households' Expenditure on Education of First Child

VARIABLES	(1) Log Edu Exp	(2) Log Edu Exp	(3) Log Edu Exp
Girl Child, Binary Variable	-0.172	-0.182	0.134
	(0.169)	(0.296)	(0.291)
Woman's Consciousness, Binary Variable	0.552***	0.555**	0.555**
	(0.164)	(0.218)	(0.218)
Woman's Participation in Edu Decisions, Binary Variable	-0.00358	-0.153	-0.153
	(0.137)	(0.174)	(0.174)
*Woman Conscious * Girlchild*		-0.124	-0.490
		(0.315)	(0.338)
*Woman Decides * Girlchild*		0.342	-0.334
		(0.264)	(0.458)
*Woman Conscious * Decide * Girlchild*			0.796*
			(0.471)
Constant	6.191***	6.587***	6.544***
	(0.445)	(0.430)	(0.431)
Selection Equation			
Average distance in Village to Girls' Primary School	-0.0748*	-0.0760*	-0.0762*
	(0.0419)	(0.0423)	(0.0425)
Average distance in Village to Boys' Primary School	-0.110***	-0.109***	-0.107***
	(0.0404)	(0.0408)	(0.0411)
Girl Child, Binary Variable	-0.370***	-0.558***	-0.644***
	(0.0945)	(0.170)	(0.184)
Woman's Consciousness, Binary Variable	0.618***	0.540***	0.539***
	(0.0929)	(0.130)	(0.130)
Woman's Participation in Edu Decisions, Binary Variable	0.212**	0.141	0.139
	(0.0833)	(0.114)	(0.114)
*Woman Decides * Girlchild*		0.147	0.375
		(0.172)	(0.261)
*Woman Conscious * Girlchild*		0.175	0.293
		(0.183)	(0.212)
*Woman Conscious * Decide * Girlchild*			-0.296
			(0.274)
athrho	0.696**	0.773**	0.768**
	(0.352)	(0.362)	(0.363)
lnsigma	0.227***	0.203***	0.200***
	(0.0618)	(0.0657)	(0.0683)
Constant	0.510***	0.499***	0.497***
	(0.0661)	(0.0672)	(0.0670)
Observations	1,583	1,583	1,583
Year FE	Yes	Yes	Yes
Household Controls	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes

Robust standard errors in parentheses

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

Control Variables: Child age, Number of Boys in the household, Number of Girls in the household, Log of Household's per capita annual income. Selection Equation: Log of household's per capita annual income, child's Age

The variables in italics are interaction terms.

The results in Table 10 corroborate the results we saw for all children in the household. The results suggest that households are less likely to send their girl children to school. This is evident from a negative and significant coefficient of the dummy variable that takes value 1 if the first child selected from the household was a girl. Households are also likely to self-select into sending their children to school if lesser is the household's distance to school. The most interesting result in Table 10 is that woman who exhibit consciousness towards gender and participate in household decisions regarding the education of children are likely to spend more on the education of their girl child. This is evidenced by a significant and positive coefficient of the interaction term that takes value 1 if the woman had consciousness, participated in decisions regarding children's education and if the first selected child from the household was a girl child. It is worthwhile to note that neither women's role in household decisions nor women's consciousness are significantly correlated with different expenditures on girl children as evidenced by insignificant estimated coefficient of the interaction terms *Woman Conscious and Girlchild* and *Woman Decides and Girlchild.*

5. Conclusions

This paper attempted to link an oft-employed measure of women's empowerment, their role in household decisions, with gender equality within households. It was further hypothesized that women's ability to use their decision participation to reduce gender inequality may be constrained by their lack of consciousness of gender equality in highly gender unequal contexts. Therefore, the paper includes and test the efficacy of women's consciousness in reducing gender inequality. The endogenous character of the three variables of interest make it difficult to delineate the effects of women's decision-making role and women's consciousness on gender equality. Therefore, the paper exploits longitudinal data that allows us to explore the effects of changes in women's decision participation and in women's consciousness on gender equality within households.

The dimension of inequality explored in this paper is households' expenditures on schooling of girls and boys. The dataset used in this paper details households' expenditures on the schooling of all children in the household. Households' average annual expenditures and shares of education expenditures spent on the schooling of girls and boys are significantly different. These differences persist for children in the primary school age group (5-10) and for children in the secondary school age group (11-16). There are all also significantly more girls out of school than boys in both age groups.

