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THE POWER OF TV:
CABLE TELEVISION AND WOMEN'S STATUS IN INDIA

Robert Jensen
Emily Oster

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ABSTRACT

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Robert Jensen
Watson Institute for International Studies
Brown University
Box 1970
Providence, RI 02912
and NBER
Robert_Jensen@harvard.edu

Emily Oster
University of Chicago
Department of Economics
1126 East 59th Street
Chicago, IL 60637
and NBER
eoster@uchicago.edu

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Robert Jensen
Watson Institute for International Studies, Brown University and NBER

Emily Oster*
University of Chicago and NBER

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Abstract

Cable and satellite television have grown rapidly throughout the developing world. The availability of cable and satellite television exposes viewers to new information about the outside world, which may affect individual attitudes and behaviors. This paper explores the effect of the introduction of cable television on gender attitudes in rural India. Using a three-year individual-level panel dataset, we find that the introduction of cable television is associated with improvements in women's status. We find significant increases in reported autonomy, decreases in the reported acceptability of beating and decreases in reported son preference. We also find increases in female school enrollment and decreases in fertility (primarily via increased birth spacing). The effects are large, equivalent in some cases to about five years of education in the cross section, and move gender attitudes of individuals in rural areas much closer to those in urban areas. We argue that the results are not driven by pre-existing differential trends. These results have important policy implications, as India and other countries attempt to decrease bias against women.

1 Introduction

The growth of television in the developing world over the last two decades has been extraordinary. Estimates suggest that the number of television sets in Asia has increased more than six-fold, from 100 million to 650 million, since the 1980s (World Press Review, 2003). In China, television exposure grew from 18 million people in 1977 to 1 billion by 1995 (World Press Review, 2003). In more recent years, satellite and cable television availability has increased dramatically. Again, in China, the number of people with satellite access increased from just 270,000 in 1991 to 14 million by 2005. Further, these numbers are likely to understate the change in the number of people for whom television is available, since a single television is often watched by many.

Beyond providing entertainment, television vastly increases both the availability of information about the outside world and exposure to other ways of life, particularly in otherwise

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isolated areas. Previous work has demonstrated that the information and exposure provided by television can change attitudes and behavior. Gentzkow and Shapiro (2005) find effects of television viewership on attitudes in the Muslim world towards the West, and Della Vigna and Kaplan (2006) show large effects of the Fox News channel on voting patterns in the United States. In the developing world, Olken (2006) shows that television decreases participation in social organizations.

India has not been left out of the satellite revolution: a recent survey finds that 112 million households in India own a television, with 61 percent of those homes having cable or satellite service (National Readership Studies Council 2006). This figure represents a doubling in cable access in just five years from a previous survey. The study also find that in some states, the change has been even more dramatic; in the span of just 10-15 years since it first became available, cable or satellite penetration has reached an astonishing 60 percent in states such as Tamil Nadu, even though the average income is below the World Bank poverty line of two dollars per person per day.

Most popular satellite television shows in India portray life in urban settings; further, a wide range of international programs are now available. The increase in television exposure, therefore, is likely to dramatically change the available information about the outside world, especially in isolated rural areas. Indeed, anthropological case studies in India suggest that exposure to television in rural areas has an effect on behaviors as disparate as latrine building and fan usage (Johnson, 2001).

In this paper we explore the effect of the introduction of cable television in rural areas of India on a particular set of values and behaviors, namely attitudes towards and discrimination against women. Although issues of gender equity are important throughout much of the developing world, they are particularly salient in India. Sen (1992) argued that there were 41 million "missing women" in India – women and girls who died prematurely due to mistreatment – resulting in a dramatically male-biased population. The population bias towards men has only gotten worse in the last two decades, as sex-selective abortion has become more widely used to avoid female births (Jha et al, 2006). More broadly, girls in India are discriminated against in nutrition, medical care, vaccination and education (Basu, 1989; Griffiths et al, 2002; Borooah, 2004; Pande, 2003; Mishra et al, 2004; Oster, 2007). Even within India, gender inequality is significantly worse in rural than urban areas. Given this, if satellite television increases the exposure of rural areas to urban attitudes and values, it is plausible that it could change some of these attitudes and behaviors. It is this possibility that we explore in this paper.

The analysis relies on a three-year panel dataset covering women in five Indian states between 2001 and 2003. These years represent a time of rapid growth in rural cable access. During

the panel, cable television was newly introduced in 21 of the 180 sample villages.[1] Our empirical strategy relies on comparing changes in attitudes and behaviors between survey rounds across villages based on whether (and when) they added cable television.

Using these data, we find that cable television has large effects on attitudes and, to the extent we have information, behaviors. After cable is introduced to a village, women are less likely to report that domestic violence towards women is acceptable. They also report increased autonomy (for example, the ability to go out without permission and to participate in household decision-making). Women are less likely to report son preference (the desire to give birth to a boy rather than a girl). Turning to behaviors, we find increases in school enrollment for girls (but not boys), and decreases in fertility (which is often linked to female autonomy). These results are apparent when using regressions with individual fixed effects and when using a matching estimator.

In terms of magnitude, the introduction of cable television dramatically decreases the differences in attitudes and behaviors between urban and rural areas – between 45 and 70 percent of the difference disappears within two years of cable introduction in this sample. The effect is also large relative to, for example, the effect of education on these attitudes and behaviors: introducing cable television is equivalent to roughly five years of female education in the cross section. These effects happen very quickly; the average village has cable for only 6-7 months before being surveyed again, which implies a rapid change in attitudes. However, this is consistent with existing work on the effects of media exposure, which typically find rapid changes (within a few months, in many cases) in behaviors like contraceptive use, pregnancy, latrine building and perception of own-village status (Pace, 1993; Johnson, 2001; Kane et al, 1994; Valente et al, 1998; Rogers et al, 1999).

A central concern with the results is the possibility that trends in other variables (for example, income or "modernity") are driving both cable access and attitudes. We argue that this does not seem to the case. Changes in attitudes between the first two survey waves are not predictive of cable introduction between the second and third wave. Further, among villages that add cable during the survey period, initial attitudes are not predictive of which year (2002 or 2003) they get access.

It is difficult to identify the mechanism behind the effects in this paper precisely. However, we do find some suggestive evidence that the mechanism alluded to at the start of the paper –

[1]Cable television in these villages is generally introduced by an entrepreneur, who purchases a satellite dish and subscription, and then charges people (generally within 1km of the dish) to run cables to it. In this sense, people are actually accessing satellite channels. We will use the terms cable and satellite interchangeably to refer to programming not available via public broadcast signals. Our interest is with the content of programming available to households, rather than the physical means of delivery of that content.

increased exposure to circumstances outside of the village – is operating. In particular, we find that the effects of cable are largest in areas with initially worse attitudes towards women, i.e., those for whom cable is providing information most different from their current way of life. Although certainly not conclusive, this evidence is consistent with a model in which television changes the weight individuals put on the behaviors of their immediate peer group in forming their attitudes.

The results are potentially quite important for policy. Gender discrimination in India is a significant issue, and has been a consistent source of concern for policy makers and academics (Sen, 1992; World Bank, 2001; Duflo, 2005; World Bank, 2006). A large literature in economics, sociology and anthropology has explored the underlying causes of discrimination against women in India, highlighting the dowry system, low levels of female education, and other socioeconomic factors as central factors (Rosenzweig and Shultz, 1982; Agnihotri, 2000; Agnihotri et al., 2002; Murthi et al., 1995; Rahman and Rao, 2004; Qian, 2006). Changing these underlying factors is difficult; introducing television, or reducing any barriers to its spread, may be less so.

From the policy perspective, however, there are potential concerns about whether the changes in reported autonomy, beating attitudes, and son preference actually represent changes in *behaviors*, or just in reporting. For example, we may be concerned that exposure to television only changes what the respondent thinks the interviewer wants to hear about the acceptability of beating, but does not actually change how much beating is occurring. This concern is likely to be less relevant in the case of fertility or education; the former is directly verifiable based on the presence of a baby in the household, and the latter is listed as part of a household roster. The fact that we find effects on these variables provides support for the argument that our results represent real changes in outcomes. Without directly observing people in their homes, however, it is difficult to conclusively separate changes in reporting from changes in behavior. However, even if cable only changes what is reported, it still may represent progress: changing the perceived "correct" attitude seems like a necessary, if not sufficient, step toward changing outcomes.

The remainder of the paper is organized as follows. Section 2 provides background on television in India and discusses existing anthropological and ethnographic evidence on the impact of television on Indian society. Section 3 describes the data and empirical strategy. Section 4 discusses the results, including the effects on attitudes and behaviors, and robustness checks. Section 5 briefly explores the possible mechanisms behind the change in attitudes and behaviors, and Section 6 concludes.

2 Background on Television in India

State-run black and white television was introduced into India in 1959, but the take off was extremely slow for the first several decades – by 1977, only around 600,000 sets had been sold. In 1982, however, the state-run broadcaster (Doordarshan) introduced color television, which dramatically increased interest in, and viewership of, television. Even with color, however, most programming remained either government-sponsored news or information about economic development. There were a few entertainment serials, which were watched with intensity.[2] In the early 1990s CNN and STAR TV first introduced the possibility of access to non-government programming via satellite. There was a large demand for this cable (satellite) television, which was, and continues to be, filled primarily by small entrepreneurs who buy a dish and a subscription and charge nearby homes to connect to it. This is especially true in rural villages, such as those in our sample. As we show in the data later, this means that cable access is more common in villages that are wealthier and have a higher population density, where more people can afford to pay for service and where it would therefore be more profitable to start a cable business. However, dramatic declines in the prices of both the equipment and satellite service subscriptions (due in part to reduced tariffs and increased competition), coupled with income growth, have allowed cable to spread over time to more and more villages. In the 5 years from 2001 to 2006, about 30 million households, representing approximately 150 million individuals, added cable service (National Readership Studies Council 2006). And since television is often watched with family and friends by those without a television or cable, the growth in actual access or exposure to cable may have been even more dramatic.

The program offerings on cable television are quite different than government programming. The most popular shows tend to be game shows and soap operas. As an example, among the most popular shows in both 2000 and 2007 (based on Indian Nielsen ratings) is "Kyunki Saas Bhi Kabhi Bahu Thi," (Because a Mother-in-Law was Once a Daughter-in-Law, Also) a show based around the life of a wealthy industrial family in the large city of Mumbai. As can be seen from the title, the main themes and plots of the show often revolve around issues of family and gender. Among satellite channels, STAR TV and Zee TV tend to dominate, although Sony, STAR PLUS and Sun TV are also represented among the top 20 shows. Viewership of the government channel, although relatively high among those who do not have cable, is extremely low among those who do (and limited largely to sporting events).

[2]This background information detailed here is drawn largely from Mankekar, 1999 and http://www.indiantelevision.com/indianbrodcast/history/historyoftele.htm

The introduction of television in general appears to have had large effects on Indian society. In contrast to the West, television seems to be, in some cases, the primary medium by which people in rural villages in India get information about the outside world (Scrase, 2002; Mankekar, 1993; Mankekar, 1998; Johnson, 2001; Fernandes, 2000). For example, Johnson (2001) reports on a man in his 50's in a village in India who says that television is "the biggest thing to happen in our village, ever". He goes on to say that he learned about the value of electric fans (to deal with the heat) from television, and subsequently purchased one. The same author quotes another man arguing that television is where they learned that their leaders were corrupt, and about using the court system to address grievances.

On issues of gender specifically, television seems to have had a significant impact, since this is an area where the lives of rural viewers differ greatly from those depicted on most popular shows. By virtue of the fact that the most popular Indian serials take place in urban settings, women depicted on these shows are typically much more emancipated than rural women. For example, many women on popular serials work outside the home, run businesses and control money. In addition, they are typically more educated and have fewer children than their rural counterparts. Further, in many cases there is access to Western television, with its accompanying depiction of life in which women are much more emancipated. Based on anthropological reports, this seems to have affected attitudes within India. Scrase (2002) reports that several of his respondents thought television might lead women to question their social position and might help the cause of female advancement. Another woman reports that, because of television, men and women are able to "open up a lot more" (Scrase, 2002). Johnson (2001) quotes a number of respondents describing changes in gender roles as a result of television. One man notes, "Since TV has come to our village, women are doing less work than before. They only want to watch TV. So we [men] have to do more work. Many times I help my wife clean the house."

