The University of Manchester
Global Development Institute

Global Development Institute

Working Paper Series

2021-055

August 2021

ISBN: 978-1-912607-13- 6

What's the worth of a promise? Evaluating the longer-term indirect effects of a programme to reduce early marriage in India.

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Cite this paper as:

Biswas, Shreya and Das, Upasak (2021) What's the worth of a promise? Evaluating the longer-term indirect effects of a programme to reduce early marriage in India. GDI Working Paper 2021-055. Manchester: The University of Manchester.

Abstract

One important dimension of Conditional Cash Transfer Programs apart from conditionality is the provision of continuous frequency of payouts. On the contrary, the Apni Beti Apna Dhan program, implemented in the state of Haryana in India from 1994 to 1998 offers a “promised” amount to female beneficiaries redeemable only after attaining 18 years of age if she remains unmarried. This paper examines the long-term indirect effects of this programme on their human capital outcomes.. Using multiple large scale datasets in a triple difference framework and exploiting the exogenous variation in the timing of implementation, we found significant improvements in educational attainment but no discernible effect on measures related to labour participation, time allocation, empowerment or intergenerational health indicators. While underage marriage has reduced, the likelihood of marriage after receiving the transfers has increased. We provide suggestive evidence of the CCT money and the associated educational gains being used by brides’ parents to ensure grooms of higher social status. The paper recommends a set of complementary potential policy instruments that include altering gender norms through behavioural interventions skill development and incentives to encourage female work participation.

Keywords

Education, labour participation, early marriage, conditional cash transfer, dowry, gender norms

JEL Codes

I38, J12, J16, J22

Acknowledgements

The authors acknowledge Udayan Rathore for assistance with the data. The authors also acknowledge the editor, Dr. Nicholas Jepson and two anonymous reviewers for their comments and suggestions apart from those from the participants in the Economics and Finance for Society Initiative seminar series organised by the Jindal School of Banking and Finance, O.P. Jindal University, and the Brown Bag Seminar series organised by the Global Development Institute, University of Manchester.

1. Introduction

Cash incentives through conditional cash transfer (CCT) programmes have emerged as a widely adopted intervention to improve human capital, reduce the gender gap in education and break the vicious cycle of poverty. In their most canonical form, these programmes offer cash transfers which are conditional on women remaining unmarried up to a threshold age and enrolled in schools; in some cases, they are also linked to attendance or academic outcomes. The income effect through the cash component, along with the conditionality, helps to overcome the credit constraint and lowers the opportunity cost of female education or remaining unmarried (Fiszbein & Schady, 2009; Baird et al, 2013).

An important dimension of CCT programmes apart from conditionality is the provision for continuous frequency of payouts, which in many cases is yearly. The idea is to ensure short-term consumption smoothening, with the conditions often incentivising longer-term human capital accumulation and, in the process, reducing the gender gap and attaining better welfare outcomes for women. One of the concerns, however, is ensuring regular enforcement of these conditions and periodic payments, especially in countries with weak institutions (Rinehart & McGuire, 2017). Studies have indicated that the associated costs of complying can often be burdensome for the beneficiaries, limiting the effectiveness of the CCTs in various contexts (Brauw & Hoddinott, 2011; Heinrich & Brill, 2015). In contrast, other interventions, rather than periodic payouts, offer longer-term financial incentives to achieve similar objectives. These programmes often depend on a 'promise' of a lump-sum payment at the end of a fixed term, with limited but related conditionality. As an instance, for programmes that offer a promised payment to the female unmarried beneficiary after attaining a certain threshold age, policy makers expect direct benefits through a reduction in the prevalence of early marriage. Additionally, it is also presumed that indirect gains may be derived through higher parental investment in human capital accumulation before payment of the earmarked amount. In the process this would also lead to better labour and marriage market outcomes as well as higher female autonomy.

This paper evaluates one such programme which depends on protracted benefits – India's Apni Beti Apna Dhan (ABAD) – by assessing its long-term effects on human capital indicators such as educational and labour market outcomes, which are not directly linked with the conditionality.[1] In the process of identifying the drivers of the observed effects, we also examine the programme's effects on several dimensions of wellbeing, including marital decisions, time allocated to daily activities, and empowerment indicators, as well as intergenerational health effects.

[1] 'Apni Beti, Apna Dhan' is a Hindi phrase that translates as 'Our daughter, our wealth'.

The ABAD programme was implemented in the Indian state of Haryana between 1994 and 1998. Households belonging to scheduled castes (SCs) and Other Backward Castes (OBCs), or those officially categorised as poor were eligible to benefit from the programme.[2] Under its provisions, parents from these eligible households who had given birth to daughters were offered an immediate financial grant along with a long-term savings bond redeemable only after the daughters turned 18, provided they remained unmarried.[3] The objective of the programme was to reduce the preference for sons at birth by incentivising female births and lowering the opportunity cost of early marriage through the monetary promise. In the process, it was expected that parents would get their daughters educated which, in turn, might benefit them through higher participation in the labour market and by changing gender norms to create better bargaining power and empowerment post-marriage.

There are numerous channels through which the educational effects of programmes that do not explicitly carry any conditionality of school enrolment or attendance but which offer frequent payments can manifest. Because of the promised monetary incentive, it might be expected that parents would 'value' their daughter more, leading to higher private investments in human capital. Further, programmes with limited conditions and lump-sum payments can lower the transaction costs involved in proving the associated conditionality and redeeming the payments. For such programmes, the net monetary benefits the parents were expecting to receive higher than conventional CCTs with frequent conditional pay-outs, thereby potentially incentivising higher educational investments for their daughters. This aspect becomes especially important in areas with weaker institutions given relatively higher transaction costs. However, there are multiple ways through which such a premise may not hold.

First, parents may have misguided beliefs about the process of investing in a daughter's education and subsequent returns from these investments. For instance, if parents' perceived education elasticity of long-term earnings is low, this may prevent them from sending their daughters to school, especially without an explicit conditionality. Second, it is possible that parents may have systematically higher discount rates for girls than for boys in the family. This is especially relevant in patrilocal contexts, where sons co-residing with their parents are more likely to take care of them and provide informal old-age insurance, whereas the returns to a girl's education will be enjoyed by her husband's family after marriage. Conditionality and frequent payments can then incentivise higher schooling for daughters, through which the socially inefficient outcomes in terms of gender disparity in human capital investment can be addressed. Finally, evidence indicates equivocally that household work can substitute female education (Levinson & Moe, 1998). Without an explicit conditionality regarding education and transfers, the shadow wage of these activities might not reduce, which can act as a deterrent to parents sending their daughters to school (Bourguignon et al, 2003; Garcia & Saavedra 2017;

[2] SCs and OBCs are among the historically most deprived social groups in India, both socially and economically (Deshpande, 2000; Hnatkovska et al, 2013).
[3] In India, girls are said to have entered child marriage if they marry below 18 years of age.

Parker & Todd, 2017). However, increasing private investments in human capital among daughters might offset the cost of delayed marriage, which is incentivised by the promise of monetary transfer on remaining unmarried until age 18. This is especially relevant in states like Haryana with entrenched norms that make early marriage socially acceptable. Accordingly, the overall effect of the programme remains unclear and this warrants an empirical investigation.

Additionally, whether positive educational gains (if any) translate into a higher likelihood of female work participation also remains ambiguous. According to Human Capital theory, higher levels of education may lead to improved wages in the labour market beyond the reservation wage, encouraging more women into paid work. However, if this relationship is non-linear in nature, it would only be above a threshold level of educational attainment that the returns to wages would start to manifest. Further, if higher educational attainment leads to better relative bargaining power in the household, women may prefer leisure or home production over going out to work. This could further lead to intergenerational spill-overs through an improvement in welfare outcomes among their children (Lundberg et al, 1997; Mazumder et al, 2021). Moreover, there may be discernible non-market returns to education as well (Schultz, 1988). Nevertheless, if the norms and attitudes towards women as traditional caregivers remain unaltered, the educational gains leading to a better match in terms of educated husbands or finding a wealthy groom might induce parents to have their daughters married early. It is, then, likely that the gains in education may not be translated into higher participation in the labour market or even higher autonomy. In this context, it is additionally possible that the programme transfer is used for marital purposes as a dowry, defined as a transfer of wealth from the bride's family to the groom's at the time of marriage. Dowry, as the literature indicates, can have multiple implications in non-pecuniary marital outcomes. First, it may improve the intra-household position and status of the brides, especially in contexts where women's security and property rights are not adequately guaranteed in practice (Brown, 2009; Makino, 2019). Second, a potentially higher dowry payment is often used as means to ensure grooms of higher social and economic status, which remains one of the key determinants of how a family is perceived by their peers (Becker, 1991; Bloch et al, 2004; Anderson, 2007).

This paper estimates the direct and indirect effects of the long-term promise of the monetary incentive provisioned under the ABAD programme. In particular, it examines the programme's effects on the level of educational attainment of the beneficiaries and then tests whether these gains translate into higher labour market participation. It next assesses the potential reasons that explain the programme effects observed and in the process studies the marriage market implications of the intervention as discussed. Multiple large-scale nationally and state-representative household survey datasets were used to explore these objectives. Apart from the fourth wave of the National Family and Health Survey (NFHS-4), conducted in 2015–16, we employed the two rounds of the Periodic Labour Force Survey (PLFS), conducted in 2017–18 and 2018–19, respectively. To explore time allocation to outside work, household chores and other activities, the Time-Use Survey (TUS) conducted in 2019 was used.