We have used households' share of education expenditures spent on education of girls as a dependent variable. Our explanatory variables are; a binary variable that takes value 1 if the primary female respondent reported participating in household decisions regarding children's schooling and allocation of household budget for schooling of children and a binary variable that takes value 1 if the respondent woman exhibited consciousness towards gender equality in education. By using household fixed effects, we capture the impact of changes in women's decision participation and consciousness on the share of household expenditure spent on education of girls in the same household. Thereby, the captured effects can be attributed to the change in the explanatory variables to some extent.

Our results from an unbalanced panel and for household expenditures without travel expenditures suggest that for households with children in the secondary school age group (11-16) of the both sexes present in the household, the share of education expenditures spent on girls increase by up to 64 percent than the average share of education expenditures on girls when the woman participates in decisions regarding children's education. Thereby suggesting that households where women participate in household decisions regarding children's education, inequality in households' expenditures on schooling of girls and boys may reduce. However, our results from a balanced panel consisting of only two rounds with households travel expenditures included in expenditures on schooling suggest that households for households with children in the secondary school age group (11-16) of the both sexes present

in the household, the share of education expenditures spent on girls increase by up to 62 percent than the average share of education expenditures on girls if the woman participates in decisions and exhibits consciousness towards gender equality.

Further in the analysis we account for selection of households into sending children to school using the Heckman Selection Model as many children in the rural areas do not attend school. The selection variable that we use is households' distance to girls' and boys' school. As distance to school is used as the selection variable, household expenditure on schooling and education of children used in this part of the analysis is restricted to expenditures on school fee, schoolbooks and stationery and school uniforms. Results of the Heckman Selection Model suggest that girls of the secondary school age (11-16) in households where women participate in decisions concerning children's education receive significantly higher expenditures on their schooling. The Heckman Selection equation suggests that girls of the secondary school age (11-16) are more likely to be sent to school if they live in a household where a woman participates in household decisions and exhibits consciousness towards gender equality in education. Moreover, when we follow the first child of the school age from each household over four rounds and estimate the effect on their schooling expenditures, we find that girl children in households where women exhibit consciousness and participate in decisions regarding children's education receive higher expenditures on their schooling. There are no significant effects of women's consciousness or their participation only.

Women's role in household decisions is used as an indicator of women's empowerment, however, whether this role is instrumental in reducing gender inequality is less established. It can be argued that women in gender unequal societal contexts do not use their role to reduce inequality as they themselves have internalized women's inferior status. Hence, it can be argued that women's decision participation without a consciousness of gender equality may not translate into women actively reducing gender equality. Our results suggest that, women's participation in household decisions appears to be instrumental in reducing inequality even without consciousness. Moreover, results from a balanced panel also suggest that households with conscious women in decision making roles have higher shares for girls' education. Similarly, our results for the Heckman Selection Model for the first child of the school age suggest a significant correlation between gender equality within households and participation of gender conscious women.

A unified reading of these results suggests that women's role in household's decision and women's consciousness of gender equality both are important dimensions of women's empowerment. These two dimensions together may lead women to actively reduce gender equality. It can be suggested that women's consciousness of gender equality may be included in valuations of women's empowerment along with their role in household decisions.

There are obvious limitations of this study. First, the results for girls shares in household expenditures that seem to be positively affected by women's participation are only significant

for girls in the secondary school age group. No significant effects could be found for households with children in the primary school age group. We believe that since resistance to girls' schooling in the secondary age group is more pronounced for girls in the secondary school age group, it may be that women's participation is more effective for this age group than for the former. Second, our Heckman Selection Model is based on pooled data. That means that it does not tackle endogeneity of the three variables of interest. However, the result that it is conscious women's participation in household decisions that is significantly and positively correlated with expenditures on girls' education (for first child of the school age) and not just their participation or consciousness points out that perhaps in highly gender unequal societal contexts women's participation in household decisions can be instrumental to reducing gender inequality if it is accompanied by a consciousness of gender.

