

TV and Modernisation: We don't think so

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- *Pure replication (checking) of some of the main results is accomplished but for other findings our results diverge significantly from the original paper.*
 - *Some minor coding errors and a graphic with glaring problems*
- *In preliminary reproduction and scientific replication we find that J & O's results are remarkably fragile to:*
 - *variable constructions,*
 - *simple and plausible respecifications of their main model*
 - *the use of alternative data sets (external validity).*

- Replication of

Jensen, R., & Oster, E. (2009). The Power of TV: Cable Television and Women's Status in India *. *Quarterly Journal of Economics*, 124(3), 1057-1094

– Top ranked economics journal

- Impact Factor: 5.940 5-Yr impact factor: 8.05
 - Cited by 77 (Google Scholar)
- “the introduction of cable television is associated with significant decreases in the reported acceptability of domestic violence toward women and son preference, as well as increases in women's autonomy and decreases in fertility. We also find suggestive evidence that exposure to cable increases school enrollment for younger children, perhaps through increased participation of women in household decision making.”

A causal story: the transformative impact of cable TV

- On attitudes and norms typically understood to be rigid and deeply entrenched in village India.
- Attitudes towards spousal beatings & female autonomy rapidly improve.
- The puzzle for feminist and development scholars: is this all it takes?

The explanatory 'narrative'

- Access to TV has exploded also in rural India resulting in a sharp and rapid rise in media exposure.
 - TV overtook radio as the most common mass communication asset owned by rural Indian households
 - Between NFHS II (40.9 %) and NFHS III (58 %),
 - Large inter-state variation
- According to J & O TV viewing may present women with
 - new role models,
 - affect attitudes towards and liberties of women in the workplace and in relationships.
 - cite research from other countries (mainly Brazil).

- In the Indian context, the argument is that
 - the women featuring on TV typically are more emancipated than the average rural viewer,
 - but in general the literature cited and reviewed is thin.
- J & O do not report any evidence on the programme content watched by the women featuring in their panel data-set (see below).
 - Nor do they control for TV ownership or watching
 - Do not distinguish male and female viewing habits

Data sources

- Survey of Aging in Rural India (SARI):
 - three year panel data (household and individual); 2001, 2002 and 2003
 - 2,700 households with a person over 50; low attrition (108 – 4%)
 - five states (Bihar, Haryana, Delhi, Goa and Tamil Nadu)
 - 180 randomly sampled villages
 - Women only interviewed n=3053 (*3 -> 9,159)
 - Survey instruments explicitly modelled on female autonomy and attitude modules in NFHS II (1998-99).
 - Own survey of cable operators in Tamil Nadu
- District Information System on Education (DISE) (administrative) monitoring data for
 - all villages in 19 randomly chosen Blocks from 5 Districts of Tamil Nadu (with low cable penetration in 1998).
 - Own survey of date of arrival of cable TV in selected blocks¹.

1: “we gathered information on cable access for 1,061 villages in Tamil Nadu in March and April 2008”

Analysis

$$s_{ivt} = \beta c_{vt} + \gamma_{iv} + \delta_t + \tau X_{ivt} + \varepsilon_{ivt}$$

c_{vt} is the measure of cable access in village v , year t ;

s_{ivt} is outcome for individual i in village v in year t ;

γ_{iv} individual fixed effects, δ_t are year dummies, and X_{ivt} are other controls

- SARI
 - Tabular and graphic descriptives
 - Panel analysis (xtreg)
 - Individual responses to village level treatment
- DISE
 - Time series (prais - Prais-Winston estimation)
 - Village level enrolment rates
 - Graphic of enrolment (total) by year of cable access

