



**WOMEN IN FACTORIES
ADVANCED TRAINING
SOUTH ASIA
ENDLINE REPORT**

Laura Babbitt
Drusilla Brown
Negin Toosi
Elyse Voegeli

Dirayati Djaya
Ana Antolin
Alexis Tatore
Ananya Ganesh
Jade Woo

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Advanced Training

- Women in Factories (WIF) is an initiative of the Walmart Foundation's Women's Economic Empowerment (WEE) Program.
- The Advanced Training curriculum was developed by CARE International.
- The AT course requires 99 hours of training.
- There are 5 main training units.
- Topics include health and nutrition; functional literacy and personal finance; communication; gender, social status and relationships; and leadership.
- The WIF Advanced Training was introduced in India and Bangladesh in 2012.
- The Walmart Foundation's delivery partners are CARE in Bangladesh and Swasti in India.
- The Bangladesh factories are located in Dhaka and Chittagong. The factories in India are located in Tamil Nadu, Karnataka and Gujarat.

Experimental Design

- A randomized controlled trial was conducted in seven factories in Bangladesh and seven factories in India.
- Workers participating in training were randomly assigned to one of two training batches.
- The study began with a baseline survey of both batches of workers, supervisors and managers.
- After the baseline, batch 1 was trained.
- Following batch 1, workers, supervisors and managers were resurveyed.
- Following the midline, batch 2 was trained.
- The study concluded with an endline survey of workers, supervisors and managers.
- 1150 participants completed the baseline survey, 999 completed the midline survey and 831 completed the endline survey.
- Data collection was conducted by Nielsen in Bangladesh and the Institute for Financial Management Research (IFMR) in India.
- The research was conducted under Tufts SBIR IRB protocol 1407012 and funded by a grant from the Walmart Foundation.

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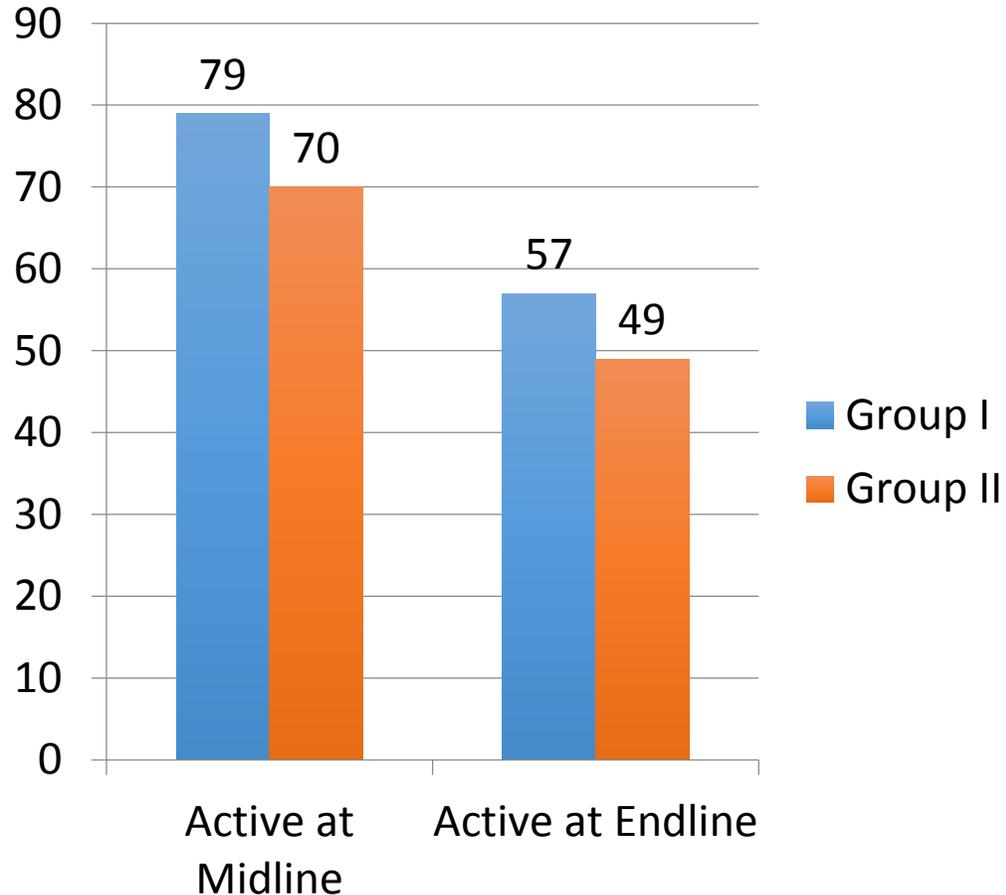
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Part I Key Performance Indicators (KPIs)

- Six key performance indicators were tracked by factories during the course of training.
- KPIs common to the apparel sector are quits, days absent, days late, accidents, the efficiency rate and defects.
- Training participants additionally report production targets, days absent, days late and injuries.

Workforce Turnover



Advanced Training reduced workforce turnover.

- Out of 100 workers in Advanced Training, 79 stayed with the factory until the midline.
- By comparison, only 70 participants in the control group were still employed at the factory.
- By the endline, 57 workers in the first batch were still with the factory compared to 49 in the second batch.

	(1)	(2)
VARIABLES	Active at midline	Active at endline
Treat_1	0.275**	0.206**
	(0.113)	(0.104)
female	0.0958	-0.252
	(0.313)	(0.301)
exp_more_1yr	0.356***	0.317**
	(0.119)	(0.131)
Constant	0.0631	-0.195
	(0.407)	(0.377)
Observations	1,081	1,081

Robust standard errors in parentheses

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

Probit estimator; gender, age, education, experience and country controls.

- If treatment increases retention, participants in batch 1 should be more likely to be active at the midline than participants in batch 2.
- If the effect cures, treatment should increase the probability of participants in batch 1 being active at the endline, relative to batch 2.
- In both cases, batch 1 participants (Treat_1) are more likely to be active at each time point.
- The treatment effect on batch 1 retention is larger at the midline than the endline, reflecting the fact that training of batch 2 is deterring separation between the midline and the endline.

Days Absent

Days Absent per Month			
Days	Count	Percent	Cumulative
0	1,543	54.76	54.76
1	458	16.25	71.01
2	326	11.57	82.58
3	224	7.95	90.53
4 or more	267	9.47	100

Absent Days by Survey Round (Percent)			
	1	2	3
0	54	50	61
1	15	20	14
2	12	12	10
3	8	8	8
4 or more	10	10	8
	100	100	100

- Workers who are absent disrupt production.
- Absenteeism in the study group occurs occasionally.
- 55% of workers are never absent during a month.
- Though, nearly 9 percent are absent 4 or more times per month.

Absenteeism declines over the course of the study.

- At the beginning of the study (survey round 1), 54% report no absences in a month. This figure rises to 61% by the 3rd survey round.
- Concomitantly, the percent of participants reporting 1, 2 and 4 or more absences declines.

Treatment reduces absenteeism for workers who remain with the factory until the end of the study.

Training Status	Absent Days per Month
Before training	0.97
Just trained	0.90
Trained many months ago	0.69

- Participants who remained with their factory until the end of the study report an average 0.97 days absent per month before treatment.
- Days absent falls to 0.90 just after training, but the effect is not statistically significant.
- In the months after training, absent days falls to 0.69 per month. The treatment effect is significant at the 0.80 level.

	(1)
VARIABLES	Absent_Worker
justtrained	-0.0678
	(0.115)
trainedlongago	-0.217 ⁺
	(0.159)
midline	-0.00899
	(0.105)
endline	-0.0692
	(0.131)
Constant	2.003 ^{***}
	(0.0412)
Observations	1,377
Number of participant	484
R-squared	0.013

Robust standard errors in parentheses
^{***} $p < 0.01$, ^{**} $p < 0.05$, ^{*} $p < 0.1$, ⁺ $p < 0.2$

- Analysis is conducted on a balanced panel; participation in 3 survey rounds.
- A panel estimator is employed with participant and time fixed effects, with standard errors clustered by factory.
- Days absent falls after training.
- The treatment effect strengthens over time.
- The treatment effect for participants who just completed training is not statistically significant.
- The treatment effect for participants who completed the training several months prior is significant at the .80 level.

Treatment reduces late-coming for workers who remain with the factory until the end of the study.

Days late per month	Freq.	Percent	Cum.
0	2,190	77.47	77.47
1	329	11.64	89.11
2	186	6.58	95.68
3	70	2.48	98.16
4 or more	52	1.84	100
Total	2,827	100	

- As with absenteeism, workers who arrive late to work disrupt the smooth flow of production.
- 77.5% of workers are never late in a typical month.

Trained workers report fewer late to work days.

Training Status	Late Days per Month
Before training	0.44
Just trained	0.33
Trained many months ago	0.10

- Participants who remained with the factory until the end of the study, report an average 0.44 days late per month before treatment.
- Days late falls to 0.33 just after training, but the effect is not statistically significant.
- In the months after training, absent days falls to 0.10 per month. The treatment effect is significant at the 0.80 level.

	(1)
VARIABLES	Late_Worker
justtrained	-0.109 (0.0999)
trainedlongago	-0.241+ (0.172)
midline	-0.0324 (0.0884)
endline	0.105 (0.143)
India	0.503*** (0.0330)
exp_more_1yr	0.0861 (0.0732)
education	0.0390*** (0.0150)
Constant	1.170*** (0.0604)
Observations	1,392
Number of participant	497

- Analysis is conducted on a balanced panel; participation in 3 survey rounds.
- A random effects panel estimator is employed with time fixed effects, demographic controls and factory fixed effects; with standard errors clustered by factory.
- Late coming falls after training.
- The treatment effect strengthens over time.
- The treatment effect for participants who just completed training is not statistically significant.
- The treatment effect for participants who completed the training several months prior is significant at the .80 level.

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1, + p<0.2

Trained workers have fewer accidents

Injured	Freq.	Percent	Cum.
Never	312	68.12	68.12
Rarely	62	13.54	81.66
Sometimes	63	13.76	95.41
Often	12	2.62	98.03
Always	9	1.97	100
Total	458	100	

Training Status	Accident Common
Before training	1.62
Just trained	1.54
Trained many months ago	1.26

- Participants are asked how often they are injured at work.
- 1=Never ... 5=Always
- 68% report “Never”
- 13.5% report “Rarely”
- 13.8% report “Sometimes”

- In the months after training, participants report fewer injuries.
- On average before training, participants report being injured rarely.
- In the months after training, participants are on average reporting midway between Rarely and Never injured.

	(1)
VARIABLES	Injured
justtrained	-0.0838 (0.118)
trainedlongago	-0.280*** (0.103)
midline	0.329*** (0.0552)
endline	0.493*** (0.103)
exp_more_1yr	-0.0555* (0.0301)
education	-0.0474* (0.0276)
Constant	1.007*** (0.183)
Observations	456
Number of participant	226

- Analysis is conducted on a balanced panel; participation in 3 survey rounds.
- A random effects panel estimator is employed with time fixed effects, demographic controls and factory fixed effects; with standard errors clustered by factory.
- Injuries fall after training.
- The treatment effect strengthens over time.
- The treatment effect for participants who just completed training is not statistically significant.
- The treatment effect for participants who completed the training several months prior is significant at the .01 level.

Robust standard errors in parentheses
 *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Participants initially increase the efficiency rate as a consequence of training. Factories respond by increasing the production target.

Training Status	Efficiency Rate	
Before training	98.8	
Just trained	99.3	0.5
Trained many months ago	97.8	-1.5

Training Status	Daily Target	Percent change over baseline.
Before training	1773	
Just trained	2047	15.4
Trained many months ago	2468	39.2

- Participants initially increase the efficiency rate as a consequence of training.
- Efficiency is measured using a factory standard, not GSD.
- Factories respond by increasing the production target.
- For workers just completing training, the daily target increases by 15.4%.
- For participants in the months after training, the production target rises by 39.2% over the baseline.