Although television overall seems to have had large effects, cable television in particular may be even more significant. This is both because it dramatically increases television viewership (see Section 3), and because the content is very different (again, since popular serials mostly feature urban life). Scrase (2002) reports on respondents who note that prior to cable there was almost no entertainment, and very little current affairs, whereas the offerings on cable were broad.

There is also a broader literature on the effects of television exposure on gender issues in other countries. Many studies find effects on a variety of outcomes: for example, eating disorders in Fiji (Becker, 2004), sex role stereotypes in Minnesota (Morgan and Rothschild, 1983) and

perceptions of women's rights in Chicago (Holbert, Shah and Kwak, 2003). Telenovelas in Brazil have provided a fruitful context for studying the effects of television. For example, based on ethnographic research, La Pastina (2004) argues that exposure to telenovelas provides women (in particular) with alternative models of what role they might play in society. Pace (1993) describes the effect of television introduction in Brazil on a small, isolated, Amazon community, arguing that the introduction of television changed the framework of social interactions, increased general world knowledge and changed people's perceptions about the status of their village in the wider world. Kottak (1990) reports on similar data from isolated areas in Brazil, and argues that the introduction of television affects (among other things) views on gender, moving individuals in these areas towards having more liberal views on the role of women in both the workplace and in relationships.

Interestingly, the studies in Brazil also suggest that the patterns of television viewing shortly after it is first introduced may be quite different than what is seen later on. The evidence suggests that in the first years after introduction, interactions with the television are more intense, with the television drawing more focus (both at an individual level, and community-wide). It is during this early period that Kottak (1990) and others argue that television is at its most influential. Most of the villages in our analysis are at this early stage of television exposure, suggesting this may be an ideal period to look for effects.

The evidence described above, of course, is drawn primarily from interviews and case studies, and obviously does not reflect a random sample of these populations. Nevertheless, the overall impression given by the anthropology and sociology literature is that the introduction of television had widespread effects on society, and that gender issues are a particular focal point. Our data and setting provide an opportunity to test this hypothesis more rigorously.

3 Data and Empirical Strategy

3.1 Data

This paper relies on data from the Survey of Aging in Rural India (SARI), a panel survey of 2,700 households, each containing a person aged 50 or older, conducted in 2001, 2002 and 2003 in four states (Bihar, Goa, Haryana,and Tamil Nadu), and the capital, Delhi. The sample was selected in two stages: in the first stage, 180 clusters were selected at random from district lists (40 clusters in Bihar, Haryana and Tamil Nadu, 35 in Delhi and 25 in Goa), and in the second stage, 15 households were chosen within each cluster through random sampling based on registration lists. Other than

Delhi, the survey was confined to rural areas. Attrition over the panel was low, with just 108 (4 percent) of the original households dropping out by the third round.

All women in the sample households aged 15 and older were interviewed. Several sections of this survey were modeled to be compatible with other demographic surveys for India, such as the National Family and Health Survey (NFHS). The survey collected information on a range of (current and past) demographic, social and economic variables. In addition, a village-level survey was conducted in each sample cluster, gathering information on economic and social conditions and infrastructure.

Most relevant for our analysis, the survey asked women a series of questions intended to measure various dimensions of women's status. These questions were patterned after those used in several countries as part of the Demographic and Health Surveys, as well as in the Surveys on the Status of Women and Fertility conducted by the University of Pennsylvania Population Studies Center. The first set of questions deal with women's autonomy and decision-making authority. In particular, women were asked whether they needed permission to visit the market (one question) or to visit friends or relatives (a second question). Responses were coded on a scale of 1 to 3 (do not need permission; need permission; not permitted at all). Women were also asked whether they are allowed to keep money set aside to spend as they wish. In addition, women were asked, "Who makes the following decisions in your household: Obtaining health care for yourself; purchasing major household items; whether you visit or stay with family members or friends?" The possible responses were: "1. Respondent; 2. Husband; 3. Respondent jointly with husband; 4. Other household members; 5. Respondent jointly with other household members."

Second, women were asked about son preference. In particular, women who reported wanting to have more children were asked: "Would you like your next child to be a boy, a girl or it doesn't matter?"

Finally, given the high prevalence of domestic violence in India, women were asked their attitudes towards such behavior. Specifically, they were asked: "Please tell me if you think that a husband is justified in beating his wife in each of the following situations: If he suspects her of being unfaithful; if her natal family does not give expected money, jewelry or other things; if she shows disrespect for him; if she leaves the home without telling him; if she neglects the children; if she doesn't cook food properly."

While these measures suffer from obvious limitations, in particular because they are susceptible to reporting bias, they were designed to capture as best as possible various dimensions of

women's status, and to be consistent with the other major surveys on women's status. However, recognizing the limitations, in our analysis we will also make use of measures of behaviors as indicators for, or proxies of, women's status, including fertility and girls' school enrollment. Both behaviors are linked to women's status. Female education is generally higher in areas where women have higher status and, importantly, is itself an input to the health and education of future generations of women (and men). Lower fertility is often linked to female autonomy (Dyson and Moore, 1983; Sen, 1999), in part because the value of women's time increases as the set of activities they are permitted to do goes up. And while observed changes in fertility may represent direct changes in attitudes regarding the optimal number or spacing of children independent of changes in attitudes towards women, reductions in fertility or increased spacing is a useful outcome measure in itself because it represents gains to women, in the form of reduced health risks and increased opportunities outside of the home due to reduced child-rearing burdens.

Data on Cable Television

Crucially for this project, the village-level survey included information on cable television. Panel A of Table 1 provides information on cable availability throughout the survey. In the first round, 65 of the 180 villages have cable. As stated above, this was a period of rapid expansion in cable access throughout India. Thus, in our data, an additional 10 villages added cable by the 2002 survey and another 11 added it by 2003. Finally, 94 villages never get cable (no villages drop cable during the sample period). The identification of the effects of cable in the paper relies on the 21 villages that added cable in either 2002 or 2003. For all those villages that added cable, we also gathered data on when service first became available.

There is significant regional variation in access to cable. Panel B of Table 1 shows the percent of villages/clusters in each state with cable access in 2001. Not surprisingly, the capital, Delhi, has essentially universal access. Elsewhere, the two southern states of Tamil Nadu and Goa have very high cable penetration, at 78 and 60 percent of villages, respectively. By contrast, coverage in the two northern states of Bihar and Haryana is low (7 and 17 percent). While this variation may seem extreme, or perhaps an artifact of our particular sample of rural villages, these estimates are consistent with a 2001 national census of villages (NSSO 2003).

As noted above, television was generally available prior to cable, so it is important to explore whether the introduction of cable had any effect on the amount of television watching. Figure 1 shows this to be the case. The figure shows the percent of people who report having watched

television in the past week (unfortunately, the survey did not gather data on the amount of time spent watching). There is relatively little change in watching over time in either areas that never have cable or those that always have it. However, in villages that get cable in 2002, the share of respondents who report watching television at least once a week jumps from 40 to 80 percent between 2001 and 2002; in villages that get cable in 2003, this share is constant between 2001 and 2002, then increases sharply from 50 to 90 percent between 2002 and 2003. This graph suggests a strong connection between cable availability and television viewership, with a near doubling in both cases.

Consistent with the background above, cable availability is correlated with factors that make providing service profitable at the village-level, as can be seen in Table 2, where we regress whether a village has cable in 2001 on a range of village-level characteristics. As expected, villages with higher mean income or a greater population density are more likely to have cable. Education also increases the likelihood of cable. The other clear correlate is urbanization – Table 2 includes only rural villages, so urban/rural status is not included on the right hand side. Only about half of the rural villages have cable access, while all of the urban areas surveyed do. However, the rural fraction with access has been increasing over time, again, due primarily to reductions in the costs of service (coupled with increases in income).

The fact that cable availability is not exogenous is not necessarily a problem for the analysis here. If the availability of cable did have an exogenous driver (as in Olken, 2006) the analysis would be simple: we could just compare villages with and without cable in the cross section. Although that is not possible here, the availability of panel data allows stable village (and individual) characteristics to be differenced out. Changes in other obvious factors leading to increased cable access, such as income, can be explicitly controlled for. The primary remaining concerns are the possibility that there is some pre-existing differential trend between villages that do and don't add cable, or that the changes in cable availability are driven by some unobserved factor that also causes changes in attitudes. These concerns are discussed in more detail in Section 4.

Data on Gender Attitudes

The first set of dependent variables to be used are measures of autonomy, attitudes toward beating and son preference among women. The various measures of autonomy are highly correlated, but they do contain independent information. To generate a single summary measure, therefore, we perform a principal components analysis of the decision making variables, the permission variables and the variable measuring whether the woman can keep her own money. The first principal component of

these variables captures the largest amount of variation common to all variables in the set (for a more detailed description, see Filmer and Pritchett, 2001). The autonomy measure is this first principle component, which is standardized to have a mean of zero and standard deviation of one. The attitudes measure is simply the number of situations in which the woman reports that it is acceptable for a husband to beat his wife (0-6). Finally, the son preference variable is whether the woman reports wanting her next child to be a boy (again, this is only observed for the sample of women who report wanting more children).

Panel A of Table 3 summarizes the underlying variables. Overall, the reported level of tolerance for spousal beating (which may understate actual tolerance) is high. Over 60 percent of women feel that it is acceptable for a husband to beat his wife under at least one of the six situations listed. On average, women report 1.6 situations in which it is considered acceptable; the mean among women who think it is ever acceptable is 2.6. Women are most likely to believe beating is acceptable if a wife neglects her children, goes out without permission or does not show respect towards her husband; being a bad cook, her family not sending money or, surprisingly, if she is unfaithful, are believed to be less valid justifications for violence (though one-fifth to one-quarter still feel these are sufficient justifications).

With respect to decision-making, in this table we have condensed the responses to binary indicators for whether the woman participates in the decision, either on her own or jointly with others in the household. Overall, slightly more than half of women participate in each of the decisions. There is some overlap in these variables, though not as much as might be suggested by the similarity of their means; about 20 percent of women do not participate in any of the three decisions, 25 percent participate in one, 27 percent in two, and 29 percent in three. In terms of permission, just over one-half of women report needing permission from their husband in order to go to the market and two-thirds need permission to visit family or friends (while not shown here, less than 4 percent are not permitted to do each of these things). By contrast, nearly three-quarters of women are allowed to keep money set aside to spend as they wish. However, by most measures, women's status and autonomy overall are quite low.

The table also reveals strong son preference, with 55 percent of women who want another child preferring that child be a boy. Note in addition that the residual is not simply preferring a girl; only about 13 percent of women want their next child to be a girl, with the remainder reporting that the sex of the child doesn't matter (about one-quarter of the sample) or reporting something else (such as "up to God").

Data on Fertility and Education

The second set of dependent variables we use are measures of fertility and education. The fertility data are based on questions on births and pregnancies asked in each survey round. In the first round, women were asked to list all children ever born to them, even if they were not currently alive or living in the household. In subsequent survey rounds women were asked about any new births since the last survey. Finally, women were asked in each round whether they were currently pregnant. We combine these data and create a variable measuring the change in the number of children between surveys, which includes both children conceived and born since the previous survey and current pregnancies (children conceived before the previous survey but born between surveys are therefore counted in the previous survey). It is important to include the current pregnancies in order to line up with the timing of television: the theory is that television may affect the decision to have more children, or when to have them, which will be reflected in pregnancies earlier than in births. Data on the average number of children and the average change between surveys are described in Panel B of Table 3.

Data on education are drawn from the household roster which reports information on sex, age and activities, including school enrollment, for each individual in the household. For children aged 6 to 14 at the time of the first survey, we create an indicator for whether they are in school at each survey round and, for the last two rounds, whether they dropped out in the last year. We limit ourselves to children younger than 14 at the time of the first survey because by the end of the panel, children older than that may have started to marry and leave the household, and our education data on them might therefore be less complete. The education variables are summarized in Panel B of Table 3.