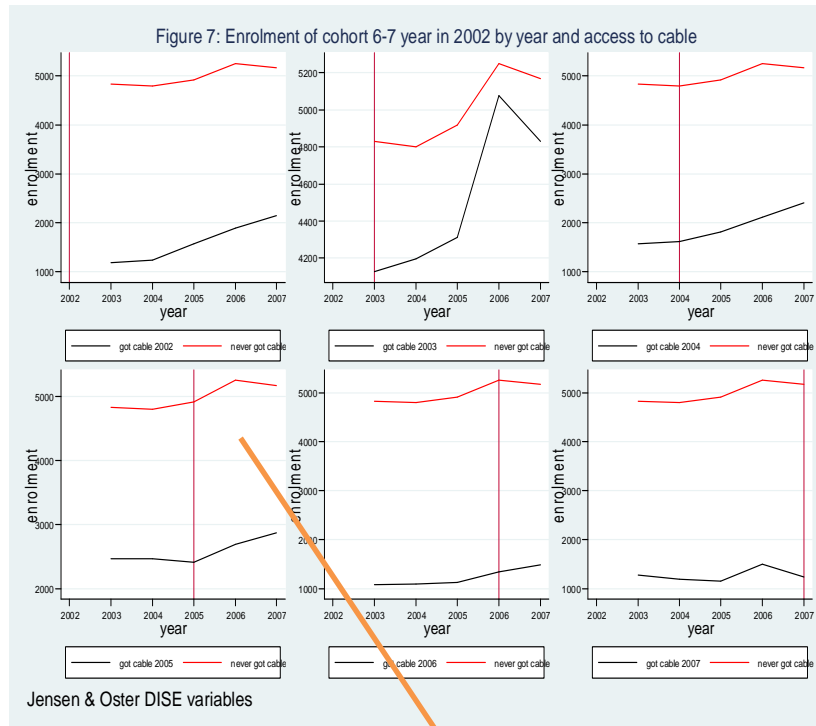
Replication

- Replication data & code provided by authors
 - SARI
 - final estimation data & analysis code
 - DISE
 - Raw data, data preparation & analysis code
- Checking
 - Published results reproduced exactly with data and code tables using SARI and DISE data
 - DISE data preparation coded contains minor errors
 - Unexplained exclusion of some variables
 - Has significant effect on Figure 7 (see next slide)

DISE Replication

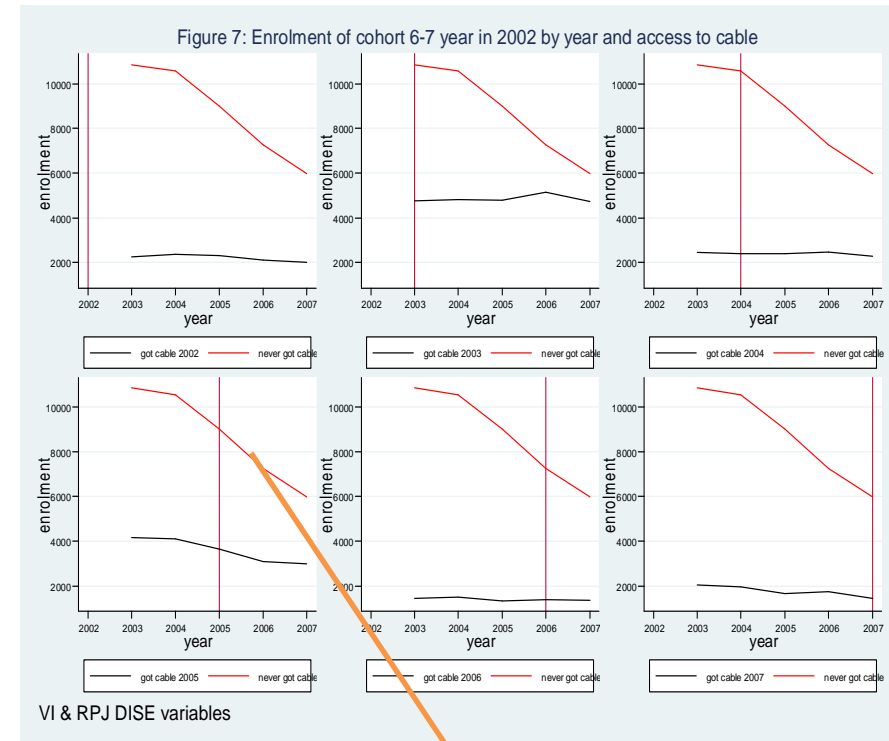
- DISE data consist of
 - Annual school intake by class, sex, and age (Tamil Nadu) 2002(3) - 2007
 - Cannot compute enrolment rate but claim increased enrolment not due to in-migration
 - School and village variables including cable TV
 - Meager set of village control variables – cannot match villages to census data
 - DISE data preparation code not very elegant
 - Vulnerable to errors – as indeed found
- Analysis is of total enrolment of a
 - A fixed cohort
 - Two age groups over years
 - 6-10 & 11-14
- Makes one significant mistake
 - 5 year olds added to 6-10 aggregate but not 6-14 aggregate in 2005-7 cohorts
 - Underestimates 11-14 age group
 - hence adds an extra year cohort (10 year olds who would have been 5 in 2002) to the fixed cohort in 2007-8 resulting in an over estimate of enrolment in that year
 - Has significant effect on Figure 7 but not on descriptives or estimations
 - Drop in number of observations in prais estimations due to taking log of negative 11-14 cohort -> missing value, hence excluded observation.
- Unconvincing support for SARI analysis due perhaps to unobserved characteristics of villages

