The Impact of Health Extension Service (HES) On Health Care Practices of Pastoral Households in Ethiopia

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BACKGROUND

- As of 2014, more than 38,000 Health Extension Workers (HEWs) have been trained deployed across Ethiopia-948 of which are in pastoral areas of the country-572 in Afar(based on 2010 data).
- HEWs selected from the communities they live in, complete one year course of training at TVET which includes course work as well as field work.
- The operational center of the HEW is the Health Post which are located at Kebele level to serve population of 5,000 people.
- HEWs are responsible for promoting preventive actions at community level which include disease prevention and control (STD, Malaria, HIV/AIDs,TB),family health (maternal and child health, family planning, immunization, nutrition, and reproductive health); and hygiene and environmental Sanitation (latrine promotion, waste disposal, safe water supply and personal hygiene)

OBJECTIVES

- To investigate effect of availability of HEWs in a kebele on household sexual and reproductive health outcomes, maternal and child health outcomes
- To analyze the effect of access to health extension on improved hygienic practices by pastoral households

DATA

- 631 women covered in initial sample. 530 women covered in follow up survey (16% attrition rate).
- The balanced panel data consists of 436 women in the covered in the baseline as well as end line survey.
- Respondents drawn from six woredas within 3 zones of Afar regional state.

Table 1: Distribution of sample households of Balanced Panel

Zone 1		Zone 3		Zone 5		Total
Mille	78	Amibara	100	Dawe	76	
Chifra	52	Awash	83	Telalak	47	
	130		183		123	436

METHOD

- We employed Propensity Score Matching (PSM) and double difference analysis to look into changes on outcome indicators between control and treatment samples and between baseline and follow up periods. The treatment is defined as the availability of a health extension worker in a kebele or not.
- The PSM is used to make the treatment and control groups comparable. PSM constructs a statistical comparison group that is based on a model of the probability of participating in the treatment

$$P(X)= Pr (HEXT=1/X)$$

- We used "teffects psmatch" "psmatch nnmatch" modules of Stata 13 which estimate treatment effect from observational data by propensity score matching and nearest neighborhood matching.
- *ATET* is the difference between the outcomes of treated and the outcomes of the treated observations if they had not been treated.

$$ATET= E(\Delta|HEXT=1) = E(y_1|x, HEXT=1) - E(y_0|x, HEXT=0)$$

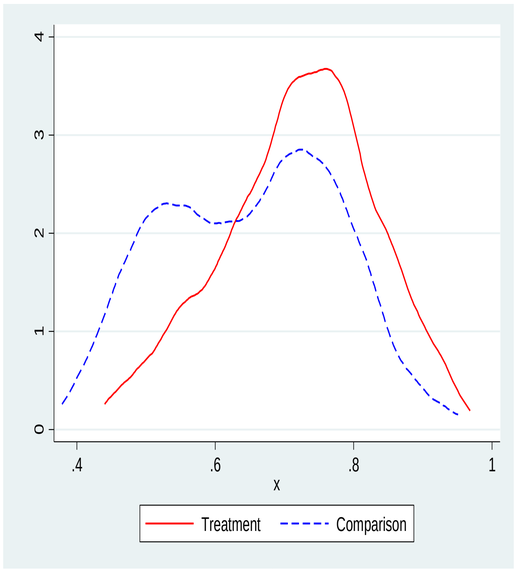
- The difference-in-differences model is applied when panel data on outcomes are available. The difference-in-differences model is an improvement over the one-period model. The difference-in-differences average treatment

Difference in Difference

	Before Change	After Change	Difference
Group 1 (Treat)	Y_{t1}	Y_{t2}	$\Delta Y_t = Y_{t2}-Y_{t1}$
Group 2 (Control)	Y_{c1}	Y_{c2}	$\Delta Y_c = Y_{c2}-Y_{c1}$
Difference			$\Delta\Delta Y$ $\Delta Y_t - \Delta Y_c$