Correlations Between Women's Status and Demographics

It is informative to explore the relationship between the outcome variables (gender attitudes, fertility and education) and various demographic characteristics. In addition to providing information about correlates of women's status, this analysis can provide a benchmark for understanding the magnitude of the relationship between the outcome variables and cable introduction, discussed in the results section.

Table 4 shows the coefficients from regressions of the measures of women's status on each of the demographic variables individually (so, for example, the coefficient of -0.137 in the first row, first column indicates that in a regression of autonomy on rural status, with no controls, autonomy

in rural areas is estimated to be 0.137 standard deviations lower than in urban areas). Consistent with expectations, rural areas tend to have less favorable attitudes towards women on all dimensions, while wealthier and more well-educated people in general have more favorable attitudes. The effects of religion and age are more mixed, with some differences across groups (for example, Hindus tend to have lower female autonomy, but also a lower acceptability of beating).

3.2 Empirical Strategy

The basic empirical strategy is straightforward. For the measures of attitudes and autonomy, we run individual-level fixed effects regressions of the status measures on cable availability (measured at the village-level). Denote the reported status for individual i in village v in year t as s_{ivt} and cable availability in the village in year t as c_{vt}. The primary regression estimated is

$$s_{ivt} = \beta c_{vt} + \gamma_i + \delta_t + \epsilon_{ivt}$$

where γ_i is a full set of individual fixed effects and δ_t is a full set of year dummies. This specification allows us to eliminate any fixed difference across individuals and any common trends over time; the effect of cable will be identified off of changes in village-level access to cable during the three years of the survey. The identifying assumption is that women's status in villages that added cable would not have otherwise changed differently than in those villages that did not add cable; we discuss this assumption further in the next section. The analysis includes those that do not have cable in any round, and those that have it in all three rounds; using only the former (or leaving out all of these "non-changers") does not change any of the results appreciably. All standard errors are clustered at the village level to allow for correlation in errors among individuals living in the same village.

A similar strategy will be used for the analysis of fertility. Our hypothesis is that cable affects either the total desired number of children a woman wants, or the spacing of those children. For this analysis, the dependent variable is the change in the number of children a woman has between survey rounds. We will also control in this regression for whether the woman was pregnant at the time of the previous survey, to allow for the fact that some fertility spacing is generally both desirable and biologically likely. In particular, we run the following regression

$$\Delta Kids_{ivt} = \beta c_{vt} + \phi pregnant_{iv(t-1)} + \gamma_i + \delta_t + \epsilon_{ivt}$$

where $\Delta Kids_{ivt}$ is the change in number of children between year $t-1$ and year t, and $pregnant_{iv(t-1)}$ is a control for whether the woman was pregnant in year $t-1$ (to adjust for the fact

that some birth spacing is biologically necessary). We also separately analyze the impact on the reported desire to have more children, in order to examine whether changes in pregnancies/births reflect changes in total fertility, or simply the timing of pregnancies.

Finally, in the analysis of education we will focus on the same type of regression – controlling for child-specific fixed effects and examining changes over time – but our main interest will be in comparing the effect for girls to the effect for boys. We begin by splitting the sample, running the fixed effects regression below for boys and girls separately :

$$enrolled_{ivt} = \beta c_{vt} + \gamma_i + \delta_t + \epsilon_{ivt}$$

Our hypothesis is that β will be larger for girls than for boys. We will also consider regressions in which the boy and girl samples are combined, and we include an interaction between gender and cable access:

$$enrolled_{ivt} = \beta_1 c_{vt} + \beta_2 (c_{vt} \times Boy) + \gamma_i + \delta_t + \epsilon_{ivt}$$

In this case, the coefficient of interest is β_2, the interaction between gender and cable access. Our hypothesis is that β_2 will be negative.

Finally, in addition to these individual-level fixed effects regressions, we also estimate the effects of cable on women's status using village-level matching. We apply the bias-adjusted, nearest neighbor matching strategy proposed by Abadie and Imbens (2002). This strategy matches each village in both cable regimes (adds cable; does not add cable) to the village(s) in the opposite cable regime with the 'most similar' values of a set of specified covariates. The difference in the outcome variable is then computed for each matched pair, and the estimate is given by the mean of these pair-wise differences. Since the estimator is biased when matches are not exact, as is likely, the estimator adjusts for differences in the covariates using regression functions. Since the method effectively estimates for each observation the value of the missing outcome variables for the counterfactual situation using similar-looking observations in the opposite cable regime, the key assumption is that, conditional on the covariates used for matching, getting cable is independent of the outcome variable.

We match based on 2001 village-level characteristics: income, population density, distance to the nearest town, education, the fraction of people who watch TV, and the level of the outcome variable. We match using the four nearest neighbors, with matching confined to within-state only (this is particularly relevant here given the unique outlier status of Tamil Nadu discussed below).

4 Results

This section presents the basic results on the effects of cable. The first subsection summarizes the effects on autonomy, attitudes towards domestic violence, and son preference. The second subsection discusses education and fertility. The third subsection discusses the concern over whether the results are largely driven by pre-existing differential trends.

4.1 Beating, Autonomy and Son Preference

Before moving to the fixed effects and matching estimators, we begin by showing the relationship between the measures of women's status and village level cable access using an OLS approach. We expect there may be some bias in the OLS results, although it is difficult to definitively sign its direction. Villages with cable access are likely to be more urbanized and perhaps have more 'modern' attitudes, which are likely to be associated with more favorable attitudes towards women, suggesting an *upwards* bias. However, there may be other drivers of cable access that are correlated with less favorable attitudes towards women, which would push the bias in the other direction. For example, in households where men have more power or authority, due perhaps to earning a higher fraction of the household's income, they may assert their personal preferences to a greater extent, which may include both spending on cable rather than other goods, and not allowing their wives significant autonomy.

Table 5 shows the OLS relationship between the three measures of women's status – autonomy, beating attitudes and son preference – and cable access. Panel A shows the results with only controls for cable access and year. The results are somewhat inconsistent. We find that cable access is associated with greater autonomy and reduced son preference. However, we also find that villages with cable have *more* acceptability of beating than those without it. Thus, the raw cross-sectional results yield somewhat ambiguous conclusions regarding the effect of cable television on women's status.

However, part of this seeming contradiction may be driven by the uneven spatial distribution of cable access. As noted earlier, among rural areas, cable access is highest in the southern state of Tamil Nadu. And while in general women's status is typically higher in southern India relative to the north (ex., Bardhan 1974), one apparent exception is domestic violence in Tamil Nadu. In our data, the average number of situations in which a woman reports it is acceptable for a husband to beat his wife is 2.99 in Tamil Nadu, compared to 1.4, .99, 1.9 and .90 for Bihar, Delhi,

Goa and Haryana respectively. This finding is not unique to our data; results from the NFHS show that 36 percent of women in Tamil Nadu report having ever actually been beaten by their husbands, which is nearly double the national average of 19 (IIPS and ORC Macro 2000; the rates are 25, 10, 14 and 12 percent in Bihar, Delhi, Goa and Haryana, respectively). By contrast, but also consistent with what other authors have noted, in the NFHS Tamil Nadu is well above average on other measures of women's status, such as autonomy and decision-making. While there remain concerns about reporting bias for these variables, these results confirm that our data are not unique in regard to attitudes towards domestic violence in Tamil Nadu, and suggest a possible explanation for the contradictory results above is some unobserved factor or attitude perhaps unique to domestic violence that is more prevalent among households in Tamil Nadu than in other states.

In panel B, we therefore add state fixed-effects to the basic regressions, in addition to a variety of other controls, including income, education, age, and religion. The effects of cable are dramatically smaller in magnitude in all three cases. The presence of cable in a village is associated with an increase in women's autonomy/decision-making and a reduction in son preference. The coefficient on the number of acceptable situations for beating is still positive, but it is now very small, and not statistically significant. While this removes the apparent contradiction in the effects of cable on women's status, it still at least suggests that cable may not have any effect on attitudes towards domestic violence. However, there may of course remain other important village or individual omitted variables that the state fixed effects and other controls do not capture. Therefore, it is important to turn to our preferred estimation strategies.

The basic fixed effects results and the identification strategy are illustrated graphically in Figures 2a, 2b and 2c. For the three measures of women's status, these figures graph the village means over time in villages that never have cable, villages that add cable in 2002, villages that add cable in 2003 and those that have cable in all three rounds. All three figures show the same pattern. In areas that always have cable or never get cable the measures of women's status are relatively flat, though trending slightly upward in some cases. However, in areas that added cable by the 2002 survey, there are large improvements in women's status between 2001 and 2002, followed by smaller gains between 2002 and 2003, suggesting the effect of cable appears very quickly. And in areas where cable is added after the 2002 survey, there is no change between 2001 and 2002, but large improvements between 2002 and 2003.

Again, while Figure 2b may at first appear to contradict the overall relationship between cable and women's status in that acceptance of domestic violence is greater in villages where cable is

available in all periods than in those that never have it, the high incidence in Tamil Nadu of both cable and the acceptability of beating is likely to be behind much of this difference. Further, three of the ten villages that add cable in 2002 and three of the eleven that add it in 2003 are in Tamil Nadu, while only four percent of the villages without cable in all periods are from that state, accounting for the higher acceptability of beating in 2001 in the villages that added cable relative to those that never had cable. This again underscores the need to consider changes in outcomes, in order to eliminate these and any other fixed differences.

The individual-level fixed effects regressions are in Table 6. All regressions include year dummies, alone and interacted with income and education, to allow for differential time trends by education and income. All three regressions show a statistically significant effect of cable television on women's status. Adding cable is associated with a .19 standard deviation improvement in the measure of women's autonomy and decision-making, a .19 reduction in the average number of situations for which beating is acceptable, and a .12 reduction in the likelihood of wanting the next child to be a boy. For autonomy and son preference, the effects of cable are larger than the OLS estimates with controls. And in the case of attitudes towards beating, unlike with OLS, the fixed effects estimates indicate that cable does indeed improve the situation of women.[3]

As discussed, both the beating attitudes and autonomy measure are generated from a larger set of variables measuring attitudes toward beating under various situations and different questions on autonomy. Although these composite measures are a convenient way to summarize these variables, the results are quite consistent across the individual components. This can be seen in Appendix Table 1, which estimates the effect of cable access on each component variable using the fixed effect specification. Of the twelve individual variables, nine have the expected sign (the other three are very close to zero) and seven are statistically significant. In absolute terms, the largest effect is a reduction in the perceived acceptability of a husband beating his wife if she is a bad cook, and an increase in participation in household decisions on major purchases. We can also estimate seemingly unrelated regression models on the components of the beating attitudes and autonomy variables and test the joint significance of the effect of cable on these variables. Doing so yields similar results: the chi-squared statistic for autonomy is 45.86, significant at greater than the 1% level, and for beating it is 22.83 (results available from the authors).

Panel A of Table 7 provides the results from the matching estimator (here we show the

[3]Interestingly, we do not see any evidence of backlash (attitudes or autonomy getting worse after cable introduction). The effect of cable either improves these outcomes, or leaves them unchanged.

average treatment effect; the results for the average treatment effect for the treated, in which matching is undertaken only for villages that added cable, yields similar results). The results are remarkably similar to those from the fixed effects analysis. Adding cable is associated with a .16 increase in the autonomy measure. The number of acceptable situations for beating declines by .17, and son preference declines by .13. These results are robust to using 2 or 6 matches instead of 4.

All of these results suggest large, favorable, effects of cable on women's status. To get a rough sense of the magnitude of these effects, one option is to compare the coefficients to the effects of more traditional shifters, like education, on the same outcomes. For example, based on the evidence in Table 4, one year of education shifts female autonomy by 0.0335. Comparing this with the fixed effect results in Table 6 suggests that introducing cable is roughly equivalent to increasing female education by about 5.5 years in terms of the effect on attitudes. Since the average education level is about 3.5 years, the effect is quite large.