For causal identification, we exploited the exogenous timing of the programme's implementation (1994 to 1998) in Haryana and the particular age cohort of potential female beneficiaries born in this period. Males from this age cohort, along with those from the older cohort, were taken as a control group. Please note that the women from the older cohort were also taken in the control group. Individuals from the neighbouring state of Punjab were taken as an additional control unit and a triple difference regression strategy was employed to estimate the average intent-to-treat effects. This estimation strategy accounts for two possible factors that may confound the causal estimate: changes in the educational levels for females relative to males of the same age cohort residing in Haryana; and changes in the outcome variable for the females across the two states. Importantly, we argue that a generic systematic push for attaining higher educational goals over time or additional interventions that can disproportionately affect females relative to males in Haryana would be controlled for in the triple difference framework. However, since the marital outcomes may not be particularly relevant for males, we used a similar double difference strategy only for the female sample from both states.

The findings indicate a significant and positive effect on years of education, while having no bearing on labour market participation for the beneficiaries. We offer two explanations for observing no impact on work participation. First, the likelihood of gaining a higher (ie college/ university) education was found to be limited, although we found an increase in the likelihood of completion of secondary and higher secondary education. If the relationship of work participation with education is non-linear in nature, the limited effect on acquiring higher levels of education may form a significant deterrent to finding work for the beneficiaries. Second, we found no evidence of the potential beneficiaries being more likely to substitute their labour work with leisure, socialisation or self-care, which is indicative of limited changes in the prevailing gender norms. We obtained further evidence on this, as the programme's effects on empowerment indicators, and on maternal and intergenerational health outcomes, remained statistically indistinguishable from zero. Interestingly, while the likelihood of child marriage was found to have reduced, the chances of marriage at 18 or 19 years increased significantly, implying the possibility of beneficiaries using the monetary receipts for marital purpose. Here, we found suggestive evidence of parents utilising the ABAD transfers and educational gains to ensure that their daughters married into families owning cemented houses and land, potentially to signal higher social status. Therefore, to sum up, the set of evidence provided by the paper indicates a limited role for the intervention in terms of changing prevailing gendered norms. Rather, the programme was plausibly used as an instrument by parents to obtain 'better quality' grooms, a situation which could be used to acquire upward social mobility within their communities but which may not necessarily have improved their daughters' wellbeing.

The paper contributes to the literature and policy in multiple ways. Apart from the rigorous impact evaluation of the ABAD intervention, our study in general contributes to the limited

literature on the long-term and indirect effect of CCTs (Millan et al, 2020; Peruffo & Ferreira, 2017; Baez & Camacho, 2011). The paper further adds to the literature that documents evidence for demand-based interventions in the Global South to improve women's education and wellbeing. In addition, we contribute to the literature on how female-centric interventions may encourage parents to invest in their daughters' human capital to elicit better marital market outcomes (Ashraf et al, 2020). The findings of the study enable us to comment on the policy implications, especially those for the provisions and conditionality of transfers related directly or indirectly to human capital accumulation.

The structure of the paper is as follows. Section 2 discusses the ABAD programme and the context of Haryana relative to other states. Sections 3 and 4 present a description of the data and the empirical strategy used in the paper, respectively. Section 5 discusses the regression results along with the set of robustness checks and falsifications. Section 6 discusses the potential channels that may explain the observations. The paper concludes with a discussion of the policy implications in section 7.

2. The programme and the context

Haryana is a northern state with a high per capita income but one of the lowest child sex ratios in the country. Data from the 2011 census indicates that Haryana's child sex ratio for the age group 0–6 years was 834 girls per 1,000 boys, against the national average of 914 girls per 1,000 boys.[4] Of note is the fact that this did not show a substantial change when compared with the 1991 and 2001 census figures (820 and 879 girls for every 1000 boys, respectively).[5] Such a skewed child sex ratio is often attributed to the pervasive preference for sons among Indian families, which appears to be more prevalent in India's northern states (Clark, 2000; Klaus & Tipandjan, 2015). Studies indicate that sex-selective abortions in these states often reduce the value of girls within families and increase their risk of mortality (Arnold et al, 2002). Along with this, the prevalence of child marriage has historically been high in Haryana (Panchal et al, 2020). According to the NFHS-2 survey conducted in 1998–99, about 23% of the women in the 15–19 age group were already married. About 27% of the women aged between 45 and 49 were married before the age of 15.[6]

To address the adverse child sex ratio and reduce child marriage in the state, the government introduced a state sponsored CCT scheme called ABAD in 1994. The conditions of eligibility for the programme required that a household be domiciled in Haryana and belonging to a deprived social group, including the SCs and OBCs and all others lying below the poverty line (BPL). Upon the birth of a daughter, these eligible

[4] https://censusindia.gov.in/2011-prov-results/data_files/india/Final_PPT_2011_chapter5.pdf. Accessed: 20 April 2021.

[5] https://censusindia.gov.in/Data_Products/Library/Provisional_Population_Total_link/PDF_Links/chapter6.pdf. Accessed: 20 April 2021.

[6] This information is available at http://rchiips.org/nfhs/data/hr/hrfctsum.pdf. Accessed: 21 April 2021.

households would be entitled to receive Rs500 (around $15.5 in 1994[7]), along with a Unit Trust of India certificate (bond) with a maturity value of Rs25,000 (about $380[8]), redeemable only when the daughter turned 18 years and was still unmarried. The girl would get a bonus of Rs5000 (about $76) if she completed primary schooling and an additional Rs1000 ($15) if she completed eight standard years of schooling. The scheme was expanded in 1995 by allowing beneficiaries to receive Rs30,000 or Rs35,000 if maturity was deferred by two or four years, respectively.

The ABAD was different in two aspects from other well-known CCTs like the Opportunidades scheme in Mexico, the Bolsa Familia in Brazil, Juntos in Peru, Familias en Accion in Colombia and the school assistance programme in Bangladesh. First, unlike the other CCTs, ABAD did not have any conditionality in terms of nudging families to increase their investment in their daughters' health and human capital, even though there was a small incentive in terms of a bonus to educate their daughters ($76 for attaining primary education and $15 for completing education up to eighth standard). Second, a unique feature was the long-term nature of the programme benefits, which took the form of a promise of a monetary transfer instead of a continuous payment. Important to note is the fact that the ABAD beneficiaries did not receive any intermediate payments until the age of 18 except for the payment of Rs500 received just after a daughter's birth.

3. Data and variables

We brought in multiple large-scale national and state-representative datasets to evaluate the programme's effects on different indicators of human capital accumulation. Our main data source for assessing the effect on years of education was the NFHS-4, conducted during 2015 and 2016 by the Ministry of Health and Family Welfare. The survey gathered information on 601,509 households across 640 districts and is one of the largest household surveys in India. It provides information related to age, educational attainment of individuals residing in the household and other characteristics such as age at marriage, as well as female autonomy indicators.

Because the ABAD programme ran from 1994 to 1998, women who were in the age bracket of 16 to 21 and were surveyed in 2015 and women in the age bracket of 17 to 22 who were surveyed in 2016 were identified as age-eligible from NFHS-4. Women in the age groups 22 to 27 and 23 to 28 who were surveyed in 2015 and 2016, respectively, formed our age-ineligible control group. To identify the poor households, we could have used information on household BPL card possession. Nevertheless, this identification is not without its problems, as studies have found major inclusion and exclusion errors, whereby a significant proportion of relatively non-poor people have been found to possess the card, while many poorer ones do not have one (Drèze & Khera, 2010).

[7] See the Reserve Bank of India (RBI) website at https://www.rbi.org.in/scripts/PublicationsView.aspx?id=17923. Accessed: 21 April 2021.
[8] This is based on the average exchange rate for 2015–16 obtained from the RBI.

Hence, in our main analysis, we do away with poorer households and consider the sample of SC and OBC only. Accordingly, women from Haryana in the age-eligible group and the SC or OBC social groups constituted our treated group, while those from the older age cohort formed the control group.[9]

To examine the programme's effects on labour market participation, we made use of household data from two rounds of the PLFS conducted in 2017–18 and 2018–19 by the National Sample Survey Organisation (NSSO) and the Ministry of Statistics and Programme Implementation of the Government of India. For the purpose of our analysis, we pooled both rounds of the cross-sectional household data and explored the details on the employment of the individuals. The first round of the survey covered 102,113 households; the second covered 101,579 households. To assess the labour market effects, we also employed the TUS conducted by the same organisations in 2019, which provides information about the time duration for which different activities are performed by the sampled population on the day prior to the survey. It collected information from 518,751 individuals in 138,805 households. These surveys are micro-unit recorded and are representative nationally as well as at the state level; they can be useful in gauging the labour market scenario in the country.

The TUS data helped both to corroborate the results obtained from the PLFS and to provide additional insights into women's participation in the workplace. Studies suggest that, especially in developing economies, women's work is better captured by the TUS than by labour force surveys (Hirway & Jose, 2011; Eswaran et al, 2013). TUS surveys allow us to capture the multiple jobs performed by women during the day, which include feeding farm animals, working informally on nearby farms and working in their own enterprises, among others. In contrast, labour force surveys can only account for primary and secondary activity status, which may not be sufficient to capture these nuances and which may therefore lead to an underestimation of women's work participation.

As in the earlier case, because the PLFS survey was conducted in 2017–18 and 2019 and the TUS in 2019, with the ABAD programme spanning 1994 to 1998, the age cohorts of individuals eligible for the treated group were 18–23 years, 19–24 years and 20–25 years for those surveyed in 2017, 2018 and 2019, respectively, alongside belonging to the SC or OBC community. For the control group, we used the older cohort, hence, individuals from the same communities in the age cohorts 24–29, 25–30 and 26–31 surveyed in 2017, 2018 and 2019, respectively were included (age-ineligible).