J&O data



Shows **rising** enrolment in villages with and without access to cable TV!

Authors' data



Shows **falling** enrolment in villages with and without access to cable TV

SARI main empirical specification

$$(1) \quad s_{ivt} = \beta c_{vt} + \gamma_{iv} + \delta_t + \tau \mathbf{X}_{ivt} + \epsilon_{ivt}$$

- Units – women respondents
- Treatment variable is Village has cable
- Controls –
 - Household annual income per capita, age (quadratic)
- Trend variables –
 - Village population density, electricity, distance to nearest town (all at baseline) interacted with time dummy .
 - Similar interaction for education, age and income
- Identification based on 21 villages (out of 180) which added cable TV between 2002-3
 - 90 already had cable in 2002
 - 69 never had in this period
 - All villages in Delhi already had cable TV in 2002 (5, 4, 6 & 6 added in Bihar, Goa, Haryana, and TN)
- Errors clustered at village level

JO's main results

TABLE IV
EFFECT OF CABLE TELEVISION ON WOMEN'S STATUS, SARI DATA

Dependent variable:	Beating	Son	Pregnant at survey time		
	attitudes (1)	preference (2)	Autonomy (3)	2001–2003 (4)	1997–2003 (5)
A. Baseline effects of cable					
Explanatory variable					
Village has cable	-.1608** (.073)	-.0882** (.040)	.0260*** (.006)	-.0379*** (.013)	-.0678** (.028)
Dep. var. mean (SD)	1.70 (1.75)	0.57 (0.49)	0.64 (0.21)	0.072 (0.26)	0.13 (0.35)
Number of observations	7,014	1,699	7,014	7,014	11,488
R ²	.01	.01	.01	.01	.01
B. Effects of future cable					
Explanatory variables					
Village has cable	-.1516** (.076)	-.0881** (.039)	.0248*** (.006)	-.0414*** (.013)	-.0762** (.031)
Cable next year	.0440 (.049)	.0004 (.016)	-.0053 (.004)	-.016 (.011)	-.0253 (.024)
Number of observations	7,014	1,699	7,014	6,959	11,488
R ²	.01	.01	.01	.01	.01

Notes. This table shows the impact of cable TV access on attitudes toward spousal beating (column (1)), son preference (column (2)), female autonomy (column (3)), and fertility (columns (4) and (5)). Columns (1)–(4) include only the survey years, and the dependent variable is reported for attitudes, autonomy, or pregnancy. Column (5) includes 1997–2003, with pregnancy data constructed from the birth history data and excluding women in villages that have cable in 2001 because we cannot identify when they received it. Panel A includes only a measure of whether the village has cable this year. Panel B also includes a control for whether the village gets cable next year, to test for pretrends. Controls in columns (1)–(4) include individual fixed effects, year fixed effects, age, age-squared, income this year, and a linear control for year interacted with each of the following: age, age-squared, education, income this year, electricity, distance to nearest town, village population density, and state dummies. Controls in column (5) include individual fixed effects, year fixed effects, age, age-squared, and a linear control for year interacted with age and age-squared. Standard errors are in parentheses, clustered by village.