HOUSEHOLD CHARACTERISTICS

Description	Mean	STD	N
Sex of household head (0=Female, 1=Male)	0.83	0.38	433
Marital status of the respondent			
Age of the respondent	32.34	7.51	436
Age of the husband	39.37	10.33	366
Completed years of formal education of the woman	5.42	3.98	106
Completed years of formal education of the husband	6.81	4.59	104
Total number of family members	5.83	2.42	436
Total number of livestock in TLU	11.05	15.19	436
Land owned in hectares	0.52	1.27	432
Total annual cash income in birr	14413.15	32182.51	421



RESULTS

Variable	PSM		NN matching		DIFF-IN-DIFF	
	Coeff (S.E)	N	Coeff (S.E)	N	Coeff (S.E)	N
HIV can be transmitted in sharing food with a person (No=0, Yes=1)	0.01 (0.02)	257	0.01 (0.02)	257	0.06 (0.05)	548
Can people get HIV because of witchcraft? (No=0, Yes=1)	-0.07 (0.08)	257	0.01 (0.03)	257	0.05(0.08)	550
The last time you have sex, did you use condom? (No=0, Yes=1)	0.09* (0.04)	255	0.12** (0.03)	255	-0.04 (0.08)	539
Mother delivered last birth at hospital (No=0, Yes=1)	0.05 (0.09)	256	0.05 (0.13)	256	0.15 (0.11)	534
Mother had normal delivery in the last birth (No=0, Yes=1)	0.03 (0.03)	257	0.03 (0.04)	257	0.13* (0.07)	534
Mother had post-natal checkup after last delivery (No=0, Yes=1)	0.44*** (0.12)	257	0.44***(0.10)	257	-0.06(0.11)	537
The child is in good health at the time of interview (No=0, Yes=1)	0.17 (0.11)	257	0.11(0.12)	257	0.01(0.06)	537
The child attend immunization (No=0, Yes=1)	0.33* (0.13)	256	0.31*(0.14)	256	0.31*** (0.10)	536
Household stores drinking water in covered container	-0.02 (0.01)	260	0.01(0.05)	260	-0.24*** (0.07)	566
Household uses agar for water treatment	0.19*(0.10)	260	0.06 (0.11)	260	0.16 **(0.08)	563
Household members use own latrine for defecation	0.18* (0.09)	259	0.25* (0.13)	259	0.27** (0.11)	565
Household owns a latrine	0.34*** (0.08)	239	0.38** (0.15)	239	0.49*** (0.11)	541
Latrine in the household shows evidence of being used	0.07 (0.08)	257	0.18 (0.13)	257	0.20* (0.11)	561
Household members use public or community latrine	0.25*** (0.06)	257	0.26***(0.09)	257	0.35 ***(0.10)	561
Household uses soap as cleaning agent in hand washing	0.41(0.05)	258	0.49*** (0.04)	258	0.36*** (0.11)	556

CONCLUSION

- The probability of use of safe sex practice, particularly use of condom was shown to increase by 9% in the propensity score matching estimate and as high as 12% in the nearest neighborhood matching estimates for households in HEW kebeles.
- We also found the average treatment effect on the treated to be highly statistically significant on maternal and child health indicator variables including the probability of having post-natal checkups by a mother which showed to increase by 44% if a household is in HEW Kebele.
- Double difference estimates showed that immunization of children has improved over time in HEW *kebeles*.
- PSM and double difference estimates also showed significant increase in sanitation and hygienic indicators. The use of drinking water treatment increased by 19% for households in HEW *kebeles* with the double difference value also showing increase over time.
- In the Afar region where open defecation is very common practice, the estimation results also showed that households living in HEW intervention areas are more likely to build their own latrine, use private or public latrine for defecation, and have habit of using detergents in hand washing-all which contribute to enhanced health, hygienic, and sanitation practices.