Our main outcome variables here were the number of years of education completed and work participation. The former comes directly from the NFHS-4 dataset while the latter was derived from the PLFS and TUS. From the PLFS we used information under the 'Usual Principal Activity Status' (UPS). The UPS collects data about the activity on which members of the sampled households spend the majority of their time during the 365 days

[9] In our robustness section, we included others from the 'poor' category identified through possession of BPL cards and the wealth index in the treated group. The inferences from the regression estimates remain unaltered.

preceding the date of the survey. From the UPS, we grouped those members who had participated in the labour market and coded them as '1' and the others as '0'. In a second specification, we examined the ABAD's effects on working as skilled labour and hence recoded those individuals who reported having worked as casual labour as their UPS as 0. From the TUS, which uses the International Classification of Activities for Time-Use Statistics (2016), we calculated the share of time allocated to 'employment and related activities' and 'production of goods for final use' on the day prior to the survey and used it as our dependent variable to capture labour market participation.[10] The extensive information on household and individual-level socioeconomic and demographic characteristics in both these surveys allowed us to use these as control variables in the regression. These characteristics included age, religion, sector (rural or urban), wealth score (for NFHS), per capita household consumption expenditure (for PLFS and TUS), as well as survey round (for PLFS), day of survey (for TUS) and district dummies.[11] The basic summary statistics of the treated and control group females and males from the NFHS-4, PLFS and TUS datasets are provided in Table 1. The other variables, especially those pertaining to marital decisions and outcomes, are explained in the respective sections when we discuss the results. Details on these variables are also provided in Appendix Table 1.

[10] For more information, see https://unstats.un.org/unsd/demographic-social/time-use/icatus-2016/. Accessed: 17 April 2021.

[11] The details of all the variables used in the regressions are given in Appendix Table 1.

Table 1: Descriptive statistics of females in Haryana in the age cohort 16–28 years

	All	Treated group	Control group
Panel A: NFHS-4 (2015–16)			
Education (mean in years)	9.76	9.78	8.64
Age (mean in years)	21.56	18.54	24.91
Hindus (share in %)	88.01	86.93	89.34
Wealth score (mean)	-0.068	-0.154	0.044
Rural (share in %)	66.51	67.49	66.19
N	15,863	7,689	8,174
Panel B: PLFS (2017–18) and PLFS (2018–19)			
	All	Treated group	Control group
Working (share in %)	11.58	6.04	18.09
Skilled labour (share in %)	6.62	3.66	10.09
Age (in years)	24.31	21.53	27.58
Hindus (share in %)	91.96	92.76	91.02
Household MPCE[a] (in rupees)	2125.88	2126.37	2125.29
Rural (share in %)	70.18	70.85	69.38
N	1,369	727	642
Panel C: TUS (2019)			
	All	Treated group	Control group
Working outside home (mean share of time spent every day in hours)	0.03	0.03	0.03
Age (mean in years)	25.17	22.67	28.26
Hindus (share in %)	91.21	90.89	91.59
Household MPCE (mean in rupees)	2371.18	2403.78	2331.39
Rural (share in %)	68.92	72.64	64.32
N	614	321	293

Notes: [a] Monthly per capita household consumption expenditure.
The means and shares (household weighted) are given for women from Haryana in the treated and control age cohort belonging to SC/OBC households.
NFHS sample: 'Treated group' corresponds to those in the 16–21 and 17–22 age groups surveyed in 2015 and 2016, respectively. 'Control group' refers to those in the 22–27 and 23–28 age groups surveyed in 2015 and 2016, respectively.
PLFS: 'Treated group' corresponds to those in the 18–23, 19–24 and 20–25 age groups surveyed in 2017, 2018 and 2019, respectively. 'Control group' refers to those in the 24–29, 25–30 and 26–31 age groups surveyed in 2017, 2018 and 2019, respectively.
TUS: 'Treated group' corresponds to those in the 20–25 age group. 'Control group' refers to those in the 26–31 age group.

4. Empirical strategy

We used a triple difference (DDD) regression to obtain the intent-to-treat estimate of the ABAD programme on educational attainment in terms of years of education and labour force participation. Here, we compared the outcome variables for females from Haryana in the age eligible cohort with those from the older cohort and also with males from both cohorts, in addition to drawing another level of comparison between Haryana and Punjab. This strategy accounts for two specific elements: additional interventions that

could systematically affect female beneficiaries across states;[12] and those that could differentially influence the outcome variables for females in comparison with males in Haryana.[13] Important to note here is that we take Punjab as a control group for Haryana, which we argue is relevant for several reasons. First, Haryana was carved out of the state of Punjab as a result of the Punjab Reorganisation Act in 1966, implying that residents of these two states share similar historical experiences.[14] Second, the city of Chandigarh is the current joint capital of both Haryana and Punjab. In addition, the literacy rate in Punjab and Haryana is not very different; nor is the sex ratio in these two states.[15] Moreover, the crop intensity in Punjab and Haryana between 2012 and 2015 was also similar, all of which justifies the selection of Punjab as a control state.[16] However, we show below (in Section 5.2) that our estimates are robust to alternate combinations of districts from states neighbouring Haryana. The identifying equation from our DDD intent-to-treat estimate is based on the following estimation model:[17]

$$y_{ihds} = \beta_0 + \beta_1 Haryana_{ih} * A_{ihds} * Female_{ihds} + \beta_2 Haryana_{ih} * A_{ihds} + \beta_3 Haryana_{ih} * Female_{ihds} + \beta_4 A_{ihds} * Female_{ihds} + \beta_5 Haryana_{ih} + \beta_6 A_{ihds} + \beta_7 Female_{ihds} + \sum \gamma_k X_{ihsk} + \delta_d + \varepsilon_{ihs} \quad (1)$$

Where y_{ihds} is the outcome variable of interest for individual *i* from household *h* and district, d and state, s (Haryana and Punjab). A_{ihds} is a dummy variable that equals 1 for age-eligible individuals and 0 for age ineligible men and women in the sample. The variable $Haryana_{ih}$ takes the value of 1 if individual *i* from household *h* and district, d resides in the state of Haryana and 0 if he/she resides in Punjab. The $Female_{ihds}$ dummy assumes the value of 1 for women and 0 otherwise. β_1 gives the average intent-to-treat estimate and captures the causal effect of the programme on the outcomes for treated

[12] Such interventions may include but are not limited to school construction, improving school infrastructure or a general increase in demand for education as a result of an increase in household income, among many others.

[13] One such example might be a reduced level of crimes against women, which can result in higher gains in years of schooling for girls in comparison with boys in the same age cohort.

[14] Muralidharan and Prakash (2017) use a similar argument for the use of Jharkhand as a control state to Bihar.

[15] See https://censusindia.gov.in/2011-prov-results/data_files/india/Final_PPT_2011_chapter6.pdf l. Accessed: 21 April 2021.

[16] Punjab and Haryana together contribute over 67% of India's wheat production. See https://thewire.in/agriculture/punjab-protests-rice-wheat-procurement-ten-year-plan-foood-security. Accessed: 20 April 20 2021.

[17] Olson et al (2019) used a similar estimation strategy of utilising exogenous variation in the age-eligible cohort to estimate the impact of changes in Brazil's Bolsa Familia programme on teen fertility.

females. X_{ihdk} is the set of individual and household-level confounders, with k being the number of such confounders. Additionally, in our model we controlled for district fixed effects to control for quality of local administration and implementation of other welfare programmes. The standard errors are clustered at the district level.

We tested for the parallel trends assumption in our DDD model for those older than the age-eligible individuals using the following equation:

$$y_{ihds} = \beta_0 + \beta_1 Haryana_{ih} * Age_{ihds} * Female_{ihds} + \beta_2 Haryana_{ih} * Age_{ihds} + \beta_3 Haryana_{ih} * Female_{ihds} + \beta_4 Age_{ihds} * Female_{ihds} + \beta_5 Haryana_{ih} + \beta_6 Age_{ihds} + \beta_7 Female_{ihds} + \sum \gamma_k X_{ihsk} + \delta_d + \varepsilon_{ihs} \quad (2)$$

As one may observe, this is similar to equation (1), the only difference being the variable, Age_{ihds}, which takes the age of the individual *i* from household *h* residing in district, d of state, s. The parameter estimate of β_1, if statistically insignificant, ensures non-rejection of parallel trends.

For the analysis with NFHS-4, the outcome variable y_{ihds} is years of education of individual *i* from household *h* and district *d* of state *s*. From the PLFS, the outcome variable takes the value of 1 if the individual goes outside the home for work/skilled work and 0 otherwise. For that with the TUS, the outcome variable is the share of time allocated to 'employment and related activities' or 'production of goods for own final use' on the day prior to the survey for the sampled individual. We used Ordinary Least Squares (OLS) regression for estimation.