VARIABLES	(1) Daily Target	(2) Daily Target Demographic Controls
justtrained	232.9 (153.2)	273.5* (148.0)
trainedlongago	418.9* (247.9)	421.6* (240.2)
midline	1,060*** (102.6)	675.1*** (103.8)
endline	1,055*** (200.2)	937.7*** (163.8)
exp_more_1yr		68.70 (127.6)
age		-23.76 (66.94)
education		7.292 (62.50)
YearsEmployed		-11.27 (22.85)
fulltime		-14.25 (38.91)
Constant	2,676*** (1.068)	2,847*** (317.8)
Observations	1,086	1,062
Number of participant	782	766

Robust standard errors in parentheses

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

- Participants report whether they have a hourly or daily target.
- Hourly targets are converted to daily targets assuming a 10 hour day.
- A random effects panel estimator is used to estimate the impact of treatment on the daily target (or daily target equivalent).
- The regression equation includes time fixed effects, factory fixed effects and the interaction of factory and time; with and without demographic controls.
- For participants just after training, the daily target is increased by 273.5, averaged across firms. The effect is significant at the 0.90 level.
- For participants in the months after training, the daily target is increased by 421.6, averaged across factories. The effect is significant at the 0.90 level.

Trained workers are more likely to reach their production target

Reach production target			
	Freq.	Percent	Cum.
No	197	8.23	8.23
Yes	2,198	91.77	100
Total	2,395	100	

- Most participants in the AT program routinely reach their production target.
- In the full sample, 92% report regularly reaching the production target.

In the months after training is complete, all AT participants are routinely meeting their production target.

Training Status	Typically reach production target (percent)
Before training	88
Just trained	96
Trained many months ago	100

- Before training, 88% of participants report meeting their production target.
- By the end of training, 96% of participants are reaching their production target.
- The effect cures, with nearly all workers reaching their target several months after training is complete.

	(1)
VARIABLES	reach_target
justtrained	0.0751** (0.0281)
trainedlongago	0.115** (0.0437)
midline	-0.0150 (0.0147)
endline	-0.0442 (0.0307)
Constant	0.902*** (0.00752)
Observations	2,395
Number of participant	1,348
R-squared	0.014

Robust standard errors in parentheses

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

- Analysis is conducted on a balanced panel; participation in 3 survey rounds.
- A panel estimator is employed with participant and time fixed effects, with standard errors clustered by factory.
- The frequency of reaching the production target rises after training.
- The treatment effect strengthens over time.
- The treatment effect for participants who just completed training is statistically significant at the 0.05 level.
- The treatment effect for participants who completed the training several months prior is significant at the .05 level.

Part II Return on Investment (ROI) training

- Training reduced late days for participants from 0.44 to 0.10 per worker per month.
- Training reduced absent days from 0.97 to 0.69 days per worker per month.
- Training increased productivity of workers by 39 percent over the baseline.
- Conservatively, assume that a late worker is late one hour and workers work 10 hours per day 6 days per week.
- The reduction in late days, conservatively estimated, increased the “at work” time by a factor of 0.0013.
- The reduction in absent days, conservatively estimated, increased the “at work” time by a factor of 0.011.
- The increase in productivity increased the value of time at work by a factor of 0.39.
- In the months after training, 57 percent of trained workers were still employed.
- Taken together, these three effects of training increase the implicit monthly “at work” time by $100 = 10 * 25.2 * 1.0013 * 1.011 * 0.36 * 0.57$ hours.
- By comparison, AT costs approximately 99 hours of participant time.
- Taken together, **Advanced Training pays for itself in about one month in the months after training is complete.**

Part III Work Outcomes

- Production Bonuses
- Promotions
- Work Hours
- Weekly Pay

The proportion of workers receiving a production bonus declines.

- Prior to training, 56% of workers report receiving a production bonus.
- Just after training, this figure drops to 50% due to training.
- In the months after training, only 45% are reporting receiving a bonus.
- Further, of participants receiving a bonus, the size of the bonus declines.

	(1)
VARIABLES	prod_bonus_amount
justtrained	-0.961*
	(0.459)
trainedlongago	-1.178**
	(0.404)
midline	-1.114***
	(0.289)
endline	0.661
	(0.432)
Constant	3.626***
	(0.141)
Observations	2,704
Number of participant	1,464
R-squared	0.067

- Participants are asked about the size of their productivity bonus. The response variable is categorical.
- A fixed effects panel estimator is applied to an unbalanced panel, with time fixed effects and clustered standard errors.
- The production bonus falls after training.
- The treatment effect strengthens over time.
- The treatment effect for participants who just completed training is statistically significant at the 0.10 level.
- The treatment effect for participants who completed the training several months prior is significant at the .05 level.

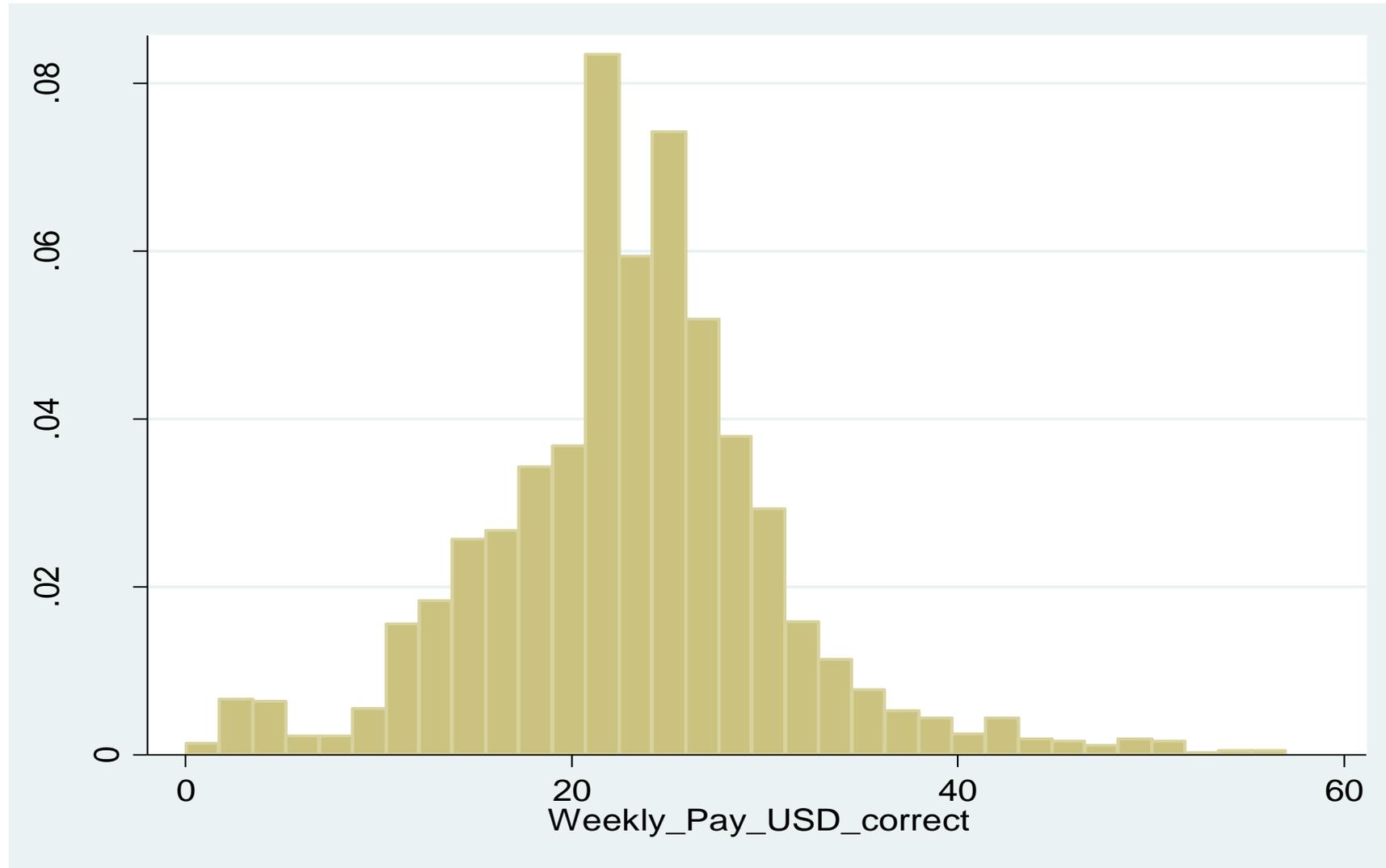
Training significantly affects work productivity. Yet, managers may be undercutting its effectiveness.

- Training reduces late days and absences.
- Training also increases the proportion of participants who reach their production target.
- A successful organization would reward these newly productive workers.
- Yet, there is a negative training effect on the proportion of workers who receive a production bonus and the size of the bonus.
- That is, training is making participants more productive. Firms respond by reducing the rewards for performance.
- In addition, training is not increasing the promotion rate.

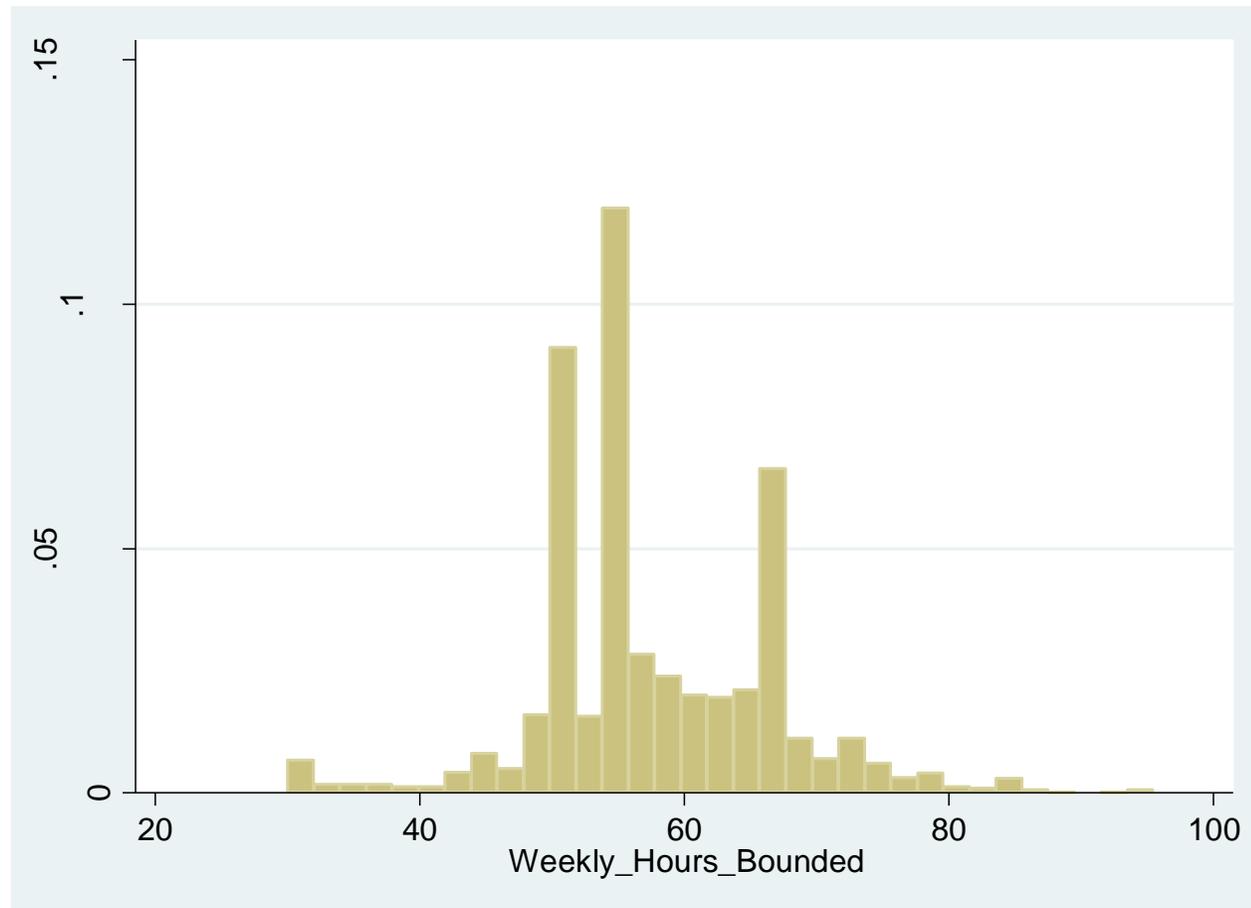
Pay and Hours

- Pay: participants are asked how often they are paid and how much they were paid the last time they were paid.
- Data is used to calculate weekly pay converted into U.S. dollars.
- Hours: participants are asked which days they usually work.
- For the days they usually work, participants are asked to report starting and ending times.
- The analysis of pay and hours is limited to those participants reporting working 4 days or more per week.
- There are no treatment or time effects for pay and hours.
- Given that workers are more productive, we conclude that factories are adjusting pay incentives down to hold pay and hours fixed.