- *Significant at 10%.
- **Significant at 5%.
- ***Significant at 1%.

strongly significant negative (or positive) coefficients on “village has cable”

Low R-squared

Effects survive when testing for future access to cable

Critique

Odd outcome variable construction

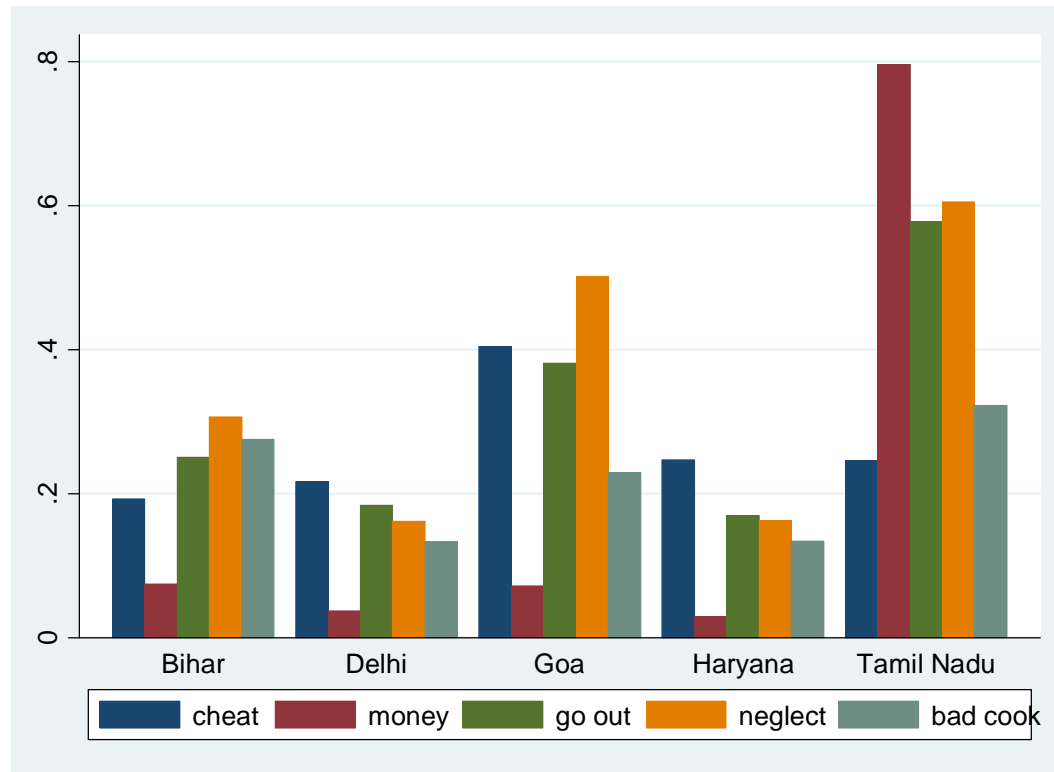
Specification: Missing controls include TV ownership: individual FE suppress contrasts by ethnicity etc

SARI variable constructions

- Attitudes towards spousal violence (mn_outcome) = sum of 0/1 responses to whether woman perceive husband beating his wife to be justified if
 - i. he suspects of her of being unfaithful,
 - ii. her natal family does not give expected jewelry, money or other things,
 - iii. she shows disrespect for him,
 - iv. she leaves the home without telling him,
 - v. she neglects the children and
 - vi. if she doesn't cook food properly.
- Female autonomy variable based on decisions about
 - i. healthcare for the respondent (collapsed to 0/1 and 1 if woman makes the decision on her own or jointly with other household member (s))
 - ii. Purchase of major household items (ditto)
 - iii. whether interviewee will visit or stay with family or friends (ditto)
 - iv. whether the respondent has money to spend on her own. In addition, J & O include whether respondent requires
 - v. permission to visit the market and
 - vi. permission to visit relatives/friends
 - appears to lead to a double count of (iii) and (vi), which are highly correlated.