To estimate the effects on time allocation, we ran double difference/difference-in-difference (DD) regressions for the female sample from Haryana and Punjab with those from the age-eligible cohort as well as those from the age-ineligible cohort. This was because these indicators are not relevant to the men, especially in the Indian context. To evaluate the impact on marital outcomes, empowerment measures or maternal and child health outcomes, we used a similar strategy, with the sample being only women who married after turning 18 from the age-eligible and age-ineligible groups. The regression used the following equation to estimate the effects on time allocation in different broad activities:

$$Y_{ihds} = \beta_0 + \beta_1 Haryana_{ih} * A_{ihds} + \beta_5 Haryana_{ih} + \beta_6 A_{ihds} + \sum \gamma_k X_{ihsk} + \delta_d + \varepsilon_{ihs} \quad (3)$$

Here the notations remain similar to those in equation (1). The parallel trend assumption was tested using the following equation, which is similar to (2) but in a DD framework:

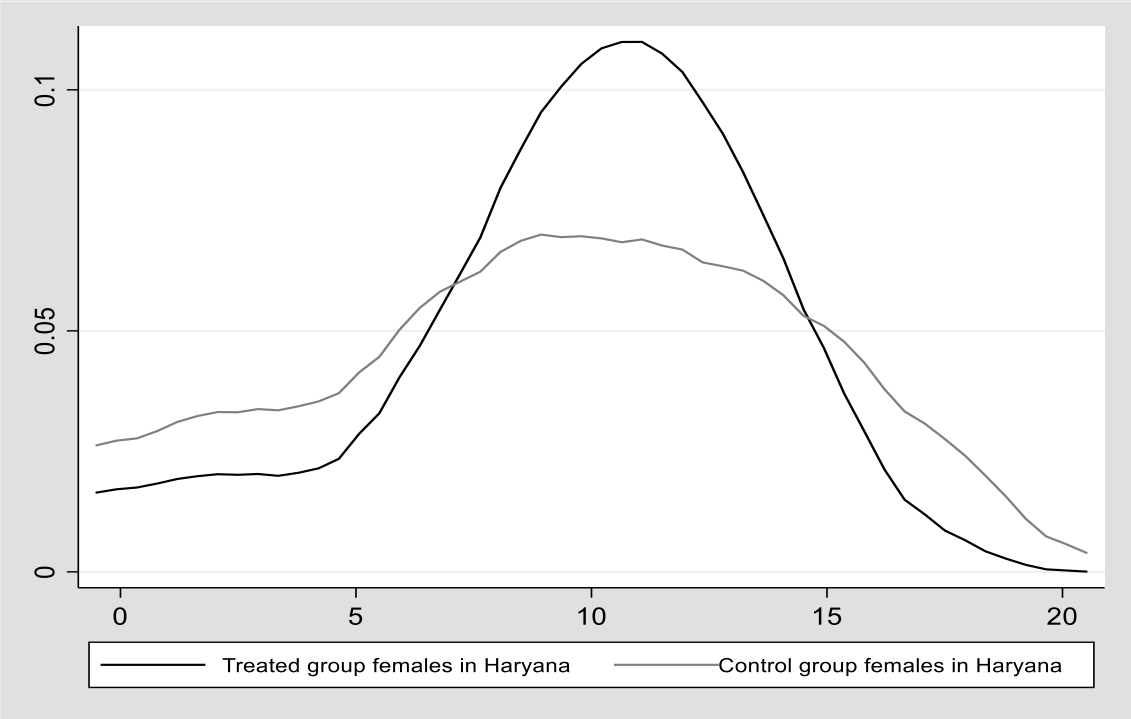
$$Y_{ihds} = \beta_0 + \beta_1 Haryana_{ih} * Age_{ihds} + \beta_5 Haryana_{ih} + \beta_6 Age_{ihds} + \sum \gamma_k X_{ihsk} + \delta_d + \varepsilon_{ihs} \quad (4)$$

5. Results

5.1 Effect on years of education

We first considered density plots of the educational attainment for the treated and non-treated (age-ineligible) females from Haryana, as given in Figure 1. It appears that the programme beneficiaries had higher educational attainments in comparison to the control group, especially when the modal point of the two distributions is considered. We formally tested whether there was a causal relationship using the DDD regression framework as elucidated in equation (1). Table 2 presents the results with two specifications. In the first specification, no control variables are included. However, in the second, the full set of control variables is incorporated, along with the district fixed effects, which capture supply-side factors like local governance, school infrastructure and teacher quality, among other things. The unadjusted estimates are given in column 1 and the adjusted ones in column 2, which is our preferred model for the evaluation of the programme's effects. The findings indicate an increase in education by 0.72 years among the ABAD beneficiaries because of the programme, which is also statistically significant at the 1% level (column 2).

Figure 1: Educational attainment of females in Haryana (in years)



Note: The figure presents the kernel density of years of education of girls from SC/OBC social groups in the treated and control age cohorts in Haryana.

The findings can only be considered causal if the parallel trends assumption holds, through which we can assess whether there were any pre-intervention trends that might have systematically affected the treated or control groups. We tested for these in the

DDD specification as given in equation (2). The findings imply our inability to reject the null of parallel trends in this DDD specification (column 3). Additionally, we ran similar tests for other age groups (22–29 and 22–32), as shown in Table 2 (columns 4 and 5). The statistically insignificant triple interaction term in all these specifications suggests that the gender difference in terms of years of education in Haryana remains invariant over time in comparison to Punjab before implementation of ABAD. This ensures that the post-implementation educational gains we observed can indeed be interpreted as the causal effect of the intervention.

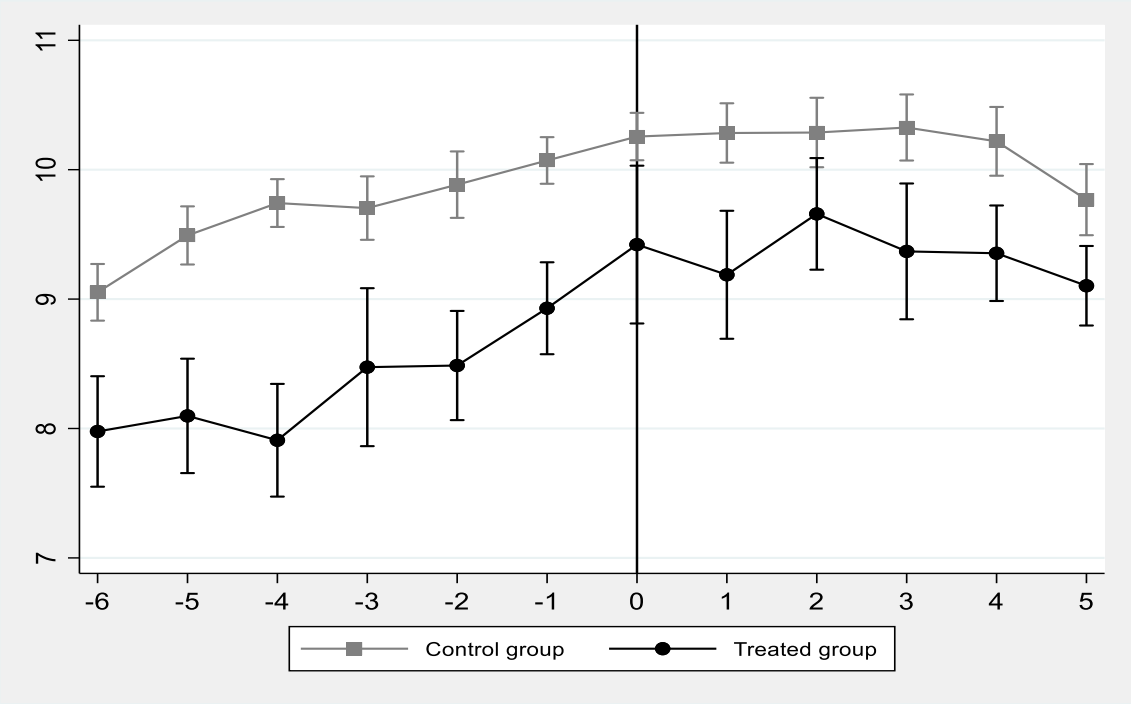
Table 2: Effect of ABAD on years of education

	Treatment effect		Parallel trends		
	Without controls	With controls	Age cohort 22–28 years	Age cohort 22–29 years	Age cohort 22–32 years
	(1)	(2)	(3)	(4)	(5)
Haryana*Female*Age eligible	0.676**	0.722***			
	(0.257)	(0.204)			
Haryana*Female*Age			0.082	0.028	0.046
			(0.094)	(0.071)	(0.041)
Controls	No	Yes	Yes	Yes	Yes
District FE	No	Yes	Yes	Yes	Yes
Observations	26,513	26,513	13,539	15,613	20,421

Notes: Marginal effects from the OLS regressions are presented.
*** p<0.01, ** p<0.05, * p<0.1.

Next, we examined the differential effect of the programme based on exposure to it. Here we assumed that the younger participating girls would have a monotonically longer exposure to the intervention as a result of the difference between implementation and birth year. Figure 2 suggests that the difference in educational attainment among the intended beneficiaries and the control group was reduced over time. In other words, the effect on education was lower for beneficiaries born just after the programme's initiation and was on average higher for those born two years after the programme's implementation. This might have been because of low levels of awareness, along with social concerns and early supply-side glitches that might have increased the transaction costs, making it difficult for beneficiaries to register for the programme and get their legal entitlements. Nevertheless, with higher exposure, these costs could have reduced, subsequently incentivising parents to raise human capital investment for their daughters.

Figure 2: Effect of ABAD over time



Note: The marginal effects from the OLS regression are presented along with the 90% confidence interval

Early evidence of ABAD beneficiary households investing in a girl's education was documented by Sinha and Yoong (2009). Their study, using the previous waves of the NFHS, found that the beneficiaries (aged 7–11 years during the time of the survey) were more likely to continue education relative to girls in Haryana who were unexposed to the programme. Our inference to a large extent complements this finding in 2006 and we are able to document reasonable programme effects almost two decades after its implementation. This is especially pertinent, because the evidence indicates a substantial female drop-out after completion of primary education across developing countries – with Haryana no exception here (Kingdon, 2007). Notably, the findings also complement those of Nanda et al (2014), who used data from a primary survey conducted in four districts of Haryana to document the fact that beneficiary females were likely to stay in school.