Most recent weekly pay USD.



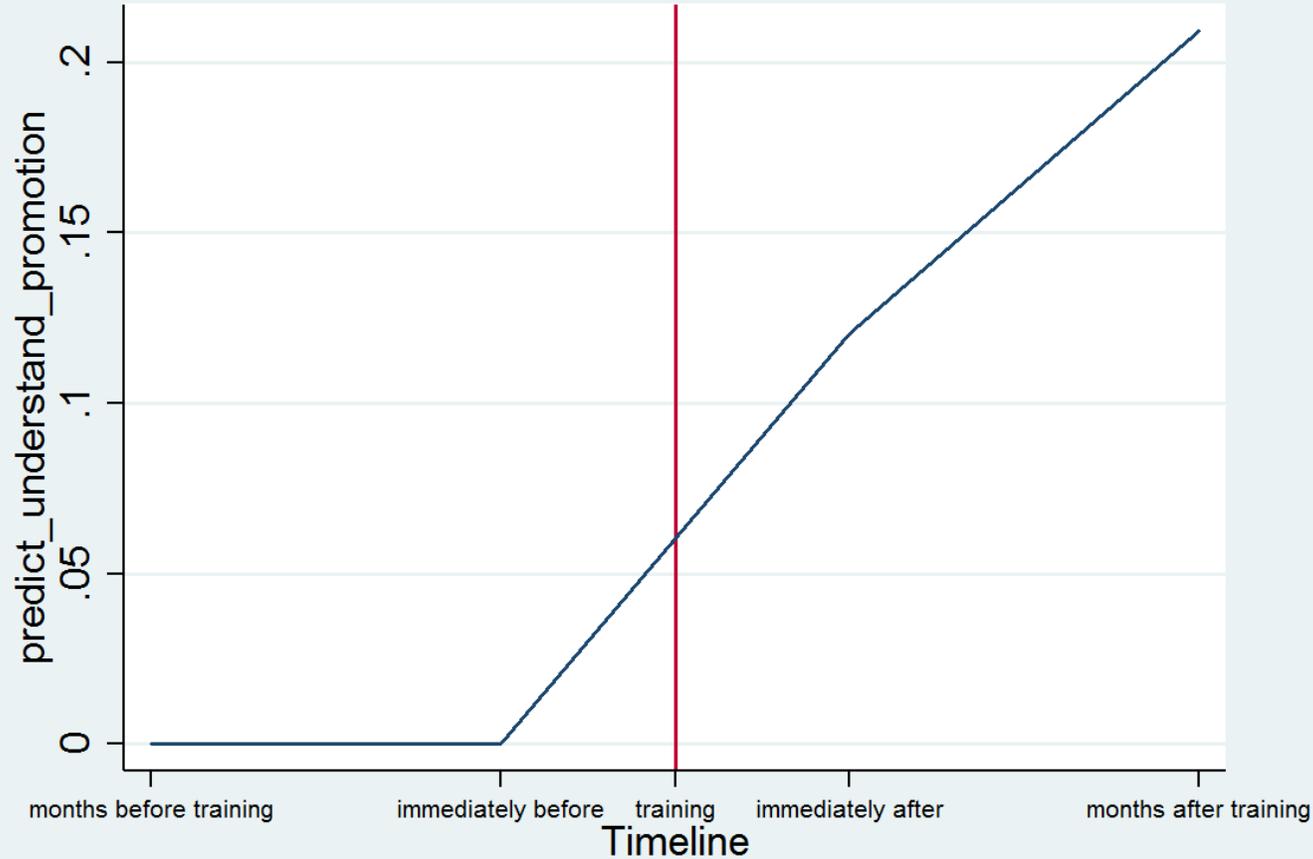
Weekly Hours for participants working 30 or more hours per week.



Part IV Content Knowledge, Beliefs, Confidence, Behavior, Outcomes and Impacts

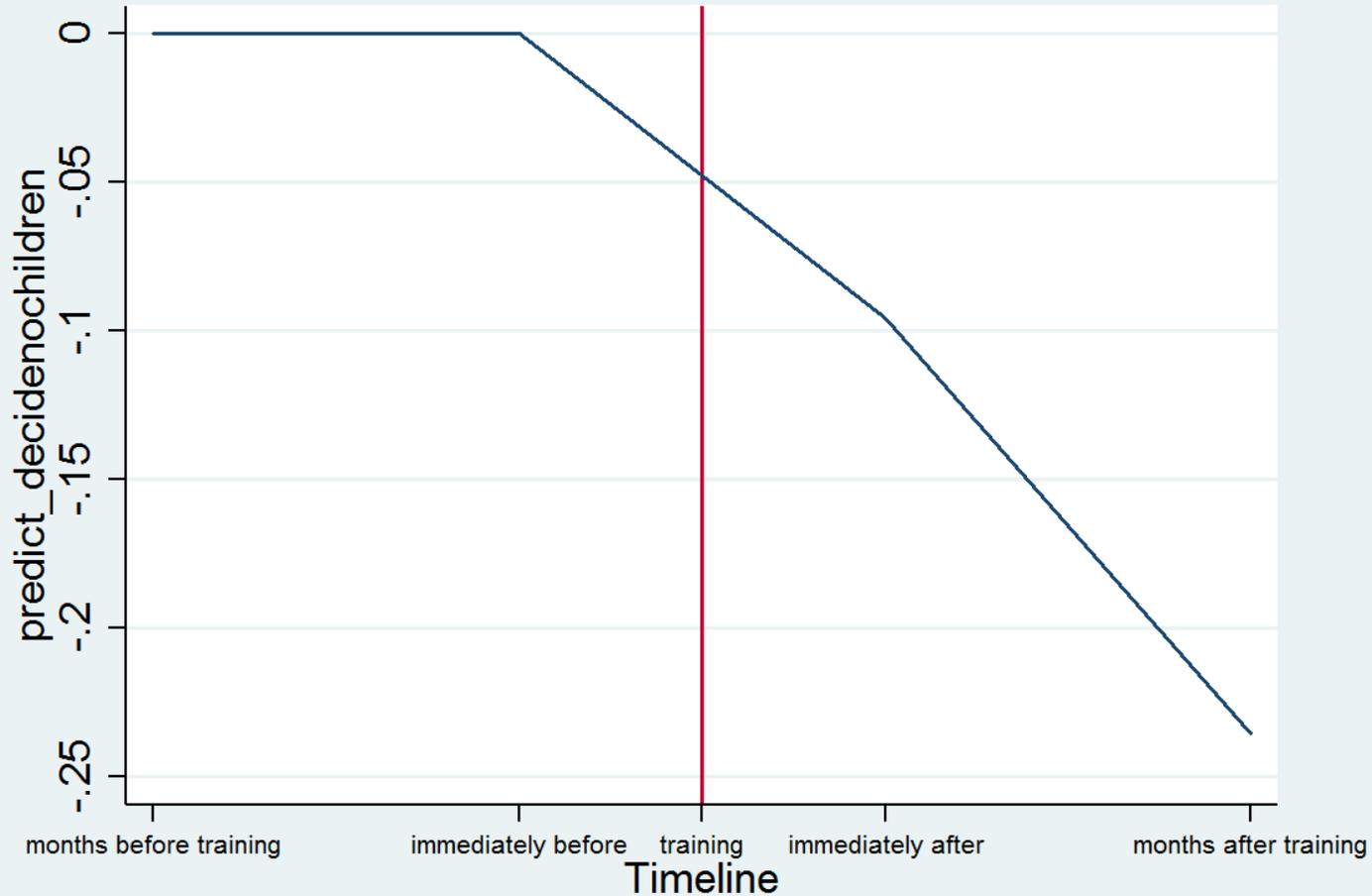
- The AT modules are organized by broad thematic area.
- However, achieving outcomes and impacts depends on participants first acquiring knowledge and, perhaps, changing some of their beliefs.
- Participants must then become confident in their ability to use their new knowledge and then begin changing their behavior.
- Change in knowledge, beliefs and behaviors then begin affecting the lives of participants.
- The graphs below provide a sample of each step in the process of changing the lives of participants at work and with their families.

I understand how to earn a promotion in this factory.



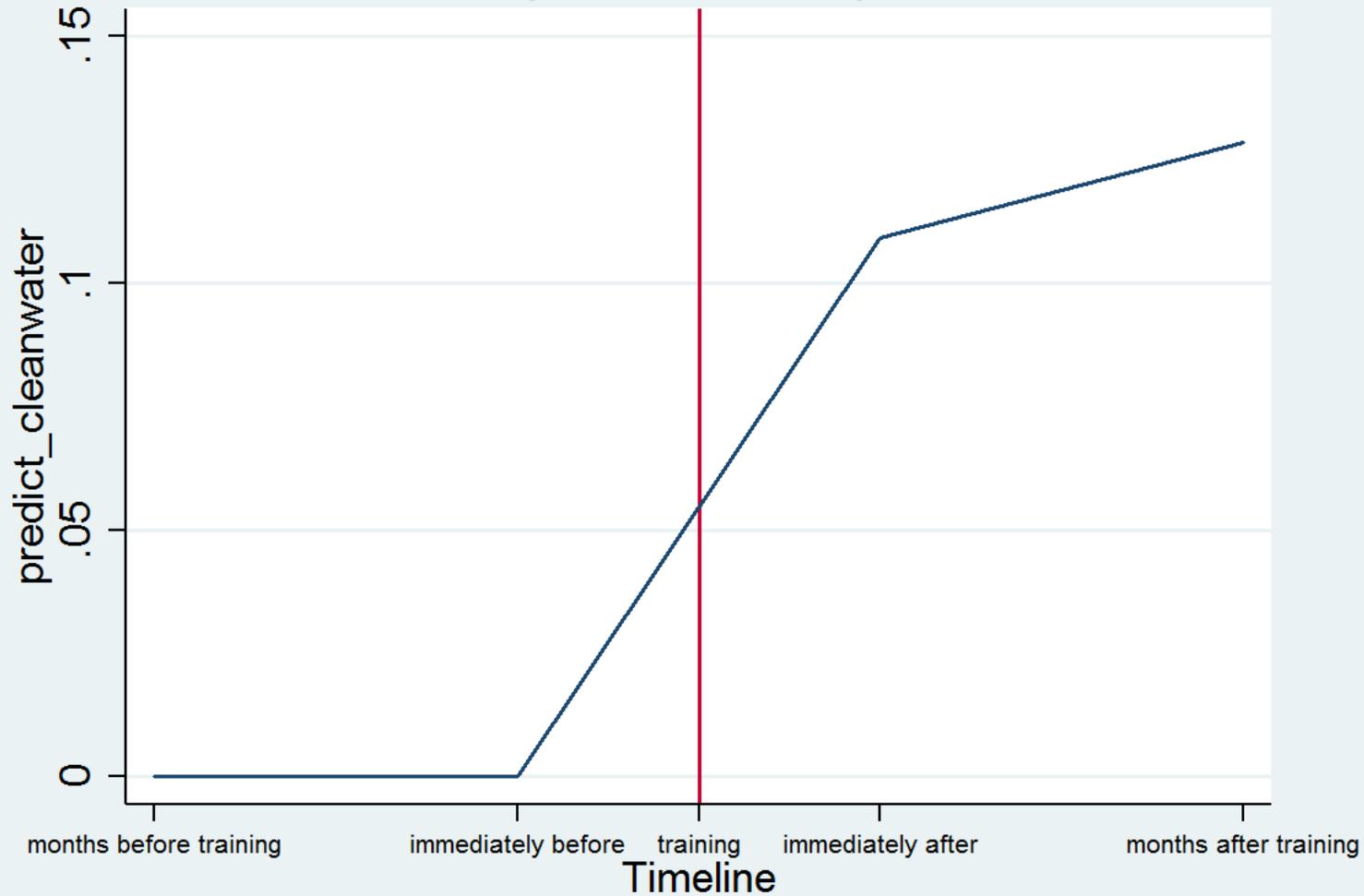
- Participants are asked whether they agree with the statement, “I know how to earn a promotion in the factory.”
- Response options range from strongly disagree to strongly agree.
- Knowing how to earn a promotion is an example of content knowledge.
- The diagram illustrates the impact of training as participants move through the training timeline.
- Before training, the graph begins at zero. There is no treatment effect.
- For participants just after training, understanding increases.
- The effect cures over time, with the largest impact in the months after training is complete.