Alternatively, and perhaps more in line with the theory that television leads to change by increasing exposure to urban attitudes and values, we can ask whether cable television moves the attitudes in the rural areas closer to attitudes in urban areas. We can do this by comparing the estimates of the effect of cable to the differences in the measures of women's status between households in Delhi and households in rural villages without cable, and evaluate what shares of those differences are made up for through cable introduction. These results are shown in Table 8, which reports the average value of the dependent variables for Delhi and rural respondents, as well as the coefficient from Table 6 and the share explained. The share explained is large in all cases, varying from 42 to 70 percent, indicating that a significant fraction of the gap between urban and rural areas is closed by the introduction of cable.

These estimates of the effect of television are quite large (although, of course, the standard errors are also large, so we cannot reject somewhat smaller effects). An important issue is, therefore, whether it is plausible that effects of this magnitude would be seen so quickly. Villages that adopted cable during our survey would have had it on average for only six or seven months before they were surveyed again. Although it is difficult to directly evaluate how quickly we would expect to see effects of cable, some of the existing literature suggests that changes in attitudes and behaviors as a result of television (or media exposure in general) can be quite fast.

Johnson (2001) discusses a village that went from 2 to 25 latrines in a period of 4 years after television introduction. Pace (1993) demonstrates a large decrease in the perception of own-village status in the world with just one year of television exposure. Related, there is also a

large literature showing rapid effects on attitudes arising from changes in media content (as opposed to adding television).

In Tanzania, a radio soap opera promoting family planning resulted in between a 10 and 15 percentage point increase in contraceptive use within two years of the program being introduced, and between a 3 and 7 percentage point decline in current pregnancies (Rogers et al, 1999). A multimedia campaign (radio and television) in Mali in 1993 promoting family planning led within just 3 months to a 20 percentage point increase in the share of individuals planning to use modern contraceptive technology in the future (Kane et al, 1998); a radio program in the Gambia shows similar effects within 8 months of introduction (Valente et al, 1994). Finally, there is also evidence that when used as a vehicle for reaching a large number of people very quickly as in "social marketing", media can have large and immediate effects as well; for example, a television and radio family planning campaign in Nigeria increased the number of new clients at family planning clinics three to five fold within one month of airing (Piotrow et al. 1990). All of these examples suggest that the effect of media exposure on attitudes and behavior may happen very quickly. This makes it, perhaps, less surprising that we see such large effects of cable exposure within a short period of time.

Following on the overall results, it seems sensible to ask whether these effects differ across demographic groups – for example, by age and education. To get a sense of this, we divide the sample in half based on age or education and estimate the effect of cable on the three central outcomes for each subgroup. These results are shown in Appendix Table 2. The results show consistent evidence of larger effects among the better-educated. The effects also appear to be somewhat larger among older people, although this effect is less consistent. In general, however, these results are difficult to interpret. More educated people could be more responsive because they are better at processing information (Grossman, 1972), but this also may reflect the fact that they are much more likely to watch television. The results on age also have a number of interpretations: older women may have more ability to assert themselves once they come to expect more autonomy, or they may have only their husband to convince, while younger women may have both a husband and a mother-in-law. In general, without knowing something more about what actually goes on within the household, these breakdowns are interesting but difficult to draw strong conclusions from.

4.2 Education and Fertility

The results in the previous subsection point to large effects of cable television on women's status. However, one concern with these results is that we are measuring only what is *reported*, rather than

directly observing the outcomes. It is possible that exposure to cable television gives women a different sense of what they think the interviewer wants to hear, but does not change behavior. In this subsection we analyze the effect of cable on female school enrollment and fertility. In contrast to the measures in the previous section, these come from the household roster reports. Although it is, in principle, conceivable that respondents also misreport on these rosters, it seems much less likely to be a significant issue.

Table 9 shows OLS regressions of indicators for children's current period school enrollment, and women's fertility (yearly change in number of children) on cable television access. In these regressions, cable access is positively and marginally statistically significantly associated with both female and male school enrollment. In column 3, cable access is significantly negatively correlated with fertility. However, as stated above, these regressions should be interpreted with caution, due to the possibility of significant omitted variable bias.

Table 10 shows the fixed effect results on education. In Panel A, the dependent variable is again a dummy for whether the child is currently enrolled in school. Column 1 shows that introducing cable increases the likelihood of current enrollment for girls by 3.5 percentage points (the base is 68 percent enrolled). This effect does not seem to operate for boys: the coefficient is extremely small, and not statistically significant. In both cases, the fixed effects estimates are smaller than the OLS estimates. Column 3 includes the cable variable and the interaction between cable and child gender. Though the magnitude of the difference in the effect between boys and girls is fairly large, we cannot reject that the effect is the same for both.

Since there are likely to be varying costs and returns to early and later education, columns 4-9 split the sample by whether a child is 6-10 or 11-14. The differences by age are pronounced. For girls aged 6-10, the effects on schooling are large and positive, increasing the likelihood of enrollment by around 6 percentage points (from a base of 75 percent). For boys 6-10, the coefficient is negative, but it is small and not statistically significant. Thus, the gender difference is even greater in magnitude but, because of the larger standard errors from the smaller samples, in the interaction regression we can only reject the hypothesis of equality of the effects at the 10 percent level. By contrast, the last three columns of Panel A show that there is essentially no effect of cable on enrollment for boys or girls aged 11-14. Thus, the overall effects on schooling appear to be driven largely by effects among the youngest children. One possible explanation is that educational planning is largely undertaken when children are young, so exposure to cable is too late to have much of an effect for older children.

Panel B of Table 10 focuses on the likelihood of dropping out, rather than being in school, which may be the more relevant measure. Focusing first on the full sample of children aged 6-14, cable television is associated with a large, statistically significant decline in the likelihood of dropping out for girls, whereas for boys the effect is positive and large, but not statistically significant. These effects differ greatly (13 percentage points), and in the third column, we can reject at the 10 percent level the hypothesis that the effects are the same. When split by age, cable television has a very large, negative effect on the likelihood of dropping out for girls aged 6-10 and 11-14, though the effect is only statistically significant for the former. By contrast, for boys, there is little effect among those aged 6-10, but a large, negative, but not statistically significant effect for older boys. However, while the point estimates of the magnitudes differ greatly for boys and girls, for neither age group can we reject the hypothesis that the effects of cable are equal.

The results of the matching estimator presented in Panel B of Table 7 are broadly similar. Adding cable is associated with a large, marginally statistically significant increase in school enrollment for girls aged 6-10. For boys, the effects are negative, but not statistically significant. By contrast, for older children, the effects are not statistically significant for either boys or girls, and the point estimates are positive for boys but negative for girls.

Thus, across the estimators, the most consistent finding is an improvement in the enrollment of young girls. It should be noted however that while the gains for girls may reflect an improvement in women's status (either girls being more highly valued by their parents or adult women becoming more influential in household decision-making about their children's education), it is also possible that the gains arise through other mechanisms. For example, television may provide information that causes parents to update their beliefs about the returns to schooling, more so for girls than for boys (for example, Jensen (2007) finds that students in the Dominican Republic who watch television have higher perceived returns to education than children who do not watch).

Table 11 turns to the fixed effects results for fertility. Column 1 demonstrates the overall effect of cable on the change in number of children: the introduction of cable lowers the yearly increase in number of children or pregnancies by 0.09. The mean of this variable is 0.14, making this quite a large effect (in fact, much larger than the OLS effect, although of the same sign). Columns 2 and 3 divide the sample based on age, with Column 2 including only women age 35 or less and Column 3 including only women over 35. Since there should be little or no effect for the latter group (since fertility in India is very low among this group) this can validate that changes observed for younger women are not just changes in reporting (i.e., cable viewers report lower fertility because

they learn than high fertility is less acceptable among outsiders). Indeed, we find a significant and large effect among young women (change in number of children is decreased by 0.14 children), but no effect among older women. This fact is not surprising given that the average increase in children in this older group is only 0.01, versus 0.21 in the younger age group. Panel C of Table 7 shows the results for the matching estimator. As above, the results are similar to the fixed effects results, with an estimated effect of -0.08 for the full sample of women and -0.12 for women 35 or under.

This short-term change in fertility could reflect either a change in the timing of births (pushing them to later), or a change in the total number of eventual births. The results in Columns 1 through 3 of Table 11 are consistent with either result. It is possible to get some sense of which of these mechanisms is producing the result by looking at the effect of television on the reported desire for more children (though we do not know how many more children they want). This result (the effect of cable television introduction on whether a woman, under 35, reports wanting more children) is reported in Column 4 of Table 11. The data suggest no significant relationship between this measure of desired fertility and cable introduction. Taken together with the results in Columns 1 through 3, this may point to an effect of cable on birth timing, but perhaps not on overall fertility. However, without data to test whether cable influences the total number of additional children a woman wants, this conclusion is only tentative. Further, delays in having children now may in fact result in reduced eventual fertility.

As mentioned above, it is worth noting that there are a number of mechanisms through which television access might affect fertility, including the one hypothesized here, that lower fertility is linked to higher autonomy. For example, women may learn about birth control via informational programs on television (Olenick, 2000; Hornik and McAnany, 2001; Rogers et al, 1999) or television may change the amount of time people want to devote to child-rearing (Hornik and McAnany, 2001). The results here do not allow us to separate these mechanisms; they *do* suggest a causal result of television overall, but we cannot conclude with certainty that this works through increases in autonomy. However, as an outcome in itself, delayed or reduced fertility represents a gain for women.

4.3 Alternative Explanations of the Results

While the fixed effects estimates eliminate any fixed differences that may influence both women's status and getting cable, the central concern with these results is that they may be driven by pre-existing differential trends. If areas with rapidly changing attitudes towards women (or changes in factors that in turn affect attitudes) are also more likely to get cable, we would mistakenly

attribute those changes to the introduction of cable. Similarly, the matching estimators in effect rely on the assumption that villages that look alike ex-ante but differ in whether they add cable might be expected to follow similar trajectories in women's status. While these assumptions are in their strongest form untestable, we can examine the data for any evidence of possible differential trends.

With a long panel it would be relatively easy to test for trends. Here, we have only three years, which limits the scope of this investigation. However, we can observe a short pre-trend for areas where cable was introduced in 2003. If large changes in attitudes between 2001 and 2002 were predictive of getting cable in 2003, that finding would validate the concern about pre-trends; if not, it suggests such trends may not be important. It will only be possible to perform this test for the beating attitudes, autonomy and son preference measures. In the case of education and fertility we are effectively only analyzing two changes (2001-2002 and 2002-2003) so there is no pre-trend to analyze.

To an extent, we can see the results of this test in Figures 2a-c. There is virtually no change in attitudes, autonomy or son preference between 2001 and 2002 for those villages that got cable in 2003. If there was a strong pre-trend, we would expect to see it here. To provide a more rigorous test, we consider the set of villages without cable in 2002 and test whether the change in attitudes between 2001 and 2002 are predictive of who gets cable in 2003. This regression is shown in Table 12. The results indicate that changes in attitudes between 2001 and 2002 are not predictive of getting cable in 2003. For attitudes and sex preference, the coefficients are extremely small and not statistically significant. The coefficient on changes in autonomy is larger, but the sign suggests that areas with an improvement in women's autonomy between 2001 and 2002 are actually *less* likely to get cable between 2002 and 2003 (although this is not statistically significant).

Although the test in Table 12 is appealing intuitively, there is likely to be a fair amount of noise in the data on changes, which pushes the coefficients towards zero. As an alternative, we can consider whether, among villages without cable in 2001 but with cable by 2003, the 2001 levels of the attitude variables are predictive of whether they get cable in 2002 or 2003. This will give us a sense of whether the timing of the introduction of cable in this sample is correlated with the pre-existing levels of attitudes. Table 13 shows these results. The dependent variable is 1 if cable was introduced in 2002 and 0 if it was introduced in 2003. All of the coefficients on the attitude variables are small, and none are statistically significant. Moreover, the direction of the effects is not consistent across the variables.

Obviously with such a short panel it is difficult to rule out the possibility of such differential

trends. However, the results here suggest that, to the extent it is possible to test, there is little or no evidence that the cable results are being driven by other trends in attitudes.