5.2 Effect on labour participation

Our initial estimates indicated a definite positive impact on educational attainment captured through years of education. Next, we tested whether these gains translated into better outcomes for the beneficiaries in the labour market. For this purpose, as indicated earlier, we used the two rounds of PLFS survey data, the TUS data and the DDD regression framework, as in the earlier case. Table 3 presents the results for the three outcome indicators we outlined: participation in work outside the home; participation in skilled work; and share of time allocated for work participation. The regression findings, estimated with the sample of individuals in the relevant age cohort and social group (SC/OBC), indicate no statistically significant impact of the intervention on these

outcomes, despite an overall increase in the years of education. Our findings are found to be robust even if we increase or decrease the age of the control group. Importantly the regression results to test the parallel trends assumption indicate a statistically insignificant time-variant change in the treated units. These estimates are presented in Table 3.

Table 3: Effects on work participation

	Treatment effects			Parallel trends		
	PLFS		TUS	PLFS		TUS
	Working	Skilled work	Working	Skilled work	Working	Working
	(1)	(2)	(3)	(4)	(5)	(6)
Haryana*Female*Age eligible	-0.035	-0.026	-0.007			
	(0.038)	(0.032)	(0.021)			
Haryana*Female*Age				-0.004	-0.008	-0.008
				(0.009)	(0.015)	(0.008)
Control	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Round FE	Yes	Yes	Yes	Yes	Yes	Yes
Day of survey FE	No	No	Yes	No	No	Yes
Observations	6,799	6,799	2,748	3,184	3,184	1,319

Notes: Marginal effects from the probit (columns 1, 2, 4 and 5) and OLS (columns 3 and 6) regressions are presented.
*** p<0.01, ** p<0.05, * p<0.1.

Similar to Muralidharan and Prakash (2017), we restricted our sample to the bordering districts of Haryana and Punjab. This analysis reduced our sample size to 8,463, comprising a total of 13 districts (seven in Haryana, six in Punjab[18]). We were able to replicate our initial inference of positive programme effects on education (column 1, Table 4). Next, we added the neighbouring districts of Himachal Pradesh and Uttarakhand, along with the neighbouring districts of Punjab.[19] We found that the triple interaction term was positive and significant at the 10% level of significance (column 2). Column 3 reports the result of re-estimating equation (1) after adding the neighbouring districts of Uttar Pradesh alongside other neighbouring districts in other states: the

[18] The Haryana districts were Ambala, Fatehbad, Jind, Kaithal, Kurukshetra, Panchkula and Sirsa; the Punjab districts were Bhatinda, Mansa, Mukhtsar, Patiala, Sangrur and SAS Nagar.
[19] The Haryana districts were Ambala, Fatehbad, Jind, Kaithal, Kurukshetra, Panchkula, Sirsa, Yamunanagar; the Punjab districts were Bhatinda, Mansa, Mukhtsar, Patiala, Sangrur and SAS Nagar; the Himachal Pradesh districts were Sirmaur and Solan; the Uttarakhand district was Dehradun.

results are positive and statistically significant.[20] The parallel trends assumptions were found to hold for these specifications (Columns 4–6).

Table 4: Effect of ABAD on years of education using alternate sample (with neighbouring districts)

	Main results			Parallel trends		
	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3
	(1)	(2)	(3)	(4)	(5)	(6)
Female*Age group*Haryana	0.898***	0.589*	0.485*			
	(0.246)	(0.284)	(0.251)			
Female*Haryana*Age				0.060	0.063	0.125
				(0.195)	(0.169)	(0.101)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8,463	10,645	23,632	4,439	5,196	11,497

Notes: Marginal effects from the OLS regressions are presented.
*** p<0.01, ** p<0.05, * p<0.1. Group 1: Bordering districts of Haryana and Punjab;
Group 2: Bordering districts of Haryana, Punjab, Himachal Pradesh and Uttarakhand;
Group 3: Bordering districts of Haryana, Punjab, Himachal Pradesh, Uttarakhand and Uttar Pradesh

We performed several other checks to ensure that the causal effect of ABAD was correctly identified. Specifically, we ran placebo tests through the introduction of a pseudo-treatment for females in Haryana belonging to older age cohorts, estimating the relationship using the NFHS-3 dataset and re-estimating the model by considering the sample of non-disadvantaged social groups (non-SCs and non-OBCs). As expected, these estimations yielded insignificant results, providing credence to our findings. Further, our results are robust to alternate age eligibility criteria, including poor age eligible males and females.[21]

6. Possible channels/explanations

The non-transition of educational gains into labour market gains has important policy implications, for which we offer some potential explanations.

6.1 Non-linear returns to education

Among the existing empirical literature which has pointed out the increasing returns to education on labour market outcomes, some studies have documented that the relationship is non-linear. This implies that the returns to education increase non-linearly with the labour outcomes, with a higher marginal return at the upper levels of education. One of the reasons for lower female labour participation in India is the lack of higher education attainment among women (Mehrotra & Parida, 2017). Drawing on this, we

[20] The Haryana districts were Ambala, Faridabad, Fatehbad, Jind, Kaithal, Kurukshetra, Mewat, Palwal, Panchkula, Panipat, Sirsa, Sonipat and Yamunanagar; the Punjab districts were Bhatinda, Mansa, Mukhtsar, Patiala, Sangrur and SAS Nagar; the Himachal Pradesh districts were Sirmaur and Solan; the Uttarakhand district was Dehradun; the Uttar Pradesh districts were Aligarh, Baghpat, Gautam BudhaNagar, Mathura, Muzzafarnagar and Saharanpur.
[21] Regression results for the robustness checks are available on request.

examined whether the programme had resulted in a higher probability of the female beneficiaries completing secondary, higher secondary and higher education. This also becomes important from the point of view of the provisions of the programme, which ties financial incentives to completion of primary and eighth standard education.

To explore this, we estimated a probit regression model in the DDD framework, the equation of which is similar to the one elucidated in equation (2). The outcome variables were completion of secondary education, higher secondary or higher education (explained in Appendix Table 1). Column 1 of Table 5 presents the average marginal effects. To estimate the effect on higher secondary completion and higher education, we considered the sample of individuals in the age groups 18 to 25 years and 19 to 26 years among those interviewed in 2015 and 2016, respectively. While the likelihood of the beneficiary female completing secondary and higher secondary education increased by 5.2 and 8.8 percentage points because of the intervention, respectively, no significant effect on higher education was observed.[22] The absence of any discernible effect on higher education, which is closely linked to employability, indicatively explains the limited effect of the programme on labour supply. Nevertheless, because the conditionality here was attached to completion of primary school and then the eighth standard, to that extent the programme has been successful in improving educational outcomes, although this may not be sufficiently large to reap labour market gains.

Table 5: Effect of ABAD on secondary completion and higher education

	Treatment effects			Parallel trends		
	Secondary[+]	Higher secondary[#]	Higher[#]	Secondary[+]	Higher secondary[#]	Higher[#]
	(1)	(2)	(3)	(4)	(5)	(6)
Haryana*Female*Age eligible	0.052**	0.088***	0.031			
	(0.023)	(0.028)	(0.021)			
Haryana*Female*Age				0.004	0.004	0.006
				(0.012)	(0.011)	(0.006)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	26,513	18,416	18,416	13,539	13,539	13,539

Notes: Marginal effects from the probit regressions are presented.
*** p<0.01, ** p<0.05, * p<0.1.
[+]Sample of treated and control individuals in the age cohort 16–27 years interviewed in 2015 and in the age cohort 17–28 years interviewed in 2016.
[#] Sample of treated and control individuals in the age cohort 18–25 years interviewed in 2015 and in the age cohort 19–26 years interviewed in 2016.

6.2 Entrenched gender norms

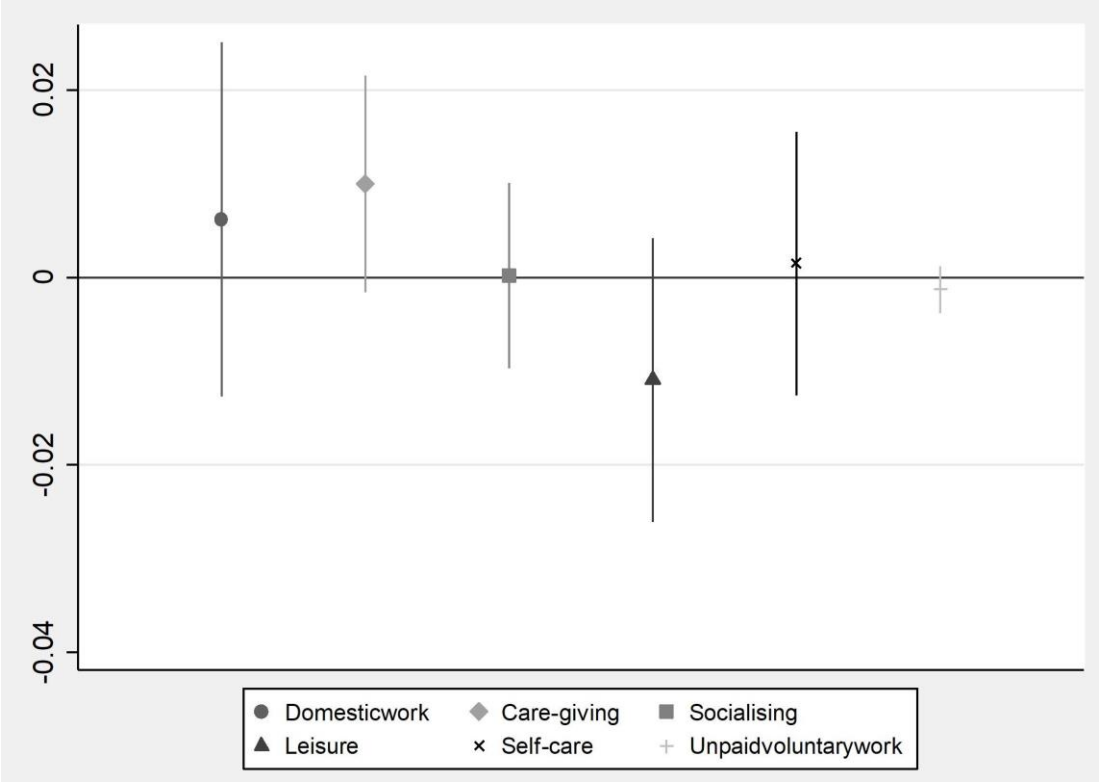
If the prevalent gender norms are highly entrenched and persistent, which is likely to be the case in a state like Haryana, the changes in female labour supply with greater education may remain largely inelastic. To an extent, this is implied suggestively, as we

[22] The table also shows our inability to reject the parallel trend assumptions.

observed insignificant higher educational effects among the beneficiaries, indicating no additional incentive among parents to invest in education for their daughters beyond a certain level. We explored this further using the TUS, which gave us an opportunity to assess whether the beneficiaries utilised their educational gains to exercise higher relative bargaining power measured by their time allocation for leisure, socialising or self-care. Alternatively we explored whether the gains became subdued by the entrenched patriarchal norms and the gendered expectations of the households and society at large.