I am confident that I can decide how many children I have.



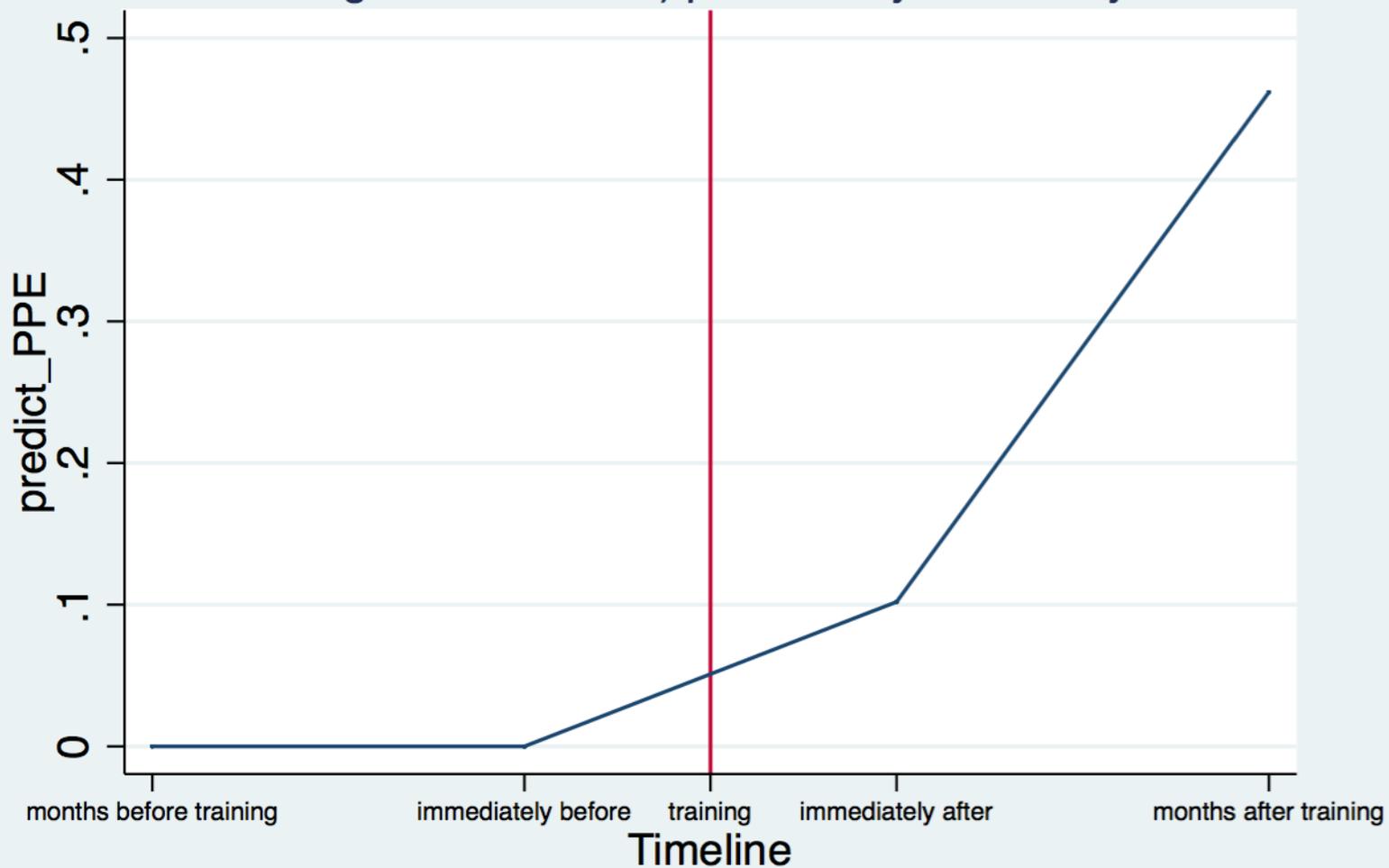
- Sometimes training makes participants realize they lack confidence in using knowledge.
- Participants were asked whether they agree or disagree with the statement, “I am confident that I can decide how many children I have.”
- The treatment effect is negative.
- In the course of training, participants realized that they lacked confidence in their ability to control their fertility.
- Findings do not indicate that workers realized that they had lower confidence, but rather that learning about contraception made them realize that the strategies available to them are not as effective as they had thought.

How often do you use boiled or purified water?



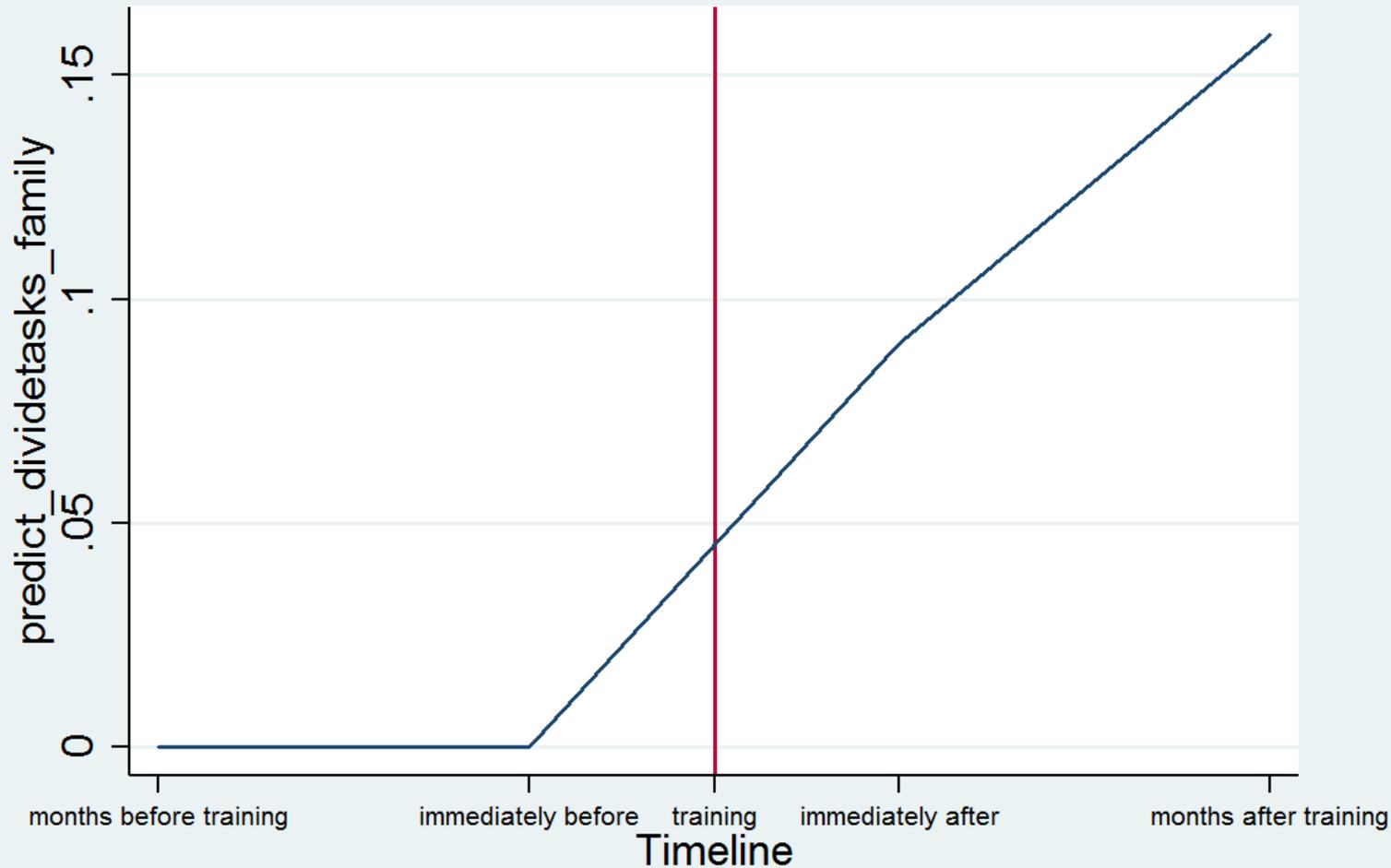
- Knowledge and confidence in its use translate into behavior.
- Participants are taught that boiling water before use will kill bacteria and reduce illness.
- Prior to training, 55% of participants reported boiling water before use “all of the time.”
- In the period immediately after training, the practice of boiling water increased.
- Participants persisted in the new behavior after training ended.

How often do you use PPEs (personal protective equipment like gloves or masks) provided by the factory?



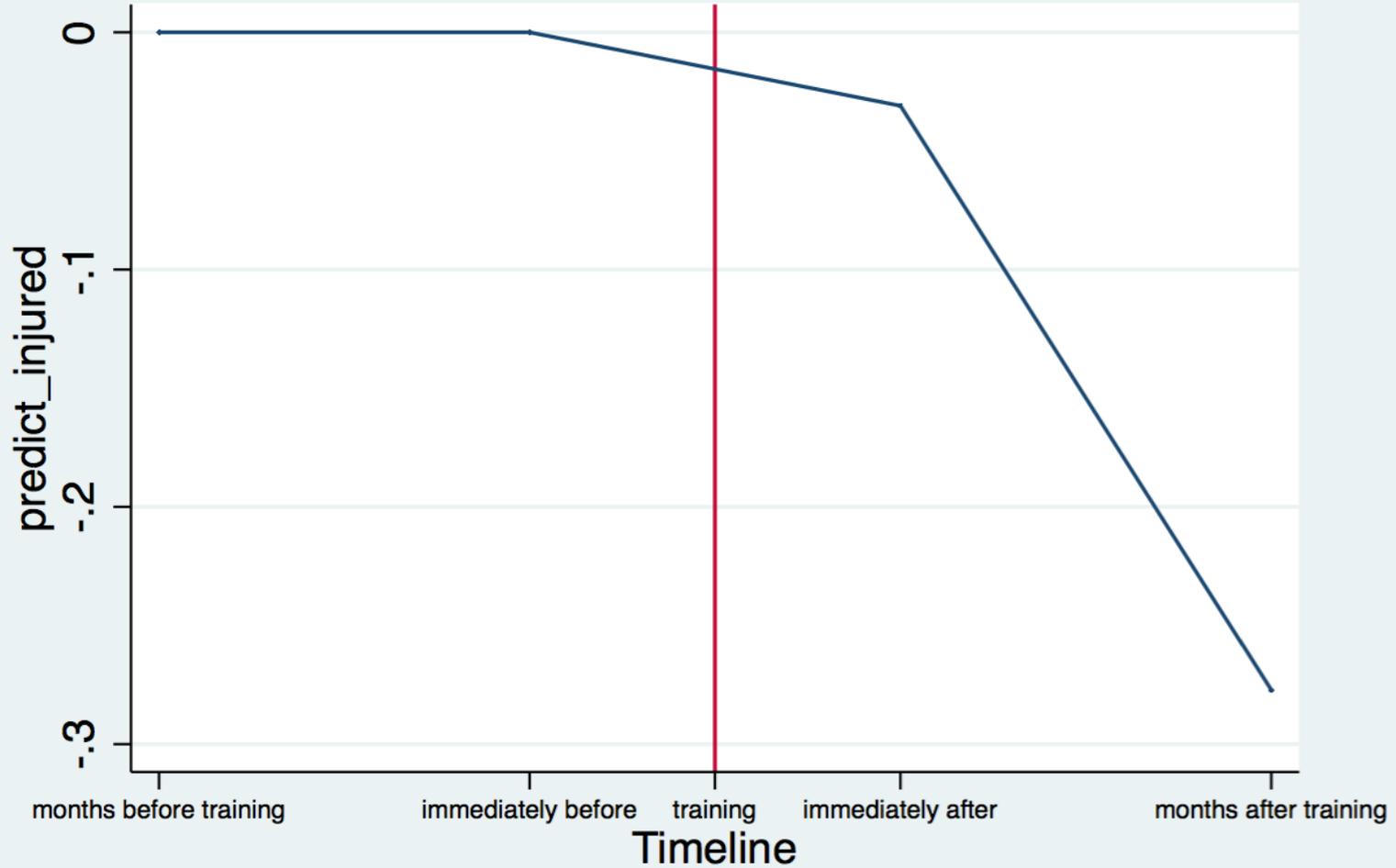
- Another important health behavior is the use of personal protective equipment (PPEs) while at work.
- Participants were asked how often they use PPEs.
- Use increased immediately after training.
- In the months after training, the treatment effect cured, with participants reporting increased use of PPEs.