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7. Appendix

Table A1: Pakistan's Social Indicators by Sex

	PSLM (2014-15)				PRHPS (2013-14)	
	Overall		Rural			
	Male	Female	Male	Female	Male	Female
Population Distribution (LFS, 2017-18)	50.8	49.2	32.0	31.5	50.6	49.3
Adult Literacy Rate	70	49	63	38	56.2	32.6
Net Enrolment Rate (Primary, age 6-10)	72	62	69	56	53.8	49.4
Net Enrolment Rate (Middle, age 11-13)	39	34	36	27	29	22
	Labour Force Survey (2017-18)					
Adult Literacy Rate	72.5	51.8	66.3	40.4	-	-
Education (<10 years of School) *	42.9	30.5	44.7	28.4		
Education (>10 years of School)	21	14.8	16.5	8.8		
Tertiary Education Rate	6.8	5.0	3.6	2.2	2	1.4
Labour Force Participation (refined)	68	20.1	68	25.6	65	14.5
Labour Force Participation (augmented)	51.6	34.7	57.3	45.6	-	-

Sources: Pakistan Social and Living Standards Measurement Survey (PSLM), 2014-15. Pakistan Bureau of Statistics, Statistics Division, Government of Pakistan. Labour Force Survey, (LFS), 2017-18. Pakistan Bureau of Statistics, Statistics Division, Government of Pakistan.

* The percentage of population aged 10 and above who attended school but completed less than 10 years of education. The category is the sum of population proportions in three categories. These categories are 1. KG but below primary (<5 years of school) 2. Primary but below middle (<8 years of school) and 3. Middle but below Matric (<10 years of school).

Definitions from the PSLM:

Net Enrolment Rate (NER) at Primary Level: Primary NER is the number of children aged 6 to 10 years attending primary level (classes 1-5) divided by the number of children aged 6 to 10 years.

Net Enrolment Rate (NER) at Middle Level: Middle NER is the number of children aged 11 - 13 years attending middle level (classes 6 - 8) divided by number of children aged 11 - 13 years.

Literacy rates: Population aged 10 years and older that is literate expressed as a percentage of the population aged 10 years and older where literacy is defined as the ability to read a newspaper and to write a simple letter.

Definitions from LFS:

Refined Activity Rate: Refined activity rate is the currently active population expressed as a percentage of the population 10 years and above.

Augmented Activity: Augmented activity rate is based on probing questions from the persons not included in the conventional measure of labour force, to net-in marginal economic activities viz subsistence agriculture, own construction of one's dwelling etc. Conventionally, persons 10+ aged reporting housekeeping and other related activities are considered out of labour force. However, from the perspective of time use, they are identified as employed if they have spent time on a specific set of marginal economic activities mentioned afore.

Tertiary Education: Percentage of population aged 10 and above who have completed graduate or above level of education.

Definitions for PRHPS:

Literacy is defined as ability to read, write and basic numeracy

NER at primary level is calculated as the percentage of children aged (6-10) enrolled in school of the total children aged (6-10).

NER at Middle level calculated as the percentage of children aged (11-13) enrolled in school and attending grades 4 or above of the total children aged (11-13).

Statistics from the PRHPS are author's own calculations.

Table A2: Share of Households' Education Expenditures for Boys and Girls and Expenditures incurred per Child (Missing Data not accommodated; Travel Expenditures included)

Variable	Girls (N)	Boys (N)
Ages 5-10	.97*** (1036)	1.29*** (1226)
Ages 11-16	1*** (664)	1.4*** (960)
Annual expenditure per Child (Ages 5-10)	4929** (1065)	6854** (1267)
Annual expenditure per Child (Ages 11-16)	10510 (668)	12451 (971)

*** p<0.01, ** p<0.05, * p<0.1
Note: Expenditures are in Pakistani Rupee.

Table A3: Average number of Girls and Boys in Households in Age-Groups (0-4, 5-10, 11-15, 16-18)

Average number of children	Obs.	Girls (Mean)	Boys (Mean)	t stat	p value
Age (0-4)	6235	0.417	0.43	-1.07	0.28600
Age (5-10)	6235	0.455	0.484	-2.21	0.02710
Age (11-15)	6235	0.382	0.41	-2.34	0.01928
Age (16-18)	6235	0.253	0.234	2.13	0.03340

Table A4: Average number of Girls and Boys born alive but later died

Variable	Obs.	Girls (Mean)	Boys (Mean)	t stat	p value
Number of Reported Deaths of Children	594	0.9125	1.0370	-2.0958	0.0363

Note: This data is from the birth histories of all women in the age group 14-49 who had ever been married living in the households. Households reported the number of children born to these women including those who had died after birth.