We considered six relevant measures of daily time use as outcome variables: share of time allocated to 1) domestic work (unpaid domestic services for household and family members); 2) care-giving (unpaid caregiving services for household and family members); 3) socialising (socialising and communication, community participation and religious practice); 4) leisure (culture, leisure, mass-media and sports practices); 5) self-care (self-care and maintenance); and 6) unpaid volunteering work (unpaid volunteer, trainee or other unpaid work). As indicated earlier, we used DD regressions as given in equation (3) to estimate the impact on time allocation, since these outcomes might not have been valid for males, especially in the Indian context. From Figure 3, which presents the marginal effects, we failed to find any discernible changes in the time-use patterns of a female beneficiary on average because of the programme. This underscores the deep rootedness of the gender norms that are subduing the benefits that improved education should carry.

Figure 3: Effect of ABAD on share of time allocation



Note: The marginal effects from the OLS regression are presented along with the 90% confidence interval.

6.3 Effects on marital outcomes

Is there no change in age at marriage?

One of the main objectives of the ABAD programme was to reduce child marriages. To access cash benefits required beneficiary females to be unmarried when they turned 18. Using the NFHS-4 dataset, we formally tested this using the age at marriage of the sample of 6,478 married females in the eligible and older age groups from Punjab and Haryana belonging to the targeted social groups. To gauge the causal effect of the programme, we estimated a DD probit model using all females, as given in equation (3), with the Y_{ihds} being a dummy variable that takes the value of 1 if the female got married before the age of 18 (defined as child marriage) and 0 otherwise.

The regression results, presented in Table 6, indicate a reduction in the likelihood of treated females in Haryana getting married before turning 18 by 5.1 percentage points as a result of the intervention. Next, we estimated the programme's effects on the likelihood of marriage after turning 18 using a similar regression framework for the sample of women in the 18–25 and 19–26 age groups if the year of survey was 2015 or 2016, respectively. This analysis was based on a sample of 3,530 married women for whom the age at marriage was at least 18 years. The marginal effects were found to be positive but statistically insignificant (column 2). Column 3 reports the probability of marrying at the age of 19 using a sample of 2,117 married females who were in the 19–24 and 20–25 age groups for those surveyed in 2015 and 2016, respectively, and who did not marry before turning 19. The findings indicate a significant increase in the probability of beneficiaries getting married once they turned 19. We also found that the likelihood of marrying at 18 or 19 was about 8.8% higher. Collectively, while early child marriage seems to have been reduced, our results indicate no gains in age at marriage after turning 18. In fact, the probability of marriage for the beneficiaries appears to be higher once they turn 18 or 19.

Table 6: Relationship between ABAD and age at marriage

	Child marriage	Marrying at 18[+]	Marrying at 19[@]	Marrying at 18 or 19[^]
	(1)	(2)	(3)	(4)
Haryana*Age eligible	-0.051**	0.019	0.112**	0.088**
	(0.026)	(0.028)	(0.046)	(0.040)
Controls	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes
Observations	6,478	3,530	2,117	2,726

Notes: Marginal effects from the probit regressions are presented.
*** p<0.01, ** p<0.05, * p<0.1.
[+]Sample of treated and control females in the age cohort 18–26 years based on survey year who were not married before turning 18.
[@] Sample of treated and control females in the age cohort 19–25 years based on survey year who were not married before turning 19.
[^] Sample of treated and control females in the age cohort 19–25 years based on survey year who were not married before turning 18.

Of note is the fact that parents receive the main cash transfer component after their daughters turn 18; hence there is no further incentive for them to move away from marital norms and delay the marriage of daughters. Our results provide no apparent evidence that the ABAD programme has altered these norms and delayed the age at marriage of targeted females. These findings are in consonance with Das and Nanda (2016), who documented the failure of the programme's cash incentives to improve the age at marriage beyond 18 years. In fact, they found evidence of the cash being used to meet marriage expenses, which often take the form of a dowry.

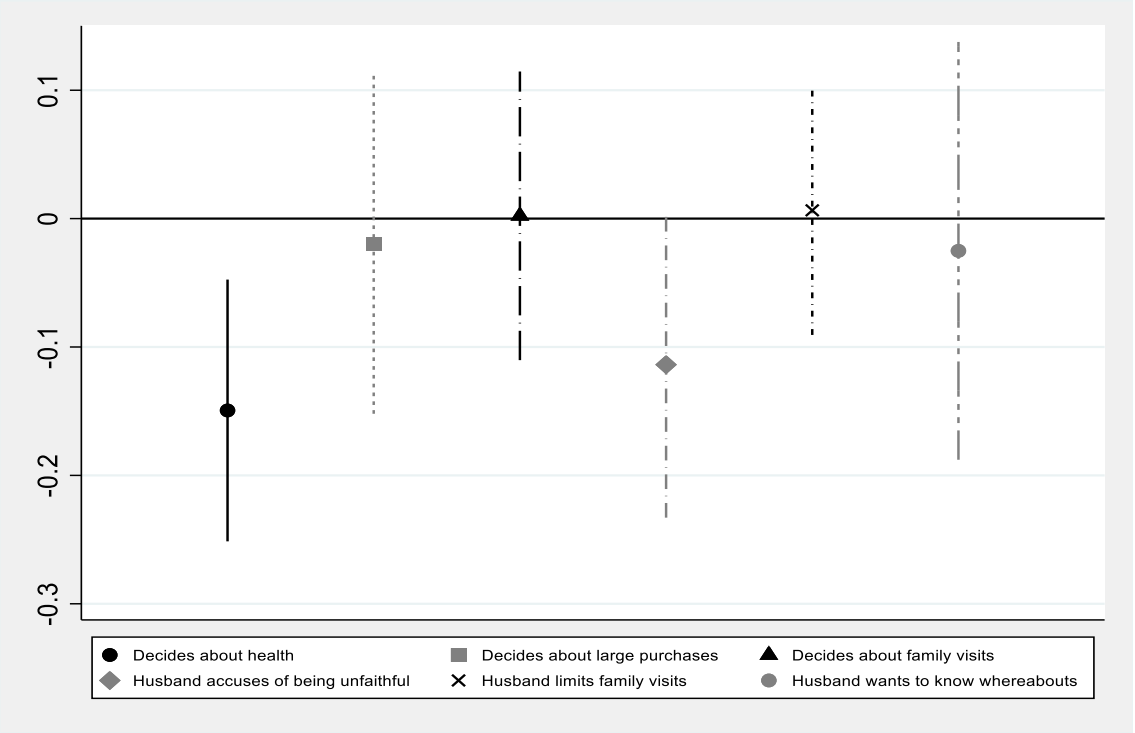
Importantly, our findings also demonstrate that the incentive offered by the programme for marrying later, at 20 or 22, years did not have much bearing on marital age. Therefore we observe an indication of a non-linear increase in the marginal disutility of delaying marriage after 18 years and a reluctance to go against the prevailing social norms associated with marriage timing, which plausibly exceeds the marginal utility of the present value of the additional amount offered. The evidence presented on age-at-marriage lends further credence to our argument regarding no discernible changes in norms, despite the implementation of ABAD and the associated increase in educational attainment.

Impact on empowerment indicators and maternal and child health

The nature of the questions posed in the NFHS-4 questionnaire allows us to additionally understand the changes in gender relations post-marriage for the ABAD beneficiaries relative to others The survey administered information on questions measuring female autonomy based on women's freedom of mobility, eg in the household and via the husband's attitude towards his wife.[23] To estimate the changes in the empowerment or attitude measures for the ABAD beneficiaries, we again used the DD regression framework as chalked out in equation (3). The sample considered for this analysis was much smaller than that considered for the age-at-marriage regressions, as the empowerment questionnaire was administered only for a sub-sample of the women originally surveyed. Figure 4 presents the marginal effects obtained with these six empowerment measures as outcome variables. As one would expect, no improvement in these indicators is observed, lending further credibility to our inference on there being no substantial changes in norms linked to the ABAD programme. These findings appear to be compelling and robust.

[23] Appendix Table 1 lists the questions that capture measures of empowerment and provides a definition of the variables that we considered using these questions.