I have spoken with members of my family about dividing tasks fairly to reduce stress.



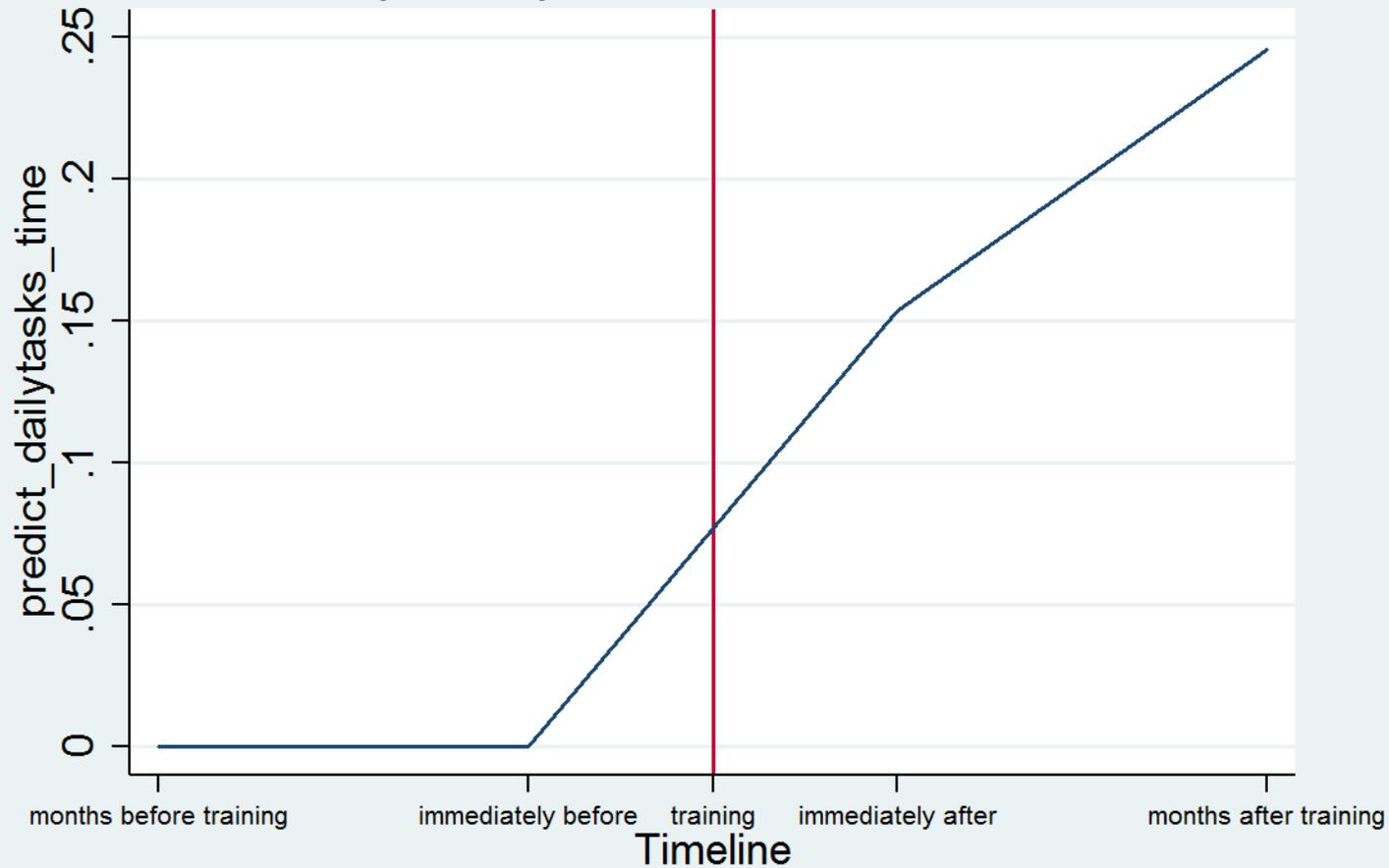
- Change in health behaviors is challenging.
- Changing the nature of interactions with family members is daunting.
- The AT program teaches participants that they can reduce stress if family members divide household tasks.
- A first step is to speak with family members about sharing tasks.
- Participants are asked how strongly they agree with the statement, “I have spoken with members of my family about dividing tasks fairly to reduce stress.”
- Agreement increases immediately after training and cures over time.

In the last three months, how often have you been injured because of your work?



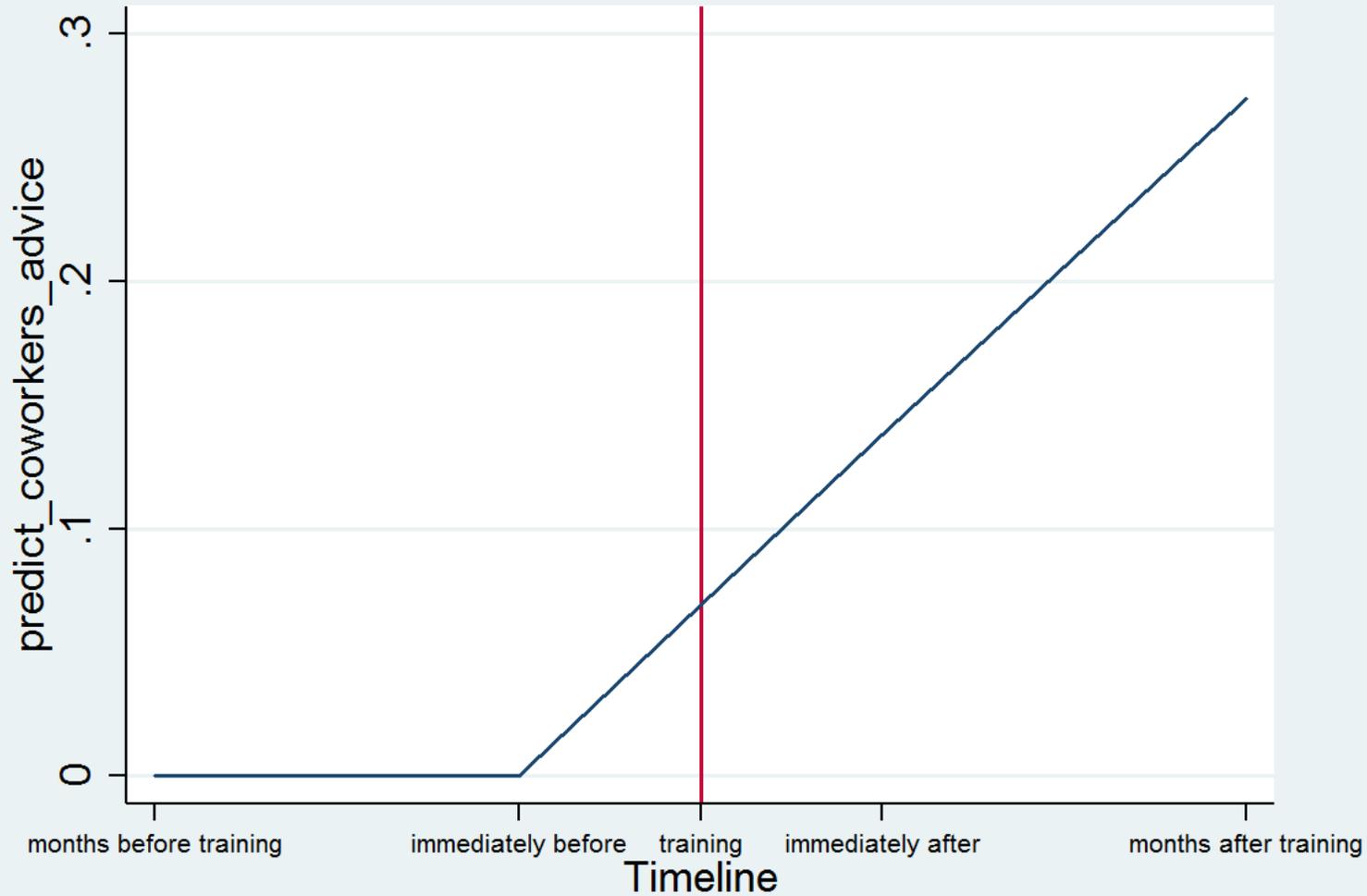
- If training is effective, changes in behaviors will improve work outcomes.
- Participants were asked how often they have been injured at work in the past 3 months.
- The injury rate declines right after training and then cures in the months after training.

How often do you have time to finish all of your daily tasks at home and work?