We can provide some additional, though limited, evidence on whether there were pre-existing differential trends by considering the timing of cable introduction somewhat more closely. Since it typically takes 2 to 3 months from the time an entrepreneur is ready to set up service in a village (once they have raised the funds and received a license, the equipment must be shipped, a technician must install it, and the account must be activated) to the time it is operational, if there were differential trends driving both cable and women's status, arguably they would likely be evident shortly before cable is actually turned on. At this point, the entrepreneur will have already established that there is a local demand for cable, and may have even already signed up customers. Therefore, as a limited test, we can examine whether there were any changes in women's status already evident for villages that added cable shortly after the 2002 or 2003 surveys were conducted. Three months after the final survey, we gathered data on the month when cable was first introduced in each village (though only for those villages that added cable during the survey). These data reveal that two of the villages that added cable between the 2002 and 2003 surveys added it within two months of the 2002 survey, and three villages that had not added cable at the time of the 2003 survey added it within three months of that survey.

Table 14 shows the means for the autonomy and attitudes towards beating variables for these villages (the other variables have too few observations to be meaningful for such a small sample). Between the 2001 and 2002 surveys, those villages that added cable shortly after the 2002 survey actually exhibit if anything a worsening trend in women's status. For example, the mean measure of autonomy declined from -.27 to -.38 (in contrast to the slight improvement for those that did not add cable (figure 2a)). Similarly, the mean number of situations where beating is considered acceptable increased from 1.79 to 1.91 (those that did not add cable were largely unchanged (figure 2c)). Similarly, if we consider the three villages that added cable shortly after the 2003 survey, between 2002 and 2003 the measure of autonomy declined from .036 to -.11, and the number of situations in which beating is considered acceptable increased from 1.98 to 2.11. Thus in both sets of villages, we find that just before cable was added, there was if anything a slight trend towards worsening, not improving, women's status. While these samples are small, the results here, and those above, are nevertheless suggestive that there was no differential trend in women's status prior to the introduction of cable.

Overall, the expansion of cable television into new villages has arguably come about in large

part due to a lowering of costs and increases in income. As costs have declined, more communities have become profitable cable markets. Overall, our identifying assumption is that villages that added cable would not have otherwise changed differently than those villages that did not add cable. While it is difficult to test this assumption with such a short panel, the tests above reveal no substantial evidence of differential trends for these two groups. Further, figures 2a-2c show there do not appear to be any real changes in women's status among groups that never receive cable (or those that have it in all three periods). The only noticeable changes that occur in these graphs are the large, striking changes for villages that add cable, and those changes only occur after cable is in place. Otherwise, attitudes appear to be fairly stable over time. Further, most factors that are likely to shift attitudes (and affect cable status), such as education, are fairly slow changing and could not lead to the sudden changes observed in these figures. And the most obvious shifter that might potentially change somewhat more quickly, namely income, is explicitly controlled for. Overall, it is difficult to imagine another factor with a sharp, discrete change that drives both cable access and overall attitudes (again, keeping in mind than any fixed differences are eliminated). However, this cannot be tested, and we must maintain this assumption in order to interpret our results as the effect of cable on women's status.

4.4 Effects of TV Watching

The preceding analysis focuses on the effects of cable access on attitudes and behaviors. From an economic standpoint, however, the more interesting coefficient may be the effect of TV *watching*, not just the effect of having access. A simple way to estimate this effect in the context of our data is to run the same set of regressions, except with a measure of television watching on the right hand side, and instrument for watching with cable access. This is, of course, roughly equivalent to re-scaling the coefficients on access based on the first stage effect, which can be intuited from Figure 1.

Appendix Table 3 shows these IV coefficients. In all cases, we see qualitatively similar, although larger results. This is exactly what we would expect. Adding cable has strong predictive power for watching television (with an F-statistic of 10 or more in all cases), and the coefficient is less than one, so re-scaling increases the magnitude of the effect.

As mentioned, the primary advantage of these results is that actual television exposure is a more economically interesting variable than access alone. However, the downside is that these regressions ignore potentially important social interaction effects. That is, when we are analyzing attitudes and other potentially socially constructed outcomes, the effect of introducing television to

an entire area may be very different than the effect of introducing television to just one individual. Given that in our context we see only the former "experiment," it is not really possible to interpret the estimated effect of watching television as the effect we would expect to see if television was randomly introduced to only certain individuals.

5 Mechanisms

The results in the previous section suggest a large effect of cable television on attitudes and behaviors, but do not provide guidance about the mechanisms behind such an effect. The mechanism alluded to in the introduction is greater exposure to the outside world: cable television in rural India shows lifestyles in urban India, and the values and behaviors in urban areas are much more favorable towards women than in rural areas. This mechanism is certainly consistent with anthropological studies, both within India and elsewhere. Perhaps the best example is Pace (1993), who describes large changes in perceptions about the outside world after the introduction of television in an isolated area of the Amazon, including changes in knowledge of *facts* about the world outside, as well as changes in perceptions of the status of the home village in the wider world.

To be more concrete about this mechanism, assume that an individual's attitudes are a function of upbringing (for example, the average village attitudes) and what they learn on their own later on in life, for example through interactions with peers. Television in effect may serve as a new set of information or 'peers' from which individuals learn. Denote the upbringing attitude y_0 and the attitudes portrayed on television as $y_{television}$. We assume that a weight α is put on upbringing, and a weight $1-\alpha$ on television, which will depend on the availability of television. If there is no television available, $\alpha = 1$. Overall attitudes can be expressed

$$y = \alpha y_0 + (1-\alpha) y_{television}$$

In this simple model, if the attitudes on television are more favorable towards women than that average attitudes in your village or those you were brought up with, then introducing television will make individual attitudes towards women more favorable.

This framework suggests at least one possible test of the validity of this mechanism: the effect of television introduction should be larger in areas where y_0 and $y_{television}$ differ more. Since television content is similar in all areas, this difference will be larger when y_0, the initial village level attitudes, are more gender-biased. To test this hypothesis, we divide villages into two groups based on their average attitudes in 2001 (we do separate divisions for autonomy, beating acceptability and

son preference). We then explore the effect of cable on outcomes in each set of villages. Table 15 reports these results. For all three dependent variables, we find much larger effects in areas with initially worse attitudes – the effects in Columns 1, 3 and 5 are much larger than those in Columns 2, 4 and 6 (though they are only statistically significantly different for son preference).

These results are at least consistent with the theory that television increases exposure to a new set of peers with different attitudes, which causes individuals to change their attitudes and behaviors. However, there are a variety of other possible mechanisms that could be causing this result. For example, the increased availability of television could affect time allocation, social interactions (for example, spending more time with others if television is watched communally, or less time if private watching displaces other social interactions) household demand for goods they see on television, or it may directly provide information that affects behaviors, such as the availability of family planning services. Depending on the model, any of these mechanisms could produce the effects observed here. Although Table 15 is consistent with the hypothesis of a change in peer groups, it is certainly not conclusive. Much more would need to be done to establish conclusively that this particular mechanism is what causes the changes in attitudes and behaviors observed in Section 4.

6 Conclusion

In this paper, we analyze the effect of exposure to cable television on attitudes towards women in India. We argue that the introduction of cable television reduces son preference, fertility, and the reported acceptability of beating, and increases women's autonomy and female school enrollment. Overall, the effects are quite positive for women. It is also noteworthy that the large changes observed are accomplished despite there being little or no direct targeted appeals, such as through public service announcements or explicitly socially-oriented programming (such as the 'Sabido Method' soap operas used worldwide). It may be that cable television, with programming that features lifestyles in both urban areas and in other countries, is an effective form of persuasion because people emulate what they perceive to be desirable behaviors and attitudes, without the need for an explicit appeal to do so.

There is a significant and almost urgent focus in the policy debates in India (and elsewhere) on interventions to alter attitudes towards women and girls, especially as the availability of sex-selective abortion has resulted in sex ratios dramatically more skewed towards boys. This paper suggests that a relatively simple and inexpensive "intervention" may actually have quite large effects

on attitudes towards women. Since cable television is rapidly spreading all over India, this may lead to changes in attitudes towards women even without targeted interventions. And this can occur even in the face of poverty that keeps individual television ownership low, since people can and typically do watch with friends or relatives.

As we think about policy, however, it is worth noting that the effects estimated in this paper may be larger than what we would expect to see if cable were introduced more widely. Although we have argued that pre-existing trends in attitudes are not driving the results, we cannot rule out the possibility that television is introduced first into areas that have the biggest potential for change; those that are receptive to television may also be receptive to changing their gender attitudes. This means that while there is an effect of television, and the magnitude of the effect is correctly estimated *within sample*, the effect of further introduction may be smaller, or slower. Nevertheless, given the magnitude of the effect estimated here, even much smaller effects could still have the potential to make a significant difference for women in India.