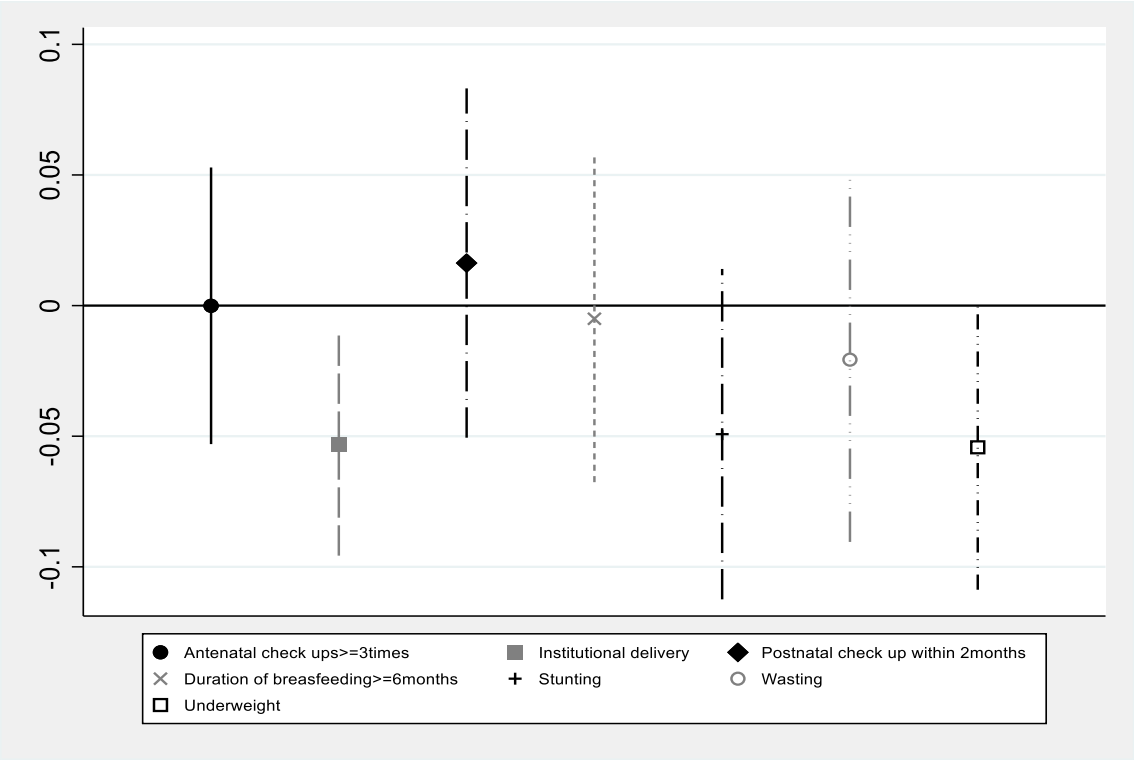
Figure 4: Relationship between ABAD and empowerment of married women



Note: The marginal effects from the probit regression are presented along with the 90% confidence interval.

The extant literature suggests that women's empowerment has a positive correlation with maternal and intergenerational health outcomes (Duflo, 2003; Maitra, 2004). In the absence of any discernible effect on empowerment measures, it is unlikely that any visible improvement in pregnancy care and child health outcomes among the targeted beneficiaries would be observed. We formally tested this by considering the sample of married women in the relevant age group who had at least one child aged 5 or below. The NFHS-4 survey provides information on, *inter alia*, number of antenatal check-ups, place of delivery, breast feeding practices, and nutritional outcomes of children under the age of 5, which allows us to examine the association of the programme with changes in these indicators. The DD output indicated no significant improvement in the maternal or health outcomes of young children among ABAD beneficiaries (Figure 5).

Figure 5: Effect of ABAD on maternal and child health



Note: The marginal effects from the probit regression are presented along with the 90% confidence interval.

Are there any other marital returns?

Our results so far show clear evidence of the effectiveness of the ABAD programme in raising educational outcomes for women, but with no significant changes accruing to labour force participation, time allocation or indicators that reveal better bargaining power among the beneficiaries after marriage. So the question that arises is: what, then, persuades parents to invest in their daughter's education? Is there any way for the parents to utilise their daughters' educational gains while making marital choices?

What becomes relevant here is the significant rise in marriage at 19 years of age (Table 5), which complements the qualitative findings of Das and Nanda (2016). These authors also found ABAD receipts being used for marriage purposes, with dowry being the predominant instrument. Consequently, it is possible that parents' incentive for investing in their daughters' education comes from efforts to improve their marriage market options. In essence, the idea is similar to that documented by Ashraf et al (2020) in the context of the bride price that is predominant among some of the ethnic groups in Zambia and Indonesia.[24] They argued that the possibility of eliciting a higher bride price acts as an incentive for imperfectly altruistic parents to invest in their daughter's education. In our context, where the dowry or at least a part of may be financed by the ABAD transfer,

[24] A bride price is the opposite of a dowry, in that there is a transfer to the bride's family from the groom and/or his family.

parents may have an additional incentive to raise their daughter's education level to ensure higher status grooms and/or reduce the amount of the dowry.

In this section, while we are unable to provide an adequate explanation on the latter because of the paucity of the data on dowry amounts, we present suggestive evidence on the former. Existing evidence suggests premarital investment decisions in education are linked with expected marriage market outcomes. In markets with friction, Anderberg and Zhu (2014) found that increasing educational investment could improve the likelihood of finding a skilled match in the marriage market. For instance, educating daughters might help in the search for suitable grooms and facilitate their marriage into 'good' families which also carry higher social status (Desai & Andrist, 2010; Chiappori et al, 2018 Attanasio & Kaufmann, 2017). Further, in societies with regressive norms surrounding age at marriage, the larger educational investment may offset the social cost of delayed marriage. Here parents of ABAD beneficiaries may increase their daughters schooling and then marry them off once they are able to redeem the promised amount at the age of 18. Importantly, these arguments assume significance in the case of dowry transfer as well. A bride's family often uses this money to ensure 'better quality' grooms or families that can signal higher social status (Bloch et al, 2004).

Of note is the fact that these arguments are relevant only in contexts where parents have disproportionately higher power to fix marriages. In states like Haryana, this is indeed the case, as marital negotiations are often settled by parents of both the families, shaped by the norms surrounding patrilocal residential patterns and caste endogamy (Stopnitzky, 2017). In other words, Indian girls get married to husbands in the same caste hierarchy and after marriage they settle with their husband's family. Further, these marriages are often negotiated within a geographically defined area (Stopnitzky, 2017). This, in addition to the strong social networks associated with Indian society, raises the demand for status signalling, which often takes the form of how educated or economically and socially better off a groom's family is.

We now examine the implications of the ABAD programme on marital choices and decisions as potentially driven by the higher investment in a daughter's education and utilising the financial transfers as dowry payments. Using all the three datasets (NFHS-4, PLFS and TUS), we considered a number of outcome variables that signal 'higher quality' grooms and better economic and social status. These include the husband's education and the education level of other household members who completed secondary school. On similar lines, we also considered the number of household members with regular salaried work, which indicates household stability of income and being economically well-off. In terms of amenities, we used possession of a cemented house and of land, as well as other amenities, which are arguably 'female' goods or amenities. These are a toilet in the household, use of clean cooking fuel and having piped water in the household premises. The literature indicates that private toilets provide a disproportionately higher marginal utility to women in terms of personal safety and dignity, which raises the preference for toilets among them (Stopnitzky, 2017). Piped water and cleaner cooking fuel, including Liquefied Petroleum Gas (LPG), also provide

higher benefits to women, as the burden of collection of water from outside or firewood collection and preparation often lies with them (Nankhuni & Findeis, 2004; Choudhuri & Desai, 2021; Biswas & Das, 2021). This allows us to test whether the ABAD transfer and the associated educational gains are used by the bride's family to demand these amenities, which would reflect an overall improvement in women's autonomy in the household.[25]

The estimates obtained from the DD regressions given in Table 7 indicate no evidence of ABAD beneficiaries marrying into better educated households or finding an educated husband. On similar lines, we did not observe any significant relationship with the number of household members with regular salaried jobs. Further, no significant evidence of using ABAD transfers and improvements in the educational level of the bride in the marriage market was observed in terms of possession of the 'female' amenities in the groom's family. This again suggestively establishes our argument regarding the inability of the programme to alter the prevailing gender norms, which remain regressive and entrenched in society.

Table 7: Relationship between ABAD and marriage outcomes

	Treatment effect			With secondary education interaction		
	Husband's education	Cemented house	Land possessed	Husband's education	Cemented house	Land possessed
	(1)	(2)	(3)	(4)	(5)	(6)
Haryana*Age eligible	-0.514	0.058*	0.329**	-0.894	0.043	0.049
	(0.566)	(0.032)	(0.126)	(0.806)	(0.038)	(0.126)
Haryana*Age eligible*Secondary				1.670	-0.013	0.431**
				(1.415)	(0.098)	(0.162)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	551	3,535	950	464	3,259	950

Notes: Marginal effects from the OLS (columns 1 and 4) and probit regressions (columns 2, 3, 5 and 6) are presented.
*** p<0.01, ** p<0.05, * p<0.1. Regression results for other marriage outcomes are available on request.

Nevertheless, we found possession of land to be significantly higher in households into which ABAD beneficiaries had married. Further, beneficiaries were also likely to marry into households with cemented houses. This is interesting as it is possible that the families of the beneficiaries used the programme money and educational gains in the marriage market to ensure grooms with better houses and more land. As argued earlier, these amenities can produce social returns, with the bride's family deriving higher utility by signalling an upward mobility in the community by associating themselves with marriages of a higher economic and social pedigree (Bloch et al, 2004).