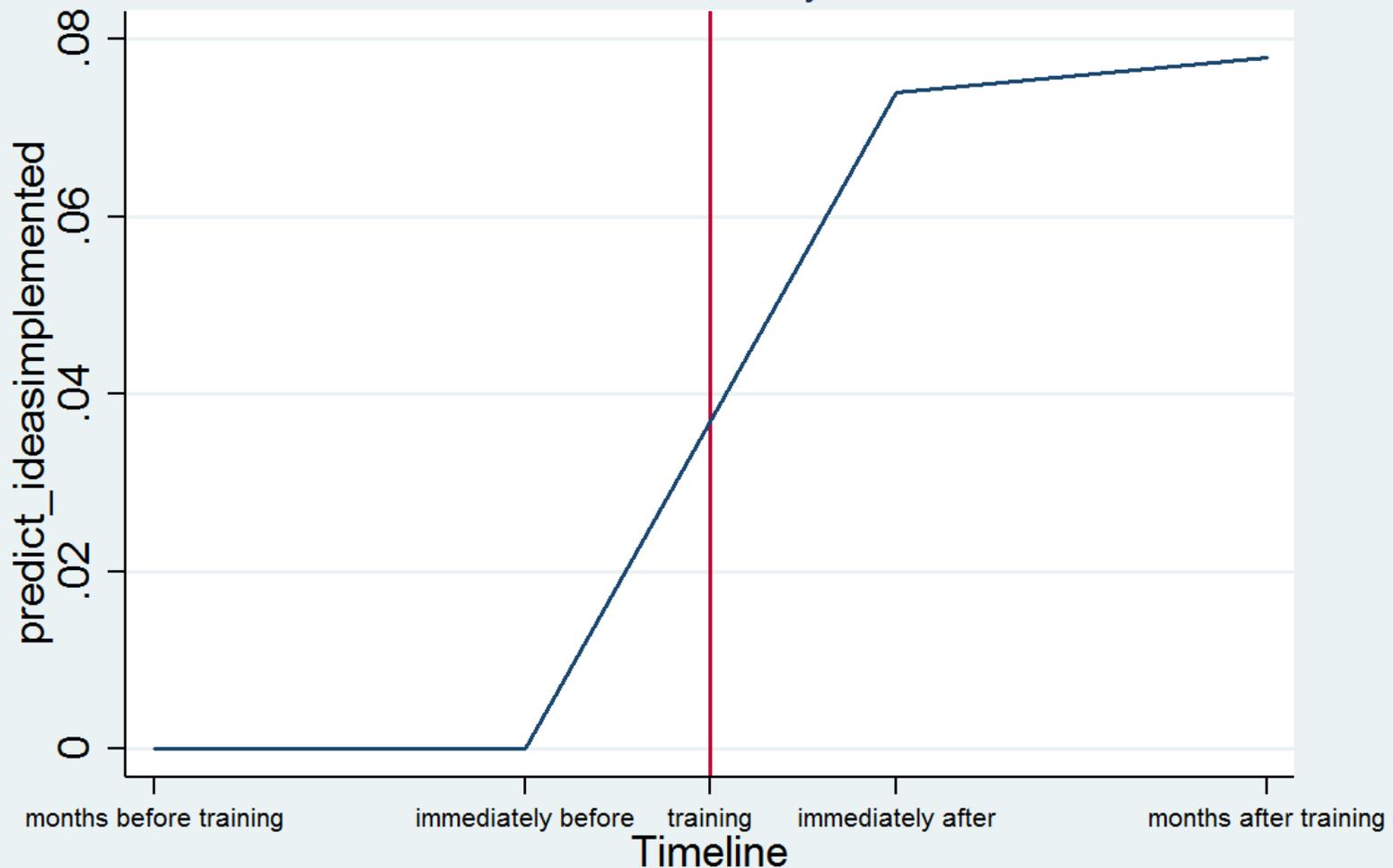
- Helping workers manage stress, finances and household tasks are intended to reduce cognitive load.
- Participants are asked how often they have time to finish all of the daily tasks at home and at work.
- Immediately after training, participants are reporting an increase in the frequency of completing all of their tasks.
- The effect cures over time.

How often do coworkers ask you for help or advice?



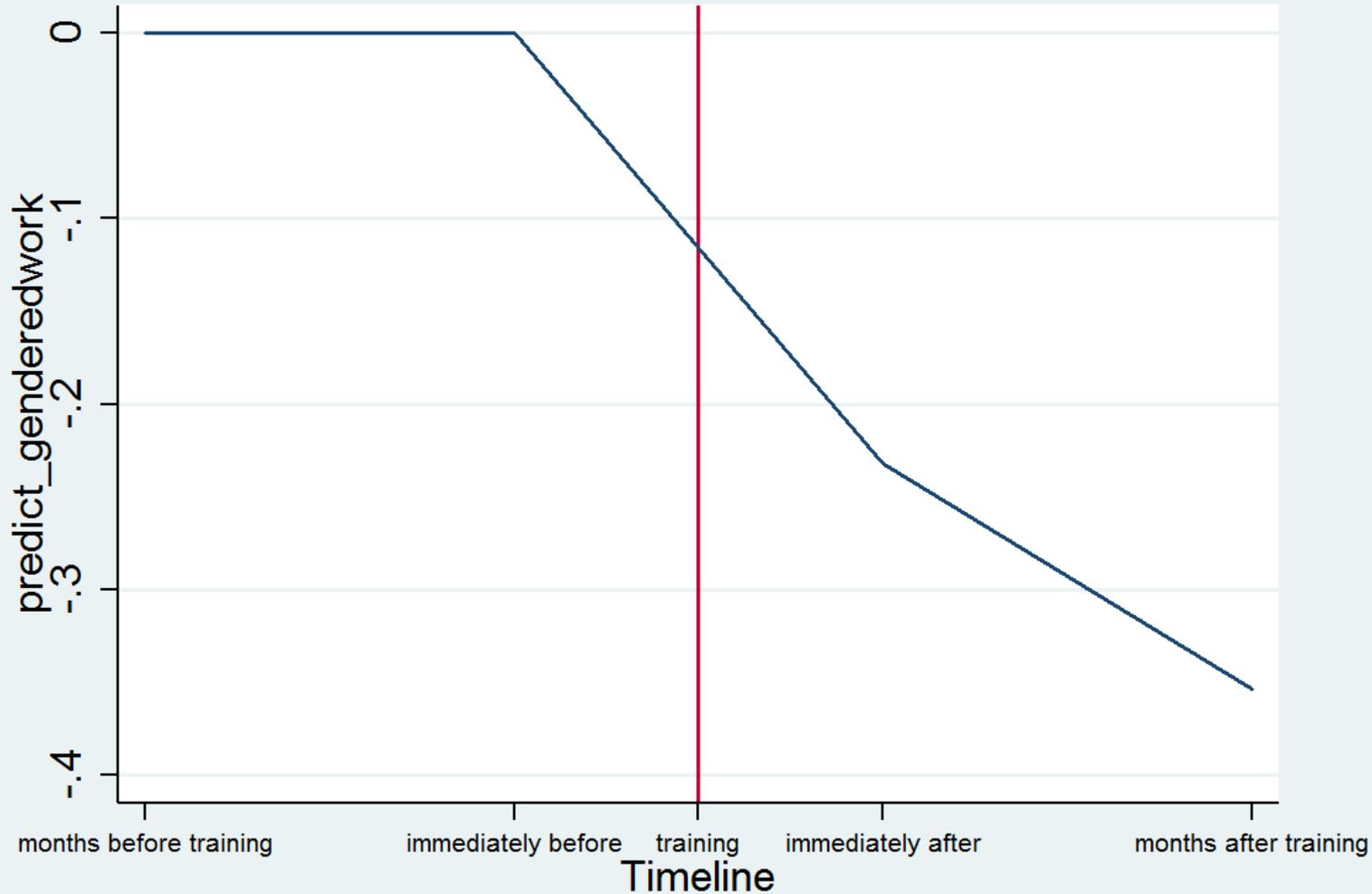
- Training will affect firm performance if it promotes problem-solving and information sharing.
- Participants are asked how often coworkers ask for help or advice.
- Such exchanges of expertise will make coworkers more effective at work.
- This item also measures whether participants are seen as leaders by their peers.
- Participants report increasing frequency in the period after treatment.
- The effect cures over time in the months after training.

How many of your suggestions were actually put into place in this factory?



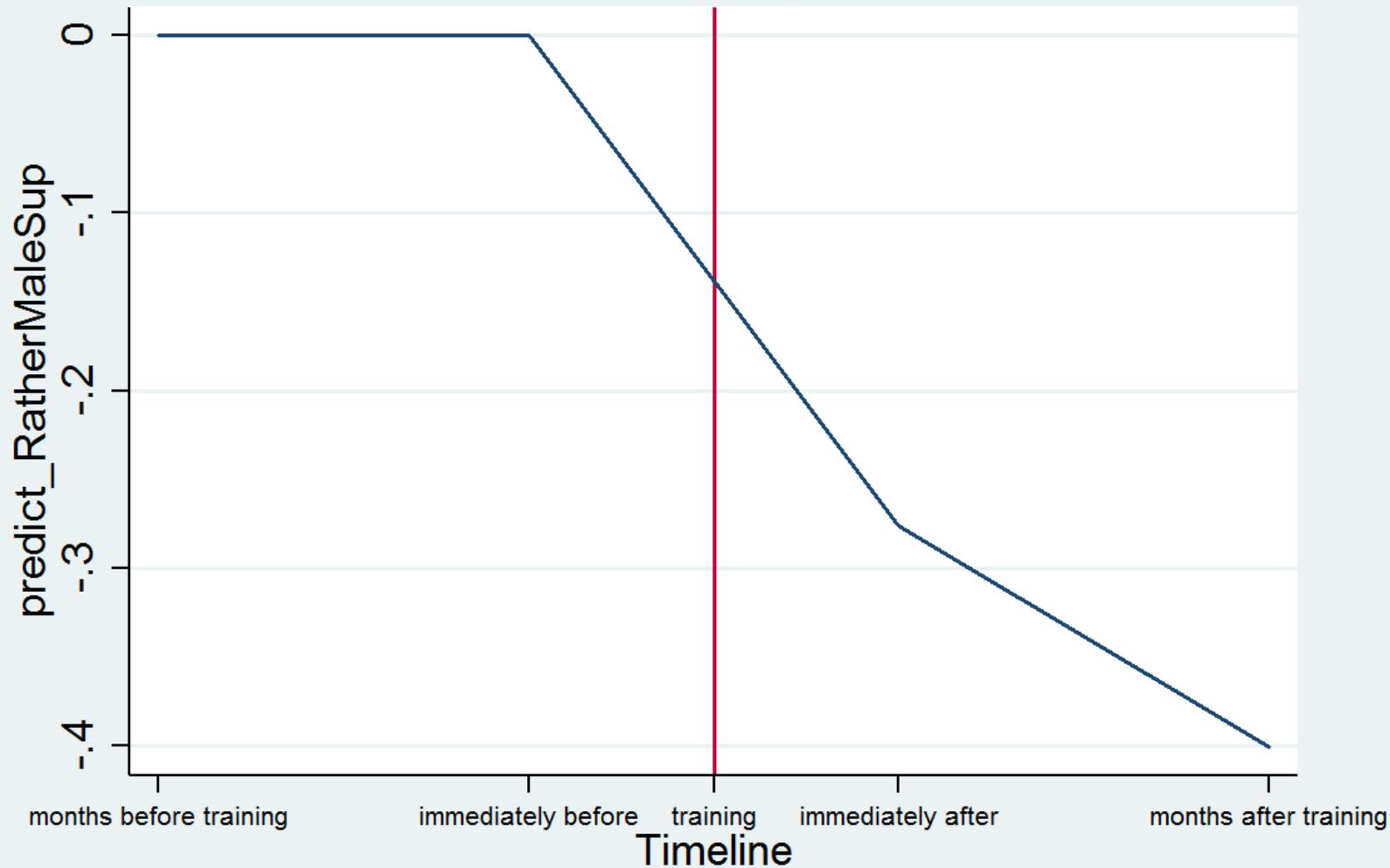
- Information sharing can also take the form of suggesting ideas to supervisors and managers.
- Participants are asked whether they have made a suggestion to a supervisor or manager.
- Those who respond in the affirmative are then asked how many of the suggestions were actually put into place.
- Treatment increases adoption and the effect persists in the months after treatment.

Women and men are naturally good at different kinds of work.