Table A5: Dependent variable: Household's Share of Education Expenditures Spent on Girls (Ages 5-10, Unbalanced panel)

VARIABLES	(1) Girls Share	(2) Girls Share	(3) Girls Share
Woman's Participation in Edu Decisions, Binary Variable	0.277	0.278	0.122
	(0.175)	(0.179)	(0.251)
Woman's Consciousness, Binary Variable		0.0140	-0.0161
		(0.0837)	(0.0865)
*Decide * Conscious*			0.180
			(0.196)
Constant	-1.621	-1.634	-1.728
	(1.213)	(1.231)	(1.243)
Observations	663	663	663
R-squared	0.036	0.036	0.038
Number of hid	415	415	415
Household FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes

Robust standard errors in parentheses

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

Control Variables: Household size, Sex of the household head, Ratio of Adult Women to Men and Log of household per Person Annual expenditure

Table A6: Dependent variable: Household's Share of Education Expenditures Spent on Girls (Ages 11-16, Unbalanced Panel, Expenditures include Travel Expenditures)

VARIABLES	(1) Girls Share	(2) Girls Share	(3) Girls Share
Woman's Participation in Edu Decisions, Binary Variable	0.0797	0.0822	-0.175
	(0.0926)	(0.0905)	(0.192)
Woman's Consciousness, Binary Variable		0.0236	-0.0343
		(0.0792)	(0.0769)
*Decide * Conscious*			0.301
			(0.210)
Constant	0.439	0.415	0.412
	(0.500)	(0.496)	(0.497)
Observations	695	695	695
R-squared	0.041	0.042	0.054
Number of hid	431	431	431
Household FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes

Robust standard errors in parentheses

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

Control Variables: Household size, Sex of the household head, Ratio of Adult Women to Men and Log of household per Person Annual expenditure

Table A7: Dependent variable: Household's Share of Education Expenditures Spent on Girls (Ages 5-10)

VARIABLES	(1) ln_hheduexp	(2) ln_hheduexp	(3) ln_hheduexp	(4) ln_hheduexp
Girl Child, Binary Variable	-0.247***	-0.232***	-0.206	-0.287*
	(0.0843)	(0.0750)	(0.126)	(0.155)
Woman's Consciousness, Binary Variable	0.141*	0.142	0.150	0.151
	(0.0836)	(0.114)	(0.125)	(0.125)
Woman's Participation in Edu Decisions,	0.0532	0.0805	0.0796	0.0849
Binary Variable	(0.107)	(0.149)	(0.149)	(0.147)
*Woman Conscious * Girlchild*			-0.0290	0.0715
			(0.144)	(0.163)
*Woman Decides * Girlchild*		-0.0587	-0.0590	0.253
		(0.126)	(0.127)	(0.358)
*Woman Conscious * Decide * Girl Child*				-0.379
				(0.402)
Constant	6.494***	6.485***	6.482***	6.460***
	(0.345)	(0.457)	(0.456)	(0.443)
Selection Equation				
Distance to Girls' Primary School	-0.0395***	-0.0396***	-0.0394***	-0.0388***
	(0.0101)	(0.0135)	(0.0134)	(0.0134)
Girl Child, Binary Variable	-0.347***	-0.324***	-0.466***	-0.508***
	(0.0572)	(0.0646)	(0.0962)	(0.102)
Woman's Consciousness, Binary Variable	0.583***	0.582***	0.483***	0.483***
	(0.0539)	(0.0725)	(0.0878)	(0.0879)
Woman's Participation in Edu Decisions,	0.267***	0.322***	0.326***	0.327***
Binary Variable	(0.0631)	(0.0967)	(0.0955)	(0.0958)
*Woman Conscious * Girlchild*			0.203*	0.262**
			(0.108)	(0.116)
*Woman Decides * Girlchild*		-0.102	-0.111	0.0916
		(0.119)	(0.120)	(0.236)
*Woman Conscious * Decide * Girl Child*				-0.267
				(0.265)
Constant	-0.991***	-1.000***	-0.927***	-0.944***
	(0.196)	(0.256)	(0.258)	(0.256)
athrho				
Constant	0.262***	0.266***	0.262***	0.261***
	(0.0486)	(0.0687)	(0.0685)	(0.0681)
lnsigma				
Constant	0.256***	0.257***	0.256***	0.256***
	(0.0442)	(0.0616)	(0.0615)	(0.0614)
Observations	4,236	4,236	4,236	4,236
Village FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Household Controls	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes

Robust standard errors in parentheses

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

Control Variables: Child age, Number of Boys in the household, Number of Girls in the household, Log of Household's per capita annual income. Selection Equation: Log of household's per capita annual income, Woman's participation in household decisions. Child's Age

The variables in italics are interaction terms.