Further, to explore whether these outcomes were solely the result of the higher educational attainment of the beneficiaries, we interacted the DD term with the secondary education dummy. Column 6 suggests that beneficiaries who had completed

[25] These variables are outlined in Appendix Table 1.

secondary education were more likely to marry into households with significantly greater land possession. Overall, these two findings suggestively indicate the possibility of parents utilising the monetary component and their daughters' higher education to find a better quality match in the marriage market. The fact that only land possession was found to respond to increased educational levels allows us to provide indicative evidence on parents utilising their daughter's human capital investments to gain social status through marriage. This warrants further research, however.

7. Discussion and conclusion

In this paper, we have evaluated the indirect and long-term effects of the ABAD programme, implemented in the Indian state of Haryana. Unlike other CCTs, this programme 'promises' monetary incentives to poor and socially deprived households, redeemable only after their daughters turn 18 and remain unmarried. Specifically, we first gauged the causal effects on educational and labour supply decisions among the women beneficiaries. In the process of identifying the potential reasons for these, we also assessed the impact on time-use, age at marriage and post-marital indicators of empowerment and bargaining power. We call these 'indirect outcomes' because the conditionality of the programme was not linked to any of them, only to remaining unmarried up to 18 years of age.

We used multiple representative datasets wherein the exogenous timing of the programme, lasting from 1994 to 1998, was exploited. The findings indicate a significant reduction in child marriage as a direct effect of the conditionality attached. In terms of the indirect effects, we found considerable gains in years of education among the beneficiaries, but no discernible effect on labour participation. While exploring the potential reasons for this, we found no impact of the programme in raising educational attainment beyond higher secondary completion. Further, the prevailing gender norms were found to be sticky, as time spent on leisure, socialising or self-care activities remained unaltered, along with the indicators of empowerment and those of maternal and child health. Interestingly, the likelihood of marriage increased beyond 18 years, possibly indicating the use of ABAD transfers for marital purposes, predominantly as dowry. Thus, we found suggestive evidence of parents utilising educational gains through the programme, along with the transfer money, to ensure marital associations with families with higher social status, manifested to some extent by cemented houses and more clearly by land possession. In other words, this evidence indicates that the programme failed to alter the prevailing gender norms, despite improvements in educational outcomes. Rather, these gains and the lump sum awarded were plausibly used by parents in the marriage market to elicit higher status grooms who could ensure upward social mobility.

The paper provides evidence of the success of CCTs that are based on protracted monetary benefits through the promise of a long-term payment in incentivising parents not to marry off their daughters early and to use the time by investing in human capital.

To this extent, other programmes, like the Laadli Laxmi Scheme or the Girl Child Protection Scheme implemented elsewhere in India, plus those in other developing countries (eg the Female Secondary School Assistance Project in Bangladesh and the Female School Stipend Program in Pakistan), have significant importance for the stakeholders. Empirical evidence evaluating these programmes documents a significant reduction in child marriage, along with considerable gains in educational outcomes (Malhotra & Elnakib, 2021).

Nevertheless, we have observed that depending solely on such interventions to increase female autonomy or labour participation may not produce results, especially in regions with deep-rooted gender norms. Importantly, these inferences may change depending on the context, as elucidated in Ashraf et al (2020), who found higher gains from the educational interventions only among ethnic groups with a historical custom of bride price. However, in contexts similar to that in Haryana, where prevailing gender norms have inhibited the initial programme gains, policy makers need to consider and evaluate these norms surrounding gender and marriage.

Accordingly, interventions that could change these norms could be complemented by financial incentives like CCTs to improve the status of females in the household and society. In this respect, direct action related to awareness generation, projection of role models or 'norms messaging' that can shape or alter social expectations surrounding gender roles may prove to be a necessary precursor to social change (Bicchieri et al, 2018). Empirical evidence on, eg exclusive breastfeeding, sanitation practices and female labour participation has documented the potential benefits of altering social expectations so as to bring to the forefront the emergence of a new norm and the decline of the old regressive norm (Bursztyn et al, 2020; Bicchieri et al, 2021). Importantly, the shift in social expectations and beliefs about others' behaviour may then become self-reinforcing, as more people adopt the target behaviour and make it more acceptable and sustainable. Nevertheless, the effectiveness of these interventions needs to be tested. Generating experimental evidence may be an agenda for further research to ensure evidence-based policy making.

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Appendix

Appendix Table 1: Variables and definition

Variable	Description
From NFHS-4 (2015–16)	
Outcome variables	
Education	Years of education
Levels of education	
Secondary completion	Dummy variable=1 for individuals who have completed 10 years of schooling and 0 for others
Higher secondary education	Dummy variable=1 for individuals who have completed 12 years of schooling and 0 for others
Higher education	Dummy variable=1 for individuals who have completed more than 12 years of education and 0 for others
Empowerment indicators	
Mobility-related questions	Dummy=1 if the response is 'respondent' and 0 for 'respondent and husband jointly' or for 'husband' or 'someone else' for the following questions:
Decides about health	Who usually makes decisions about health care for yourself?
Decides about large purchases	Who usually makes decisions about making major household purchases?
Decides about family visits	Who usually makes decisions about visits to your family or relatives?
Household- related questions	Dummy=1 if response is 'no' and 0 for 'yes' for the following questions:
Husband accuses of being unfaithful	Does he (husband) frequently accuse you of being unfaithful?
Husband limits family visits	Does he (husband) try to limit your contact with your family?
Husband wants to know whereabouts	Does he (husband) insist on knowing where you are at all times?
Married at 19	Dummy=1 for individuals who got married on turning 19 and 0 for other married women
Married at 18 or 19	Dummy=1 for individuals who got married on turning 18 or 19 and 0 for other married women
Maternal and child health outcomes	
Ante-natal care	Dummy=1 if the woman went for at least 3 ante natal check-ups for all births in the last 5 years from the year of the survey
Institutional delivery	Dummy=1 if delivery was at health facility and 0 for non-institutional delivery for all births in the last 5 years from the year of the survey
Duration of breast feeding	Dummy=1 if the duration of breast feeding in months was at least 6 months and 0 otherwise
Postnatal check up	Dummy=1 if the first check on the newborn was within first two months after birth and 0 otherwise
Stunting	Dummy=1 if the height for age z-score is 2 standard deviations below the mean and 0 otherwise
Wasting	Dummy=1 if the weight for height z-score is 2 standard deviations below the mean and 0 otherwise

Underweight	Dummy=1 if the weight for age z-score is 2 standard deviations below the mean and 0 otherwise
Marriage outcomes	
Cemented house	Dummy= 1 if the household resides in a cemented house and 0 otherwise
Number secondary yrs completed	Number of household members who have at least completed secondary schooling
Husband's education	Husband's education in years
Amenities	Dummy=1 if the marital household uses clean cooking fuel, has a toilet and access to piped water at home and 0 otherwise.
Interest variables	
Female	Dummy=1 for females and 0 for males
Haryana	Dummy=1 for individuals residing in Haryana and 0 for those residing in Punjab
Age eligible	Dummy variable=1 if the individual is in the age group of 16 to 21 years or 17 to 22 years and was surveyed in 2015 or 2016, respectively and 0 otherwise
Haryana*Female	1 for females from Haryana and 0 for others
Haryana*Age eligible	1 for all individuals in the 16 to 21 and 17 to 22 age groups surveyed in 2015 and 2016, respectively residing in Haryana and 0 for others
Female*Age eligible	1 for females in the 16 to 21 and 17 to 22 age groups surveyed in 2015 and 2016, respectively and 0 for others
Haryana*Female*Age eligible	1 for females in the 16 to 21 and 17 to 22 age groups surveyed in 2015 and 2016, respectively residing in Haryana and 0 for others
Other controls	
Wealth score	Standardised wealth score based on assets held by the households
Religion	Categorical variable identifying the religious affiliation of the individual as Hindu, Muslim, Christian or other
Rural	Dummy variable=1 if the individual is from a rural area and 0 for those residing in an urban area
From PLFS (2017–18) and (2018–19)	
Outcome variables	
Labour supply (working)	Dummy variable=1 for individuals who reported working in household enterprise, as unpaid family worker, as regular salaried/wage employee, as casual wage labour: in public works or in other types of works as 'Usual Principal Status' (the activity on which a person spent most time (major time criterion) during the 365 days preceding the date of survey) and 0 otherwise
Labour supply (skilled working)	Dummy variable=1 for individuals who reported working in household enterprise, as unpaid family worker, as regular salaried/ wage employee as 'Usual Principal Status' and 0 otherwise
Marriage outcome	

Number regularly employed	Number of household members who have regular/ salaried wage employment as 'Usual Principal Status'
Interest variables	
Female	Dummy=1 for females and 0 for males
Haryana	Dummy=1 for individuals residing in Haryana and 0 for those residing in Punjab
Age eligible	Dummy variable=1 if the individual is in the 18–23 age group for those surveyed in 2017; 19–24 for those surveyed in 2018 and 20–25 for those surveyed in 2019 and 0 for those in the age cohort 24–29 surveyed in 2017, 25–30 in 2018 and 26-31 in 2019
Haryana*Female	1 for females from Haryana and 0 for others
Haryana*Age eligible	1 for all individuals in the age group of 1 from residing in Haryana (indicated above) and 0 for others
Female*Age eligible	1 for females in the age group of 1 (indicated above) and 0 for others
Haryana*Female*Age eligible	1 for females in the age group of 1 from residing in Haryana (indicated above) and 0 for others
Other controls	
MPCE	Monthly per capita household consumption expenditure (rupees)
Religion	Categorical variable identifying the religious affiliation of the individual as Hindu, Muslim or other
Rural	Dummy=1 if the individual is from a rural area and 0 for those residing in an urban area
Round	Dummy=1 for individuals who were surveyed in round two of PLFS (2018–19) and 0 otherwise