Variable constructions: question marks

Components of attitudes to acceptability of wife beating – score 1-5



Dependent variable (attitudes to beating)	Coefficient on village has cable	Dependent variable (autonomy)	Coefficient on village has cable
(1)	(2)	(3)	(4)
He suspects her of being unfaithful	0.013 (0.016)	Decision on own healthcare	0.019 (0.023)
Her natal family does not give money or jewelry	-0.054*** (0.020)	Purchase of major household items	0.080*** (0.023)
She shows disrespect	-0.028 (0.023)	Whether woman will visit or stay with family or friends	-0.025 (0.020)
She leaves home without telling him	0.016 (0.014)	Whether woman has money to spend on her own	0.027** (0.013)
She neglects the children	-0.036* (0.018)	Whether permission is required to go to market	0.064*** (0.013)
She cooks badly	-0.071** (0.031)	Whether permission is required to visit family or friends	0.040*** (0.014)
Tolerance measure (mn_outcome)	-0.161** (0.073)	Autonomy measure (mn_real)	0.026*** (0.006)
Adjusted tolerance measure (omitting her natal family does not give money or jewelry))	-0.021* (0.012)	Adjusted autonomy measure (omitting requires permission to visit)	0.015** (0.007)
Woman's status (pca) ³	-0.147** (0.067)	Woman's status (pca) ³	0.131*** (0.038)
Woman's status (mca) ⁴	0.091** (0.041)	Women's Status (mca) ⁴	-0.119*** (0.028)

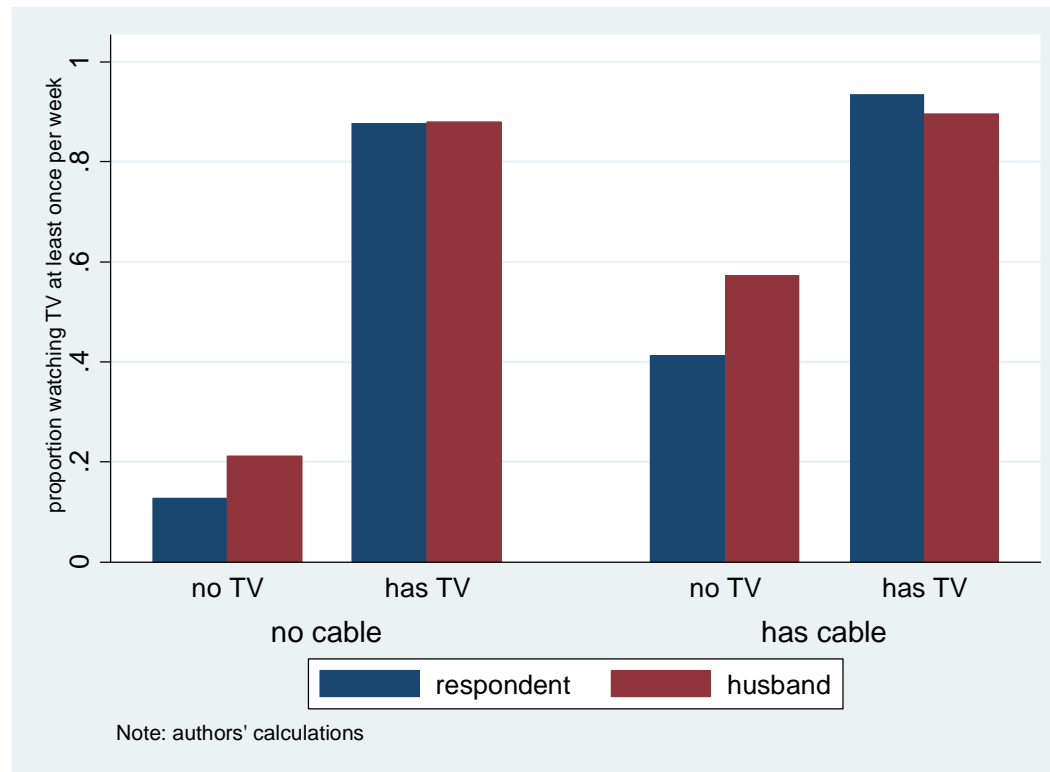
Acceptability of wife beating index driven by jewelry variable, but survives in pca and mca