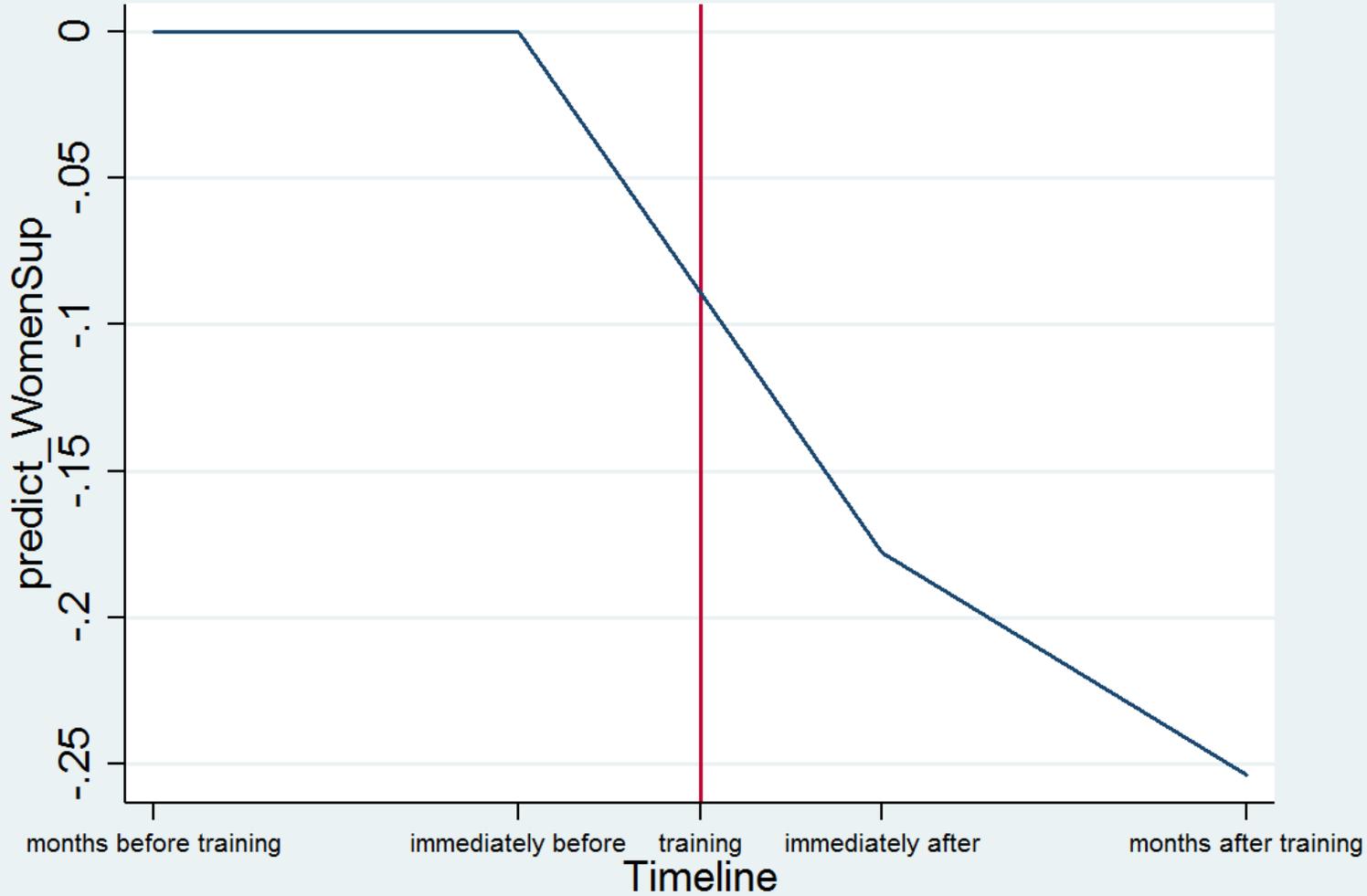
- Breaking down gender stereotypes helps to improve access for women to promotions and higher-paying jobs and alter the allocation of tasks within the home.
- A woman's perception of her abilities will affect her willingness to seek jobs that interest her.
- The AT curriculum focuses on gender stereotypes, attempting to displace the belief that the abilities of men and women are determined at birth.
- Participants are asked the extent to which they agree with the statement, "Women and men are naturally good at different kinds of work."
- Agreement declines with training and the effect cures over time in the months after training.

I would rather work for a male supervisor
than a female supervisor.



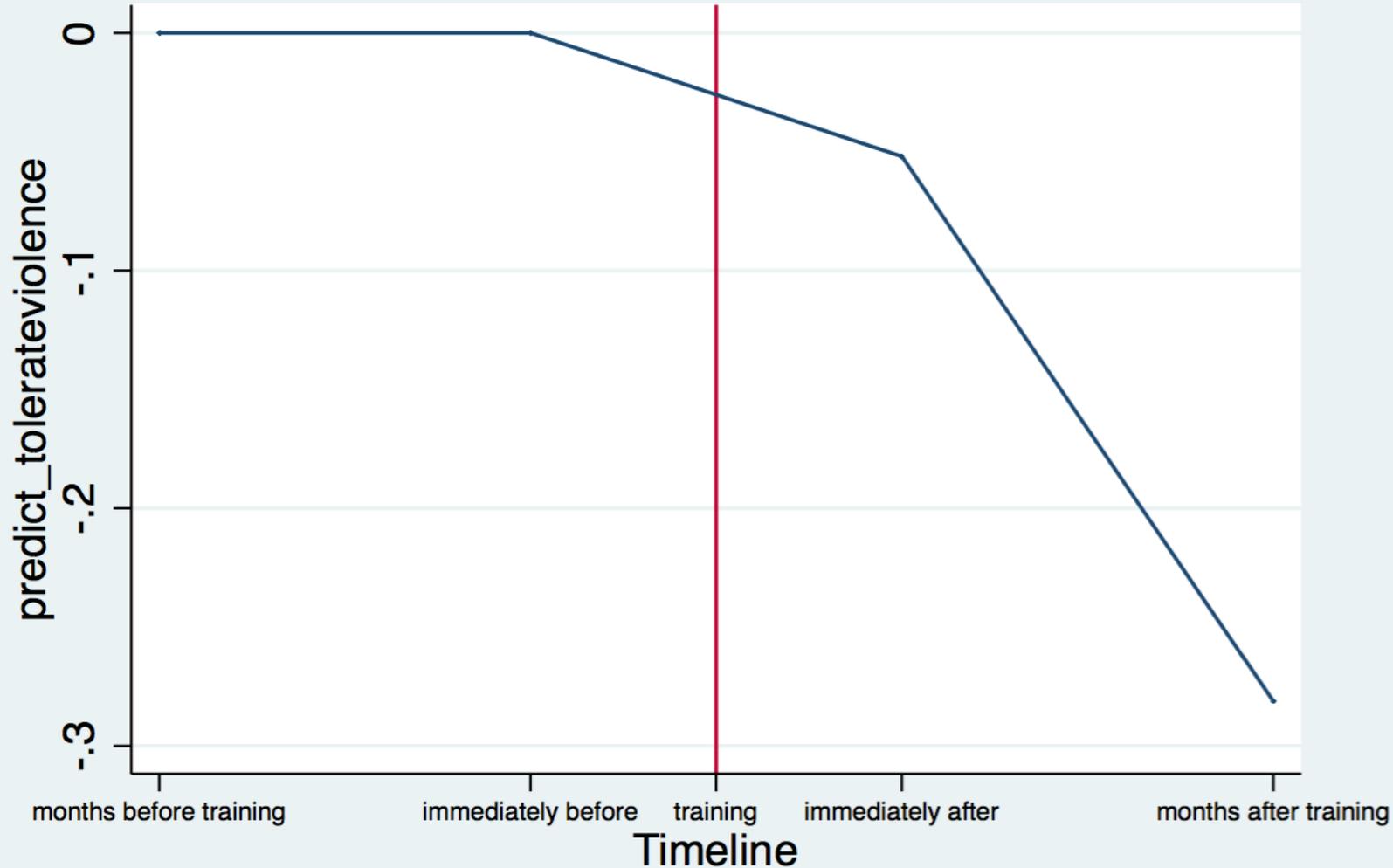
- Eroding gender stereotypes can make participants more receptive to a female supervisor.
- Receptivity to women in positions of authority will increase willingness to promote women and make them more effective leaders.
- Participants are asked the extent to which they agree with the statement, “I would rather work for a male supervisor than a female supervisor.”
- Agreement declines with treatment and cures over time, indicating greater receptivity to female leadership.

Women usually don't make good supervisors.



- Training also eroded negative stereotypes about female leadership.
- Treatment reduced the belief that women do not make good supervisors.
- The effect cured in the months after treatment.

I think a woman should tolerate violence
in order to keep her family together.



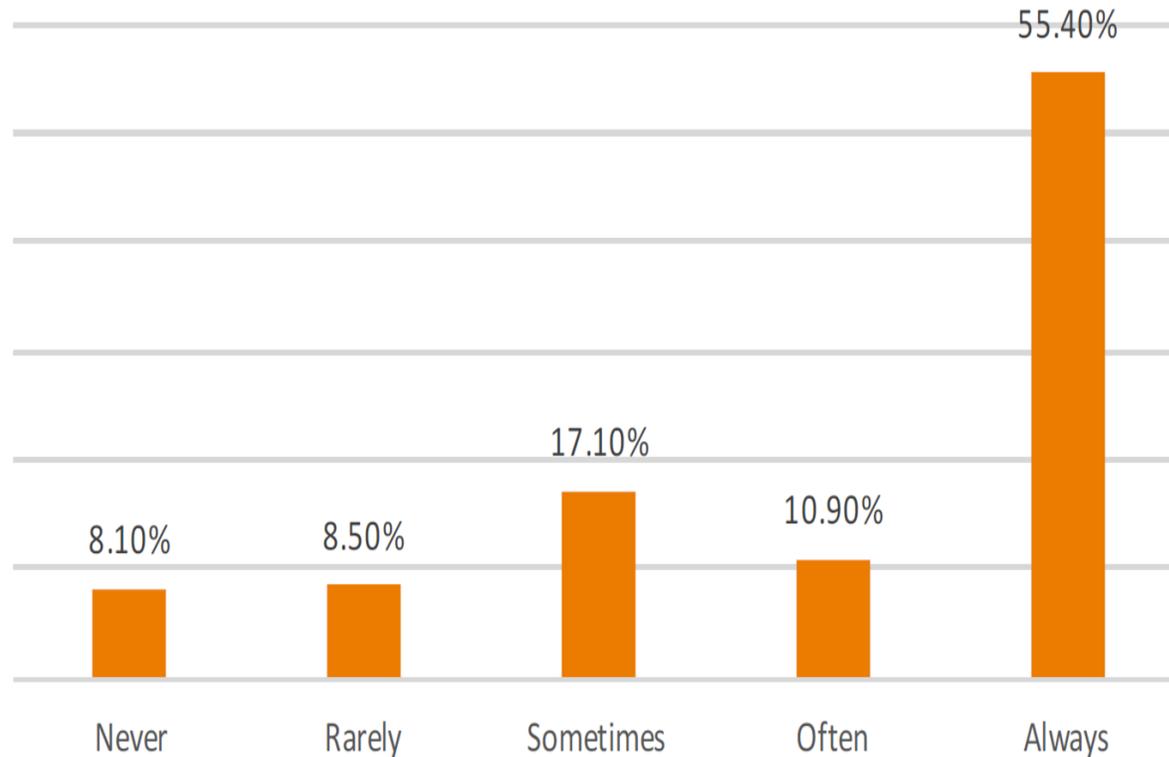
- One common measure of female empowerment is the extent to which women accept domestic violence.
- Participants were asked whether they agree with the statement, “I think a women should tolerate violence in order to keep her family together.”
- In the baseline, 60% of participants either agreed or strongly agreed with this statement.
- In the months after training, agreement declines.

Part V Building on Foundational Training

- The Women in Factories Program begins with Foundational Training.
- Foundational Training is a nine hour curriculum provided to all workers in a factory.
- There are 7 Modules covering communication, managing work and career, gender awareness, personal hygiene and reproductive health.
- Participants in AT would have already completed Foundational Training.
- An important question concerns whether there is duplication of learning between FT and AT.
- To explore the “duplication of curriculum” question, ceiling effects analysis is performed.
- That is, are AT participants already familiar with the AT curriculum as a consequence of completing the FT curriculum?
- Analysis of the AT baseline indicates that for nearly all variables measured at both the FT and the AT, there is only one ceiling effect.
- Thus, the AT provides an important opportunity to reaffirm the lessons emphasized in FT.