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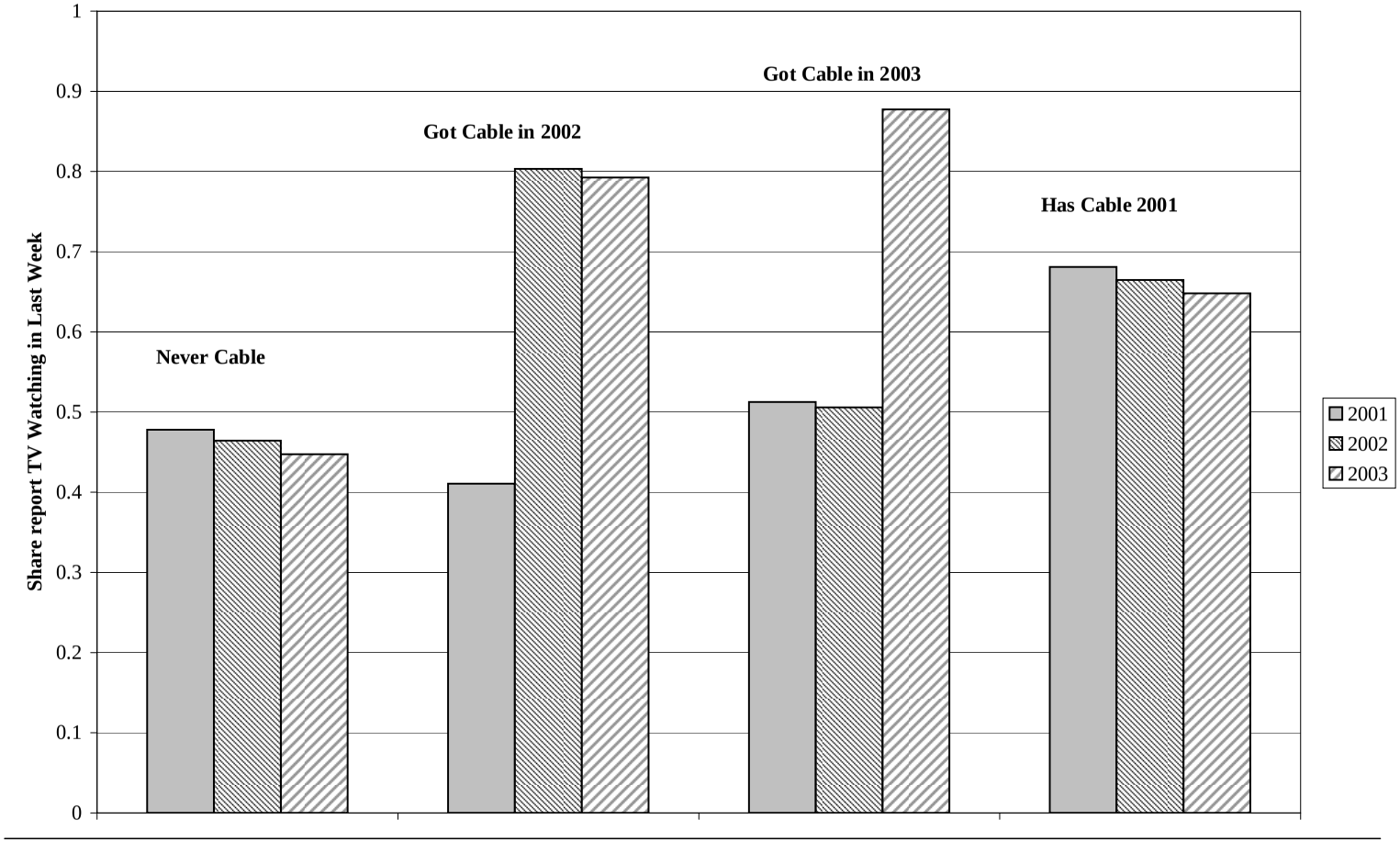
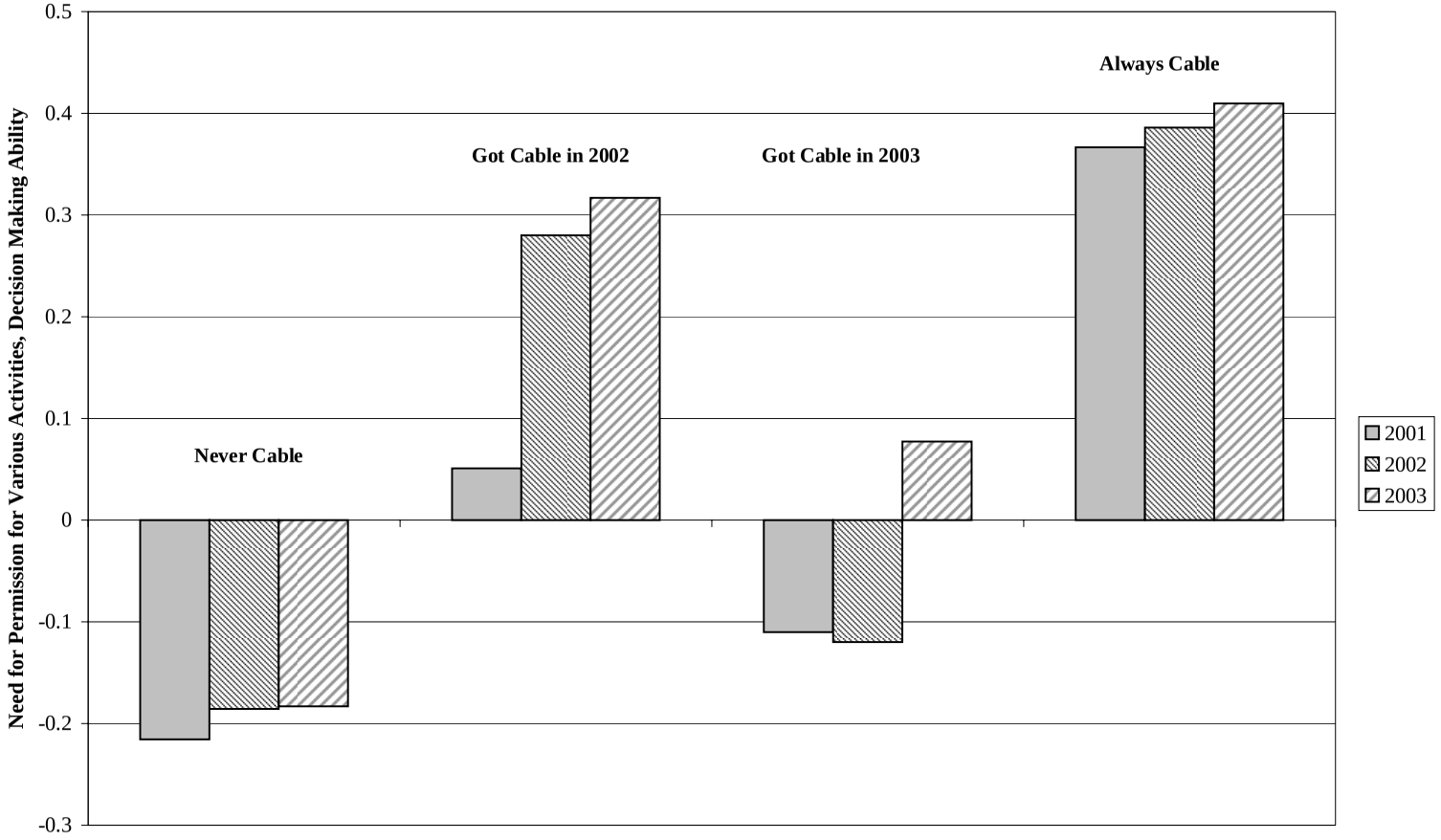
Figure 1:
Cable Access and Television Viewership



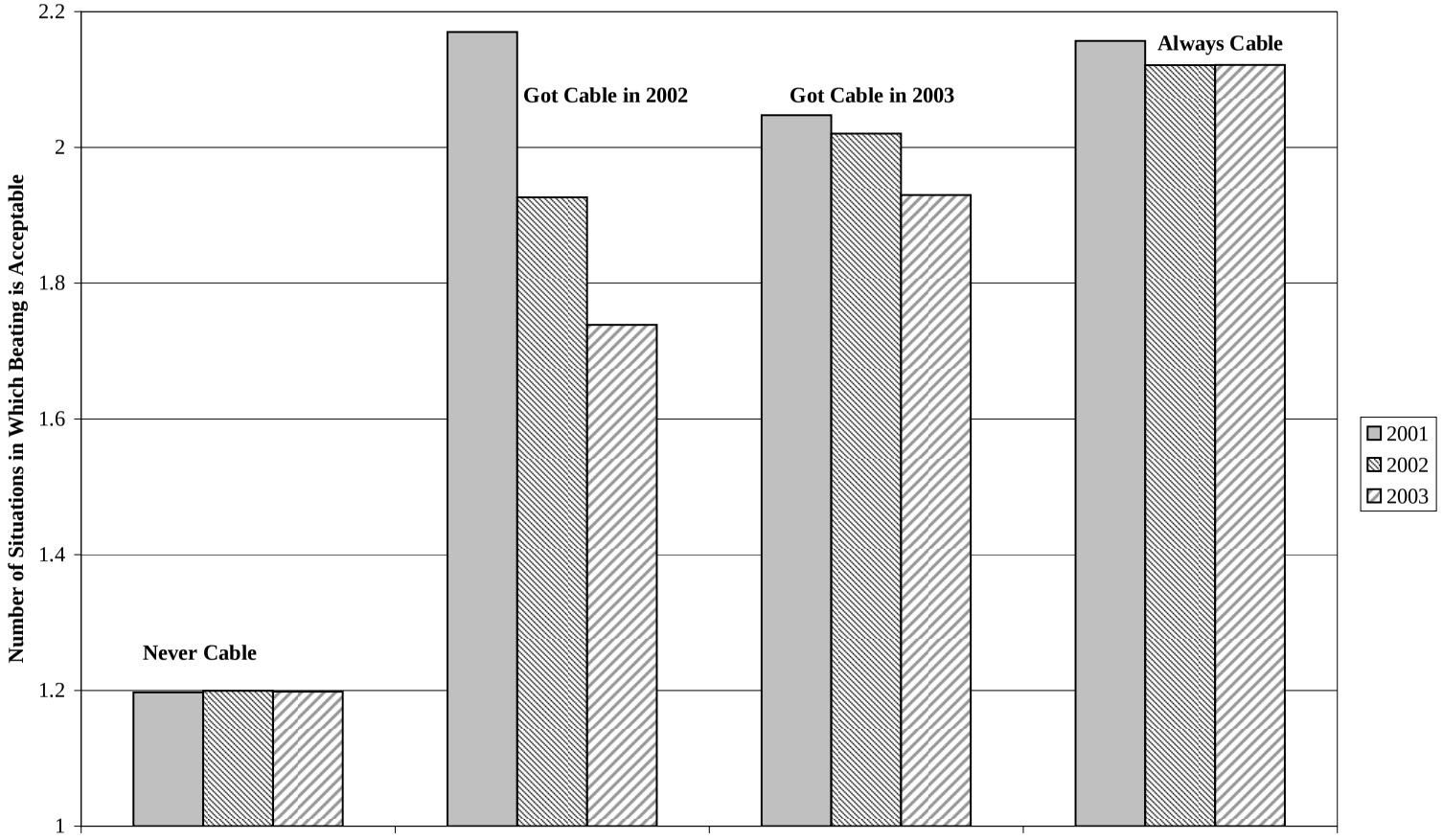
Notes: This figure shows the average share of people who report watching television at least once in the last week, broken down by villages that never have cable during the sample period, those who got cable for the first time in 2002 and those who got cable for the first time in 2003.

Figure 2a:
Cable Access and Female Autonomy



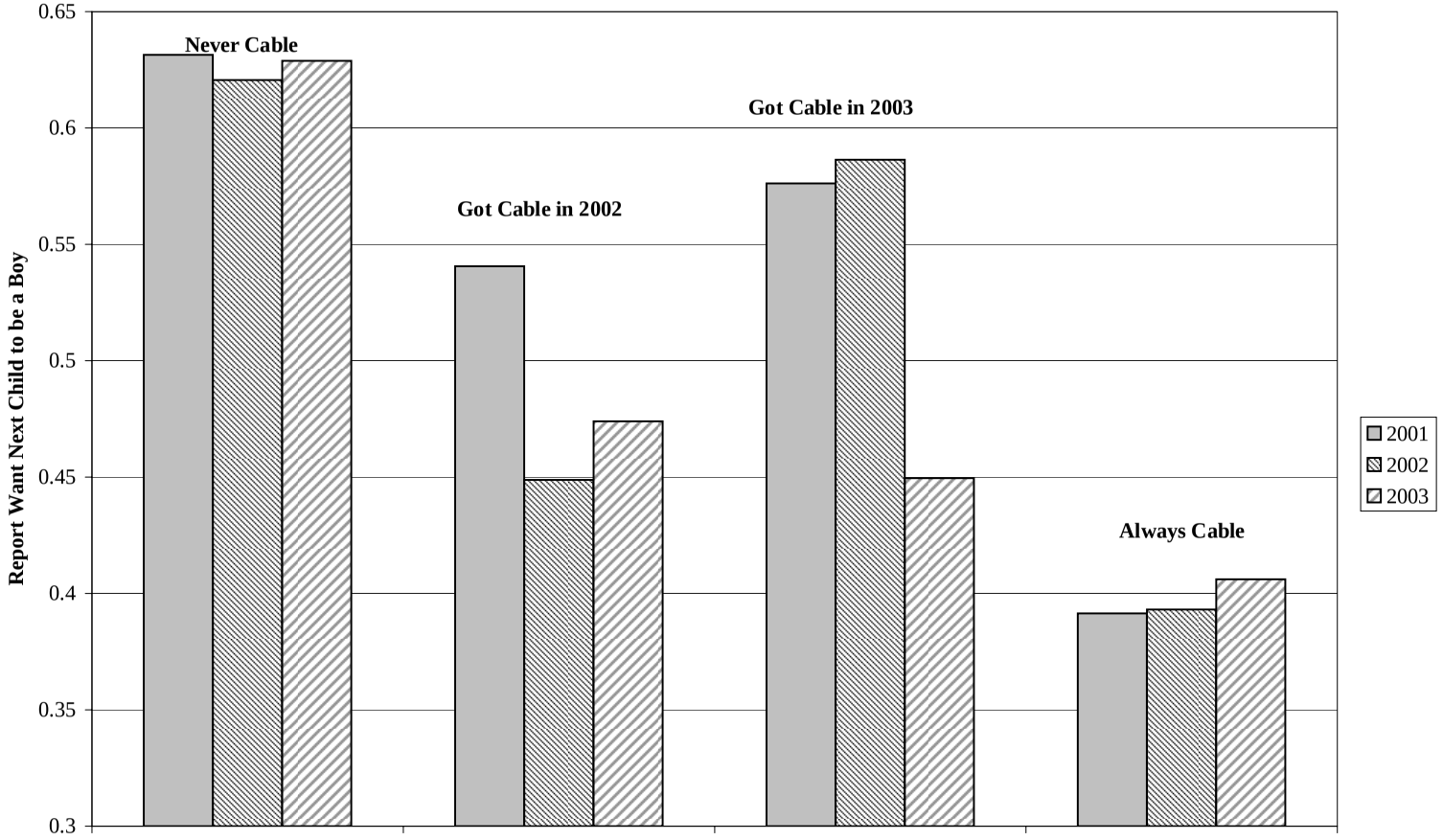
Notes: This figure shows the first principal component of six measures of female autonomy, broken down by villages with no change in cable status during the sample period, those who got cable for the first time in 2002 and those who got cable for the first time in 2003.