Impact pathways/theory of change

- Causal claims typically of the kind: a causes b.
 - e.g. village level cable 'a' causes the changes in 'b' – attitudes towards spousal beatings & female autonomy – reported by J & O.
 - However, association of 'a' with 'b' can be confounded by a variable 'c' which either causes both 'a' and 'b', or must be present in order for 'a' to cause 'b'.
 - a contested issue in our discussions with 3ie has been if exploring whether instead 'c' causes 'b' falls within the remit of *scientific* replication.
 - 3ie's present position is that robustness tests should be restricted to the a – b relationship, which in our view becomes meaningless if one can plausibly establish that 'c', not 'a', is responsible for the change in 'b'.

- In the remainder of this presentation we attempt to convey why establishing the merit of the theory of change is critical for passing verdicts about causal claims.
- While the most difficult, this has also turned out to be the most rewarding aspect of our work on this paper.
- Our main argument (and here the 3ie dialogue has been extremely helpful) is that not paying attention to the theory of change may lead to (i) misspecification of the main (ITT) model, (ii) exaggeration of the impacts of (the intervention) cable and (iii) misguided interpretation of the results mean.

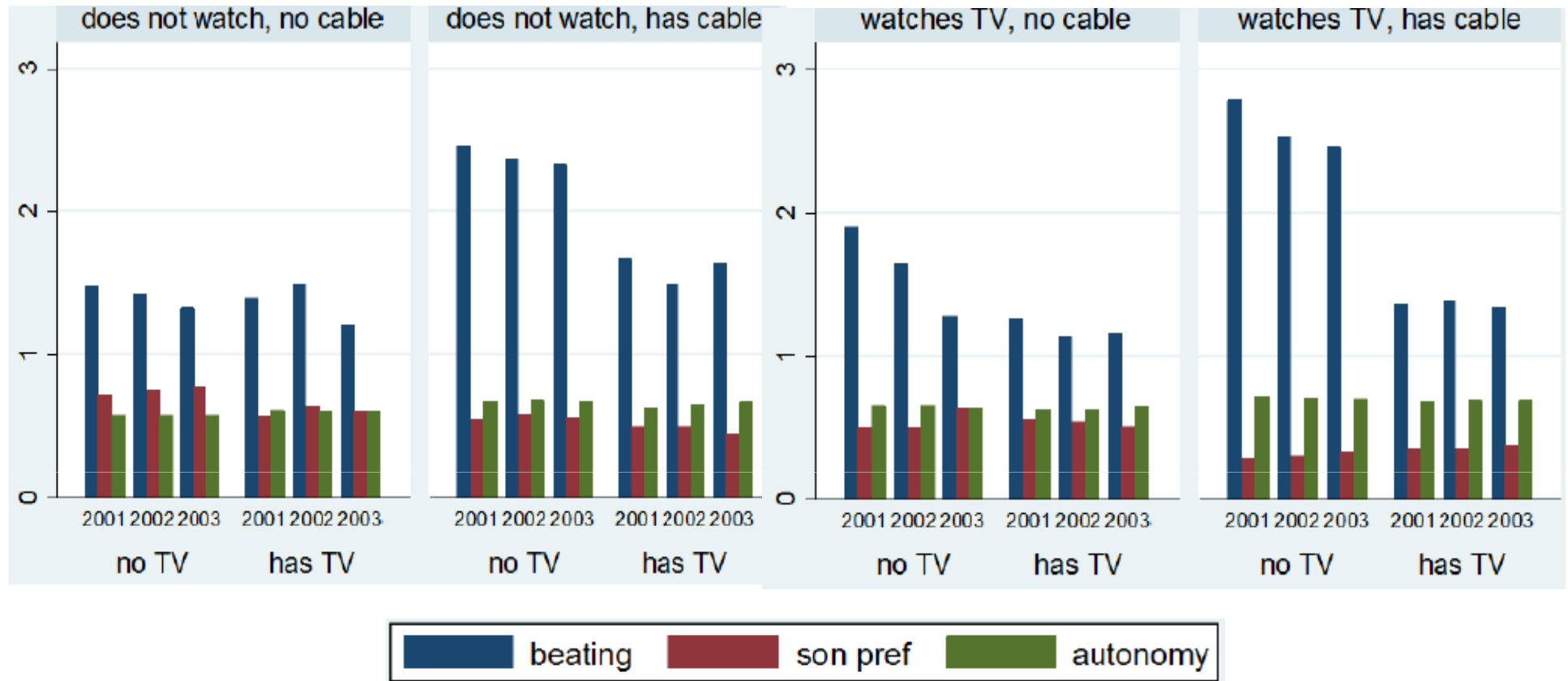
TV viewing habits by gender, whether household has TV and village has cable