Figure 2b:
Cable Access and Attitudes Towards Beating



Notes: This figure shows the average number of situations in which women feel that spousal beating is acceptable (out of a total of 6), broken down by villages with no change in cable status during the sample period, those who got cable for the first time in 2002 and those who got cable for the first time in 2003.

Figure 2c:
Cable Access and Son Preference



Notes: This figure shows the share of women who want a male child at their next birth, conditional on wanting another child, broken down by villages with no change in cable status during the sample period, those who got cable for the first time in 2002 and those who got cable for the first time in 2003.

Table 1. ***Summary Statistics on Cable Availability***

Panel A: Cable Availability by Survey Round	
Year	**Number of Villages with Cable**
2001	65
2002	75
2003	86
Not During Survey	94
Panel B: Cable Availability in 2001 by State	
State	**Share of Villages with Cable**
Bihar	7.5%
Delhi	97.1%
Goa	60%
Haryana	17.5%
Tamil Nadu	77.5%

Notes: This table shows summary statistics on cable availability, either over time or across state in the first sample year.

Table 2. ***Village-Level Determinants of Cable Availability***

Dependent Variable: Village Has Cable (in 2001)	
Explanatory Variables:	
Log Average HH Income Per Capita	.0771*
	(.044)
Log Population Density	.0585**
	(.028)
Distance to Nearest Town	−.005
	(.004)
Average Education	.0584***
	(.021)
Share Muslim	.021
	(.192)
Constant	.337**
	(.166)
Number of Observations	136
R^2	.49

Standard errors in parentheses, clustered by village.
* significant at 10%; ** significant at 5%; *** significant at 1%
Notes: This table shows the village-level determinants of having cable. An observation is a village in 2001.

Table 3. ***Summary Statistics on Dependent Variables***

Panel A: Gender Attitudes			
	Mean	**Standard Deviation**	**# Obs**
Attitudes towards beating			
Beating ever acceptable	0.621	0.485	9159
# of situations beating is acceptable	1.61	1.73	9159
Husband may hit if:			
Unfaithful	0.244	0.429	9159
Family doesn't give money	0.204	0.403	9159
Show disrespect	0.308	0.461	9159
Go out without telling	0.306	0.461	9159
Neglect children	0.336	0.472	9159
Bad cook	0.215	0.411	9159
Autonomy: Respondent can make decisions about			
Health care	0.566	0.495	9159
Purchases	0.556	0.496	9159
Visits to family/friends	0.549	0.497	9159
Autonomy: Respondent needs permission to visit			
Market	0.561	0.537	9159
Friends	0.675	0.496	9159
Autonomy: Money			
Resp. keeps own money	0.739	0.438	9159
Son Preference			
Want next child to be a boy	0.549	0.497	2165

Panel B: Fertility and Education			
	Mean	**Standard Deviation**	**# Obs**
Average # children	1.107	1.78	8208
Change in # children	0.142	0.352	5472
Share in school, age 6-14	0.743	0.436	8587
Share dropout, ages 6-14	0.135	0.341	4455

Notes: This table shows summary statistics for the dependent variables used in the paper. All of the autonomy, beating attitudes and son preference measures are binary. Son preference is only asked of women who report wanting more children.

Table 4. *Correlations Between Outcomes and Demographics*

Dependent Var.:	*Autonomy*	*Beating Attitudes*	*Son Preference*	*# Children*	*In school (6-14)*
Explanatory Variables:					
Rural Area	-0.137**	0.7460***	0.0622	0.220***	-0.0542***
Education	0.0335***	-0.0461***	-0.0316***	-0.135***	0.047***
Log HH Income PC	0.0190**	-0.0424***	-0.0176***	0.0801***	0.0171***
Age	0.035***	0.006*	-0.002	0.113***	N/A
Muslim	-0.485***	-0.529***	0.157***	1.052***	-0.137***
Hindu	-0.0318	0.195**	0.0511	-0.3907***	0.0478**
Sched. Caste	-0.130	-0.114	-0.134	0.3710***	0.017

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes: This table reports the coefficients from regressions of each outcome variable (autonomy, beating attitudes, son preference, number of children and whether a child is in school) on demographics. Each cell represents a separate regression, with no other controls other than that demographic characteristic (and a constant).

Table 5. ***Cable Television and Attitudes, OLS Regression***

Panel A: Limited Controls			
Dependent Variable:	*Autonomy*	*Attitudes*	*Son Preference*
Explanatory Variables:			
Village Has Cable	.6166***	.4593***	−.2896***
	(.075)	(.12)	(.046)
Constant	−.318***	1.424***	.669***
	(.049)	(.08)	(.026)
Year FE	YES	YES	YES
Number of Observations	9159	9159	1998
R^2	.05	.02	.08
Panel B: With Controls			
Dependent Variable:	*Autonomy*	*Attitudes*	*Son Preference*
Explanatory Variables:			
Village Has Cable	.1215*	.0148	−.0634**
	(.063)	(.095)	(.031)
Log HH Income per Capita	.0100	−.0007	−.0111*
	(.008)	(.01)	(.006)
Education	.0154***	−.0649***	−.0155***
	(.006)	(.007)	(.004)
Age	.0306***	−.0047	.0056*
	(.003)	(.003)	(.003)
Hindu	−.1478	−.2005	.0345
	(.134)	(.165)	(.093)
Muslim	−.2879*	−.5614**	.0649
	(.175)	(.22)	(.105)
SC/ST	.0392	−.5504***	−.1799*
	(.151)	(.189)	(.098)
Rural	−.1685	−.0393	−.0487
	(.185)	(.192)	(.105)
Constant	−.871***	2.274***	.587***
	(.258)	(.311)	(.171)
Year FE	YES	YES	YES
State FE	YES	YES	YES
Number of Observations	9159	9159	1998
R^2	.16	.22	.22

Standard errors in parentheses, clustered by village

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes: This table shows OLS regressions of outcomes on cable access. Column 1 reports the effect on the first principal component of a number of autonomy measures (does the woman make decisions about her health, purchases or visits, does she need permission to go to the market or visit her family and can she keep her own money). Column 2 reports the effect on attitudes towards beating (the sum of the number of situations in which the woman reports spousal beating is acceptable). Column 3 reports the effect on son preference - the share of women who report wanting their next child to be a boy (conditional on wanting another child).

Table 6. ***Cable television and Attitudes, Fixed Effect Regressions***

Dependent Variable:	*Autonomy*	*Attitudes*	*Son Preference*
Explanatory Variables:			
Village Has Cable	.1896***	−.1880***	−.1214***
	(.044)	(.066)	(.037)
Year=2002	−.0068	.0337	.021
	(.036)	(.044)	(.022)
Year=2003	.0573	.0252	.0326
	(.035)	(.056)	(.027)
Log HH Income Per capita	.0038	−.0066	−.0038
	(.006)	(.007)	(.003)
Income × Year=2002	.0071	−.0056	−.0027
	(.006)	(.007)	(.003)
Income × Year=2003	−.0052	−.0061	−.0031
	(.005)	(.011)	(.004)
Education × Year=2002	−.0024	−.0036	−.0005
	(.004)	(.005)	(.002)
Education × Year=2003	.0021	−.0019	−.0002
	(.003)	(.005)	(.002)
Constant	−.14***	1.76***	.619***
	(.038)	(.053)	(.025)
Individual FE	YES	YES	YES
Number of Observations	9159	9159	1998
R^2	.91	.86	.93

Standard errors in parentheses, clustered by village

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes: This table shows individual-level regressions of our dependent variables on cable access. Column 1 reports the effect on the first principal component of a number of autonomy measures (does the woman make decisions about her health, purchases or visits, does she need permission to go to the market or visit her family and can she keep her own money). Column 2 reports the effect on attitudes towards beating (the sum of the number of situations in which the woman reports spousal beating is acceptable). Column 3 reports the effect on son preference - the share of women who report wanting their next child to be a boy (conditional on wanting another child).

Table 7. ***Effect of Cable: Matching Results***

Panel A: Attitudes, Autonomy and Son Preference		
Dependent Variable:	*Coefficient, SATE*	*Standard Error*
Autonomy	0.1601***	0.0532
Beating Attitudes	-0.1737**	0.0837
Son Preference	-0.1311***	0.0541
Panel B: Education, Determinants of Being Enrolled/Dropping Out		
Group:	*Coefficient, SATE*	*Standard Error*
Girls, Ages 6-10	0.0728*	0.0406
Boys, Ages 6-10	-0.0296	0.0614
Girls, Ages 11-14	-0.0540	0.0692
Boys, Ages 11-14	0.0655	0.0532
Panel C: Fertility, Change in Number of Children		
Group:	*Coefficient, SATE*	*Standard Error*
Full Sample	-0.0806**	0.0389
Age <35	-0.1205*	0.0658

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes: This table shows the effect of cable on outcomes, based on matching villages based on ex-ante characteristics and then comparing the subsequent changes in outcomes across villages that do and do not get access to cable. In all cases we match to the 4 nearest neighbor villages. The matching procedure is described in more detail in the empirical strategy section.

Table 8. ***Share of Urban Rural Difference Explained by Television***

Outcome	*Urban Mean*	*Rural Mean, No television*	*Effect of television*	***Share Explained***
Autonomy	0.120	-0.324	0.1896	**42.6%**
Beating	0.964	1.378	-0.1888	**45.5%**
Son Preference	0.500	0.6728	-0.1214	**70.1%**

Notes: Table displays calculations of the share of the urban-rural difference in each dependent variable that is made up by the introduction of television. The urban area is Delhi. The rural mean is among the rural areas that do not have cable access. Share explained is simply the effect size (column 4) divided by the difference between Column 2 and Column 3.

Table 9. ***Cable Television, Education and Fertility, OLS Regression***

Dependent Variable:	*Enrolled in School*		*Change in # Kids*
	Girls, 6-14	Boys, 6-14	*(including Current Pregnancies)*
Explanatory Variables:			
Village Has Cable	.0553*	.0441*	−.0313***
	(.032)	(.024)	(.011)
Log HH Income Per Capita	.0151***	.0113***	.0012
	(.004)	(.004)	(.002)
Household Ave. Adult Educ.	.0492***	.025***	
	(.009)	(.008)	
Child Age in 2001	−.03***	−.014***	
	(.004)	(.004)	
Hindu	−.045	−.0495	−.0209
	(.046)	(.044)	(.018)
Muslim	−.1486**	−.1429**	.0587**
	(.067)	(.058)	(.026)
SC/ST	.0875	−.0743	.0234
	(.087)	(.068)	(.013)
Rural	.0153	.0519	−.018
	(.037)	(.037)	(.014)
Education			.0013
			(.001)
Age			−.0159***
			(.001)
Pregnant Last Year			−.2139***
			(.013)
Constant	.829***	.809***	.725***
	(.085)	(.094)	(.035)
Year FE	YES	YES	YES
Number of Observations	4594	4988	5423
R^2	.09	.04	.15

Standard errors in parentheses, clustered by village

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes: This table shows OLS regressions of fertility and education on cable access. Columns 1 and 2 show the effect of cable on children's school enrollment, for girls and boys respectively. Column 3 shows the effect on fertility.

Table 10. *Cable television and Education*

Panel A: Determinants of Being In School									
Age Group	***Ages 6-14***			***Ages 6-10***			***Ages 11-14***		
	Girls	Boys	All	Girls	Boys	All	Girls	Boys	All
Explanatory Variables:									
Village Has Cable	.0352*	−.0003	.0354*	.0609**	−.018	.062**	−.0132	−.003	−.0131
	(.021)	(.033)	(.02)	(.026)	(.044)	(.026)	(.044)	(.045)	(.044)
Male × Cable			−.0355			−.0801			.0101
			(.035)			(.051)			(.063)
Individual FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Number of Observations	4594	4988	9582	2628	2912	5540	1468	1579	3047
R^2	.77	.73	.75	.75	.7	.73	.76	.76	.76
Panel B: Determinants of Dropout									
Age Group	***Ages 6-14***			***Ages 6-10***			***Ages 11-14***		
	Girls	Boys	All	Girls	Boys	All	Girls	Boys	All
Explanatory Variables:									
Village Has Cable	−.0757***	.0607	−.0757***	−.0756***	.0252	−.0763***	−.0677	.1129	−.068
	(.027)	(.069)	(.027)	(.015)	(.063)	(.017)	(.077)	(.099)	(.074)
Male × Cable			.1365*			.0997			.1775
			(.08)			(.067)			(.14)
Individual FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Number of Observations	2015	2440	4455	1240	1467	2707	775	973	1748
R^2	.86	.84	.85	.87	.82	.84	.86	.85	.86

Standard errors in parentheses, clustered by village

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes: This table shows the effect of cable television on either being in school in the current year (Panel A) or dropping out between last year and this year (Panel B). In Panel B there are no observations in 2001 since the construction of the dropout variable depends on 2001 as a base year. Other controls: log income per capita in the household interacted with year dummies, year dummies alone, and (in Columns 3, 6 and 9 only) gender interacted with year dummies.

Table 11. *Cable Television and Fertility*

Dependent Variable:	*Change in # Kids (Including Current Pregnancies)*			*Wants More Children*
	(1) All	(2) Age <=35	(3) Age>35	(4) Age<=35
Explanatory Variables:				
Village Has Cable	−.087***	−.1436***	−.0007	.0481
	(.021)	(.038)	(.009)	(.044)
Pregnant at Last Survey	−.6077***	−.6164***	−.5171***	−.0284
	(.025)	(.027)	(.082)	(.022)
Log HH Income PC	−.0011	.002	−.0082*	−.0063
	(.011)	(.017)	(.005)	(.008)
Year=2003	.0695**	.115**	.0017	.0149
	(.029)	(.046)	(.015)	(.035)
Income × Year=2003	−.0128**	−.02**	−.0019	−.0108
	(.006)	(.009)	(.003)	(.007)
Education × Year=2003	−.004*	−.0063**	−.0001	−.001
	(.002)	(.003)	(.001)	(.002)
constant	.241***	.35***	.063***	.489***
	(.044)	(.067)	(.02)	(.038)
Individual FE	YES	YES	YES	YES
Number of Observations	5423	3423	2000	2251
R^2	.57	.53	.61	.87

Standard errors in parentheses, clustered by village

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes: This table shows the effect of cable television on the change in number of children between years (Columns 1 through 3) and reported desire for more children (Column 4). If an individual is pregnant in year t, that is counted as an increase in a child between year $t-1$ and year t. The dataset includes two observations per person, one in 2002 and one in 2003 since we are using changes, so we need 2001 as the first comparison year. Column 1 includes all women, Columns 2 and 4 are limited to women under 35 and Column 3 is limited to women over 35.

Table 12. ***Trends in Attitudes and Cable Adoption***

Dependent Variable: Village Adopted Cable between 2002 and 2003			
Explanatory Variables:			
Change in Autonomy 2001-2002	−.172		
	(.224)		
Change in Beating Att. 2001-2002		−.0049	
		(.143)	
Change in Sex Preference 2001-2002			−.0279
			(.141)
Log Ave HH Income Per Capita	−.1316	−.1408	−.1418
	(.089)	(.089)	(.091)
Education	.0453*	.0466*	.0459*
	(.026)	(.026)	(.027)
Hindu	.0262	.0445	.0561
	(.569)	(.574)	(.577)
Muslim	.0654	.1012	.1094
	(.595)	(.601)	(.601)
Christian	1.55**	1.6222**	1.6619**
	(.763)	(.765)	(.785)
Family Size	−.1011*	−.097*	−.0948*
	(.055)	(.055)	(.056)
Main Crop is Rice	−.0808	−.0907	−.0903
	(.081)	(.08)	(.082)
Distance to Nearest Town	.0051	.0052	.0053
	(.004)	(.004)	(.004)
constant	1.516	1.526	1.507
	(1.015)	(1.02)	(1.035)
Number of Observations	79	79	78
R^2	.19	.18	.18

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Notes: This table examines the predictors of getting cable television between 2002 and 2003 and tests for whether trends in the gender attitude variables are important predictors of television introduction. The data are for 2002 and is limited to villages that did not have cable in 2002. The dependent variable is equal to 1 if the village got cable between 2002 and 2003 and 0 if they did not. The independent variables on attitudes are changes in village level averages between 2001 and 2002.

Table 13. ***Initial Attitudes and Timing of Cable Introduction***

Dependent Variable: Village Got Cable in 2002 rather than 2003			
Explanatory Variables:			
Autonomy	.1897		
	(.343)		
Beating Attitudes		.0365	
		(.153)	
Son Preference			−.1366
			(.498)
Log Ave HH Income Per Capita	.1499	.2281	.2472
	(.406)	(.388)	(.402)
Education	−.0888	−.0649	−.0561
	(.121)	(.113)	(.11)
Hindu	−2.8812	−1.9029	−1.8261
	(3.108)	(2.646)	(2.952)
Muslim	−2.8053	−1.8268	−1.6436
	(3.332)	(2.876)	(3.144)
Christian	−4.5677	−3.3486	−3.2954
	(3.989)	(3.352)	(3.485)
Family Size	−.0893	−.0129	.0195
	(.239)	(.197)	(.206)
Main Crop Rice	.4003	.2093	.1693
	(.537)	(.397)	(.431)
Distance to Town	−.01	−.0144	−.0142
	(.016)	(.015)	(.018)
constant	3.152	1.15	.948
	(5.28)	(3.6)	(3.699)
Number of Observations	21	21	20
R^2	.23	.21	.22

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
Notes: The data for this table is limited to villages that got cable during the survey. The dependent variable is equal to 1 if the village got cable in 2002 (early adopter) and 0 if they got it in 2003 (late adopter). The regressors are the attitude and behavior and control variables for 2001.

Table 14. ***Trends in Attitudes for "Early" Adopters***

Changes 2001 to 2002 for Adopters 2-3 Months After 2002 Survey		
Dependent Variable:	*Autonomy*	*Beating Attitudes*
2001	-0.265	1.787
2002	-0.381	1.910
2003	-0.185	1.785
Changes 2002 to 2003 for Adopters 2-3 Months After 2003 Survey		
Dependent Variable:	*Autonomy*	*Beating Attitudes*
2001	-0.070	1.989
2002	0.036	1.984
2003	-0.114	2.105

Notes: This table shows trends in autonomy and beating attitudes for villages that adopt cable within 2-3 months after the previous survey. These "early" adopters would have the knowledge of getting cable at the previous survey. Looking at the changes therefore is a test for pre-existing trends.

Table 15. ***Mechanism Test: Effect Breakdown by Initial Attitudes***

Dependent Variable:	*Autonomy*		*Beating*		*Son Preference*	
Initial State	Low	High	High	Low	High	Low
Explanatory Variables:						
Village Has Cable	.2316***	.1408*	−.2559**	−.0766	−.2106***	−.0098
	(.051)	(.077)	(.1)	(.085)	(.047)	(.027)
Log HH Income PC	.009	−.0044	.0054	−.0164	−.0022	−.0051
	(.008)	(.009)	(.007)	(.011)	(.004)	(.005)
year=2002	−.0239	.0067	.0936	−.0404	.0181	.0469*
	(.048)	(.049)	(.058)	(.073)	(.035)	(.025)
year=2003	.0285	.0801**	−.0347	.0945	.0327	.0149
	(.055)	(.039)	(.05)	(.094)	(.035)	(.032)
Educ × Year=2002	−.0019	−.002	−.0014	−.0059	−.0046	−.0019
	(.004)	(.005)	(.007)	(.006)	(.005)	(.003)
Educ × Year=2003	.0061	−.0004	−.0005	−.0023	−.0068	.0012
	(.005)	(.005)	(.006)	(.007)	(.005)	(.002)
Income × Year=2002	.0115	.0031	−.0178**	.0087	−.0037	−.0023
	(.009)	(.007)	(.008)	(.012)	(.005)	(.002)
Income × Year=2003	−.0005	−.0092	−.002	−.0126	−.0022	.0004
	(.009)	(.006)	(.009)	(.016)	(.006)	(.004)
constant	−.676***	.44***	2.52***	.997***	.858***	.321***
	(.044)	(.077)	(.084)	(.074)	(.026)	(.03)
Individual FE	YES	YES	YES	YES	YES	YES
Number of Obs	4599	4560	4560	4599	1003	993
R^2	.89	.9	.88	.73	.88	.93

Standard errors in parentheses, clustered by village

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes: This table shows the effect of cable television on individual-level attitudes, broken down by the average initial attitude level in the village. Columns 1 and 2 break down based on autonomy, Columns 3 and 4 based on beating attitudes and Columns 5 and 6 based on son preference.

Appendix Tables

Appendix Table 1. ***Effect of Cable on Beating Attitude, Autonomy Components***

	Effect of Cable	Standard Error
Attitudes towards beating: Husband May Hit if		
Unfaithful	0.0103	0.0148
Family doesn't give money	-0.0481**	0.0196
Show Disrespect	-0.0262	0.0231
Go out without telling	0.0054	0.0119
Neglect Children	-0.0543**	0.0206
Bad Cook	-0.0750***	0.0259
Autonomy: Respondent can make decisions about		
Health Care	0.0212	0.0244
Purchases	0.0894***	0.0258
Visits to Family/Friends	-0.0048	0.0273
Autonomy: Respondent needs permission to visit		
Market	-0.0585***	0.0201
Friends	-0.0371***	0.0111
Autonomy: Money		
Resp. keeps own Money	0.0352***	0.0128

* significant at 10%; ** significant at 5%; *** significant at 1%
Notes: This table shows the effect of cable access on the components of the autonomy and beating measure. All outcomes are binary.

Appendix Table 2. ***Effect of Cable by Age, Education***

Panel A: Breakdown by Age			
Dependent Variable:	*Autonomy*	*Attitudes*	*Son Preference*
Younger	0.1170*	−0.1723**	N/A
	(.0605)	(.0724)	
Older	0.2691***	−0.2037**	N/A
	(.0639)	(.0951)	
Panel B: Breakdown by Education			
Dependent Variable:	*Autonomy*	*Attitudes*	*Son Preference*
Less Educated	0.0551	−0.0858	−0.0750
	(.0399)	(.0824)	(.0487)
More Educated	0.3888***	−0.3369***	−0.1652***
	(.0825)	(.0658)	(.0599)

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes: This table shows the effects of cable broken down by age and education. In both cases, the dataset is split in half, so the younger group is the youngest half of the dataset and the less educated group is the bottom half in terms of years of education. In Panel A, the effects on son preference are not shown because this questions is only asked to younger women who are still planning to have more children.

Appendix Table 3. ***Effect of TV Watching, Instrumented with Cable Access***

	Effect of Watching TV (IV Estimate)	Standard Error
Attitudes, Autonomy and Son Preference		
Autonomy	0.4841***	0.1352
Beating Attitudes	-0.4799***	0.1682
Son Preference	-0.3035***	0.1053
Fertility		
Change in # of Children, All	-0.2051***	0.0586
Change in # of Children, Under 35	-0.3482***	0.1152
Change in # of Children, Over 35	-0.0016	0.0209
Education		
In School, Girls 6-14	0.0700	0.0459
In School, Boys 6-14	-0.0077	0.0967
Dropout, Girls 6-14	-0.1468***	0.0521
Dropout, Boys 6-14	0.1918	0.2147

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes: This table shows regressions of the outcome variables on whether the surveyed individual reports watching television in the last week. This measure of watching is instrumented with cable access. The regressions include the same controls as in the non-IV regressions in the text – income, year dummies, income and education interacted with the year dummies.