Little difference between male and female viewing : large diff between hhs without TV by village

Do not watch TV

Watch TV



Acceptability of beating is higher for those **without own TV in cable villages** for both **those who watch** and **do not watch** TV – for hhs with TV in villages with cable there is very little action over the SARI years. Notice that changes are not uniformly in the right direction.

Female education and TV viewing

	Village has cable		Village does not have cable	
	Households with TV	Households without TV	Households with TV	Households without TV
Households where wife has some education				
Men watch TV at least once a week	89.7 % (n=1742)	77.9 % (n=615)	86.4 % (n=1056)	19.1 % (n=556)
Women watch TV at least once a week	94.6 % (n=2591)	58.3 % (n=826)	85.0 % (n=1064)	11.7 % (n=353)
Households where wife has no education				
Men watch TV at least once a week	87.0 %	46.8 %	81.1 % (n=412)	11.5 % (n=262)
Women watch TV at least once a week	83.0 % (n=685)	38.2 % (n=442)	74.2 % (n=392)	7.3 % (n=177)

TV watching is about 5 times higher in households without TV for both males and females in cable villages compared to those without cable; and is higher for women in households with a woman with education. This suggests confounding of impact of cable with access to TV and education of women.

Respecification of main model

(excluding external validity)

	Tolerance of spousal beatings	Female autonomy
	Coefficient	Coefficient
<i>Village has cable</i>	-0.288** (0.115)	0.0442*** (0.014)
<i>Village has cable X Female has no education</i>	0.243** (0.101)	-0.0381** (0.015)
<i>Village has cable X Household has TV</i>	-0.0756 (0.121)	0.0166 (0.0121)
<i>Household has TV</i>	0.614*** (0.119)	-0.0254** (0.0101)
<i>Jensen & Oster's time trends and other controls</i>	YES	YES
<i>Individual Fixed Effects</i>	YES	YES
R2		
N	7014	7014

Net effect of cable is near zero (-0.288 + 0.243 for beating, +0.0442 – 0.0381 for autonomy for households where woman has no education). Neg effect of having TV dominates for beating not auto.

Interpretation of coefficients

- Female attitudes to beating and women's autonomy change when cable is introduced in households with or without TV. A net positive effect of cable is, however, restricted to women with some education from households without TV. This is odd.
- For women with some education from households with TV, cable dampens the adverse effects of having TV on the acceptability of beating, while unambiguously increasing female autonomy.

Discussion of what may actually be going on

- The storyline, we suggest, needs revision. It is not clear that cable TV does anything but equip women (with some education) with space and an opportunity to get together and discuss. In rural India such groups are unlikely to be 'inclusive', as the lack of impacts on women without education suggests.
- A portrayal of TV as generally modernising is misleading: it appears (only when through cable) to be good for female autonomy (and better if household does not have TV), but to adversely affect acceptability of violence (cable dampens but does not neutralise this negative effect); again the effects are better if household does not have TV.
- Why TV should differentially affect these two important aspects of female 'empowerment'