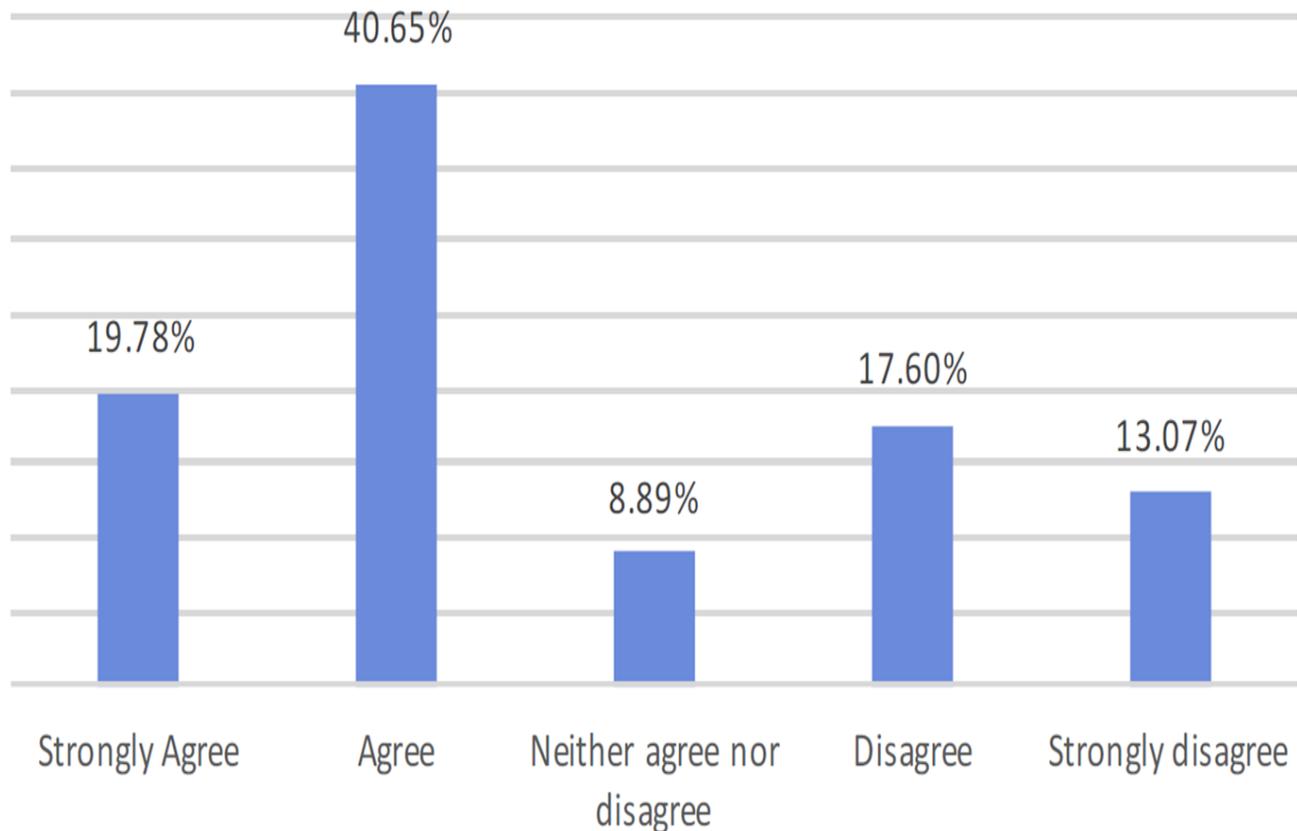
Ceiling Effects- Example of No Ceiling Effects

How often do you use boiled or purified water?



- Boiling water before use eliminates most harmful bacteria that can make workers and their families sick.
- Boiling water is a practice emphasized in FT and AT.
- In the baseline, 55.4% of participants report always boiling water.
- AT, then, is an important opportunity to reaffirm the practice.

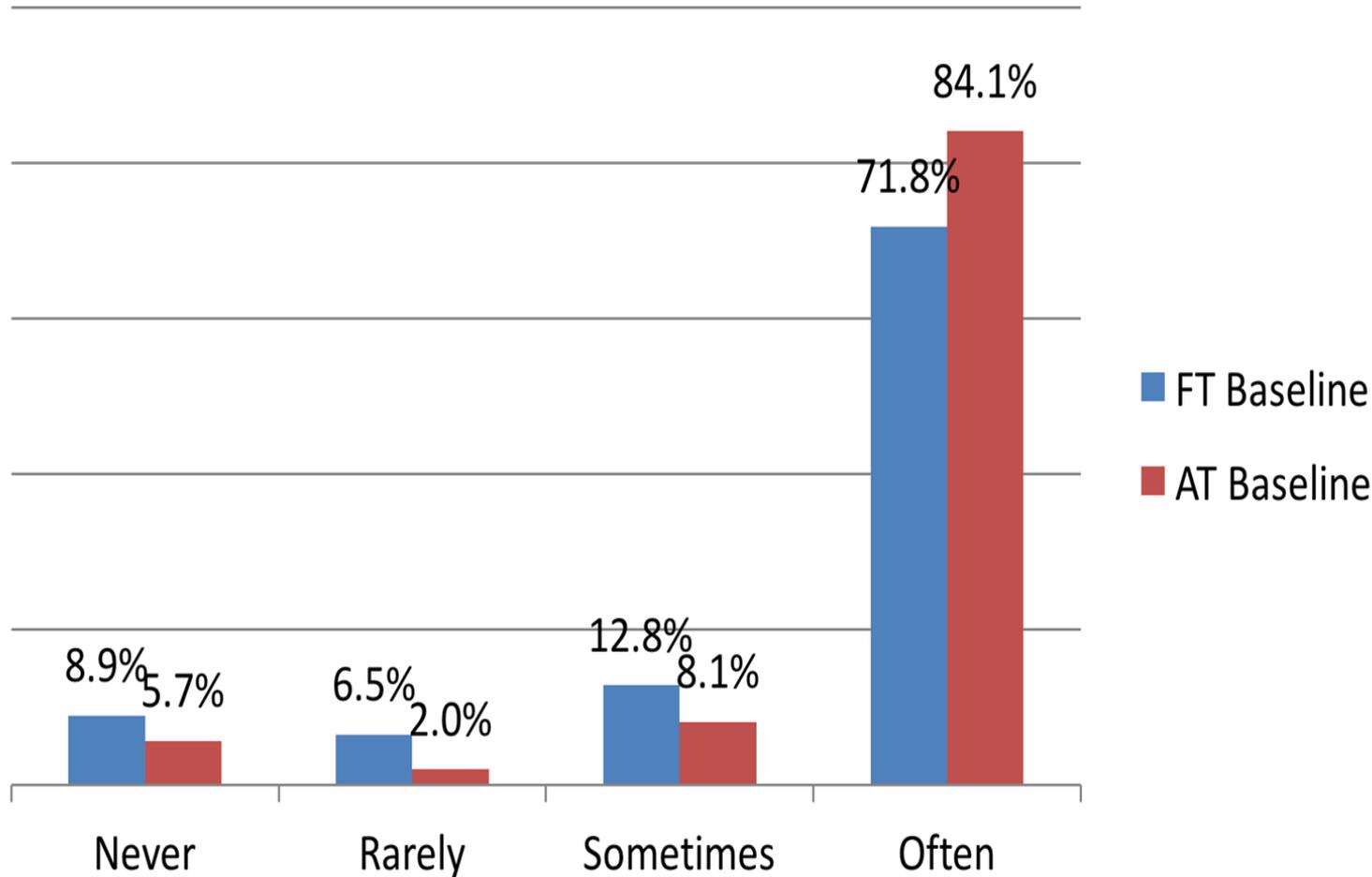
I think a woman should tolerate violence in order to keep her family together.



- Willingness to tolerate violence toward women is a commonly used indicator of low female status.
- 60% of participants in the AT baseline agree or strongly agree that women should be willing to tolerate violence to keep their family together.
- Reaffirming the right of women to be free of violence is an important topic to return to in the AT program.

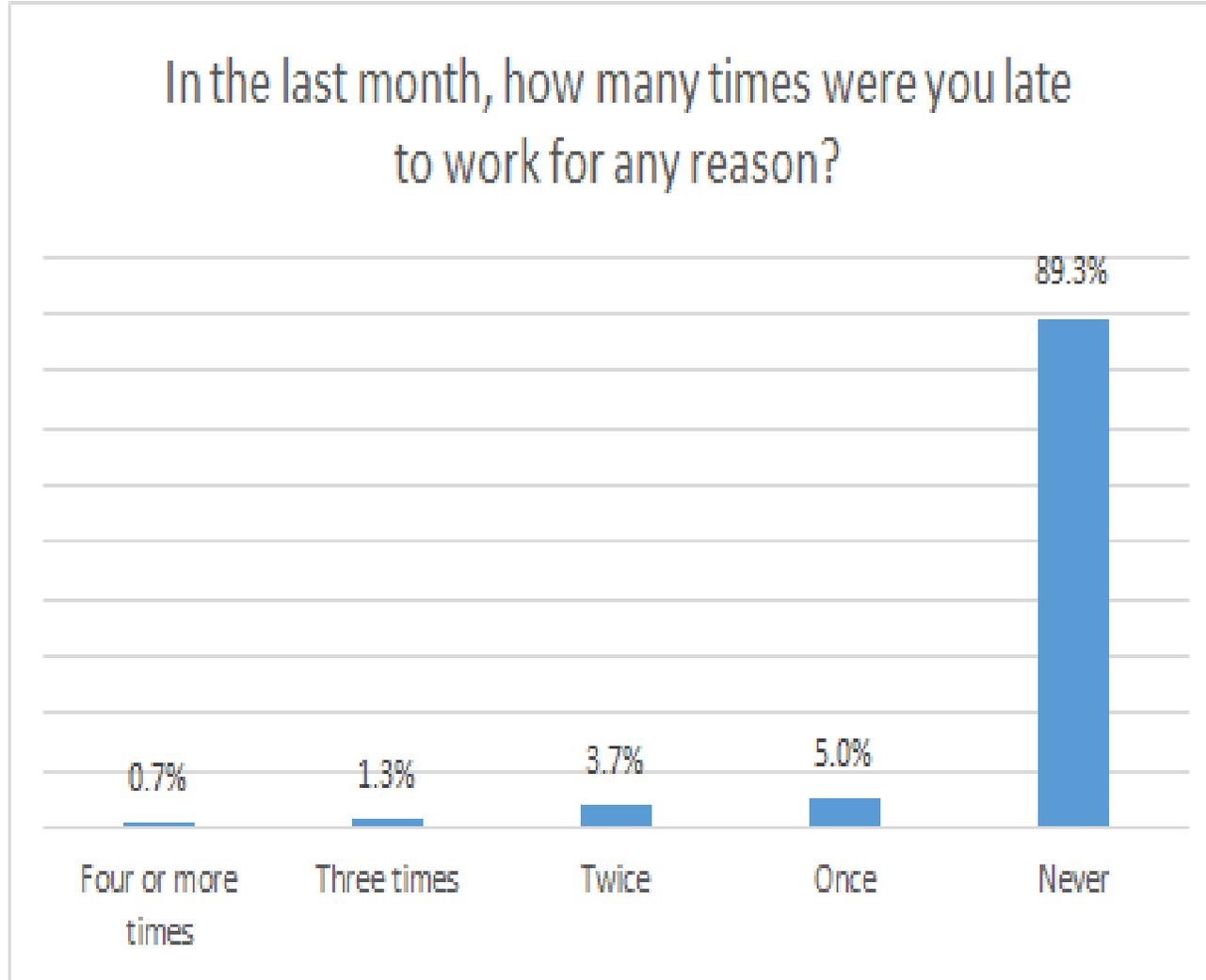
Possible Ceiling Effects- Breakfast in Bangladesh

How often do you eat breakfast?



- A ceiling effect is possibly observed for eating breakfast.
- However, eating breakfast emerges as a critical mediator for such training outcomes as reduced dizziness at work.

Possible Ceiling Effects- Latecomings in Bangladesh



- Participants in Bangladesh are rarely late to work.
- Late-coming is more common in India.

Sanitary Napkin Training Temporarily Effective in FT training, but not AT

VARIABLES	(1) FOUNDATIONAL TRAINING: How often do you use sanitary napkins during your menstrual cycle?	(2) ADVANCED TRAINING: How likely are you to use sanitary napkins during your menstrual cycle?
justtrained	0.204** (0.0882)	0.0745 (0.0893)
trainedlongago	0.0803 (0.151)	0.0500 (0.105)
Bangladesh	-0.134 (0.202)	1.497*** (0.130)
Constant	3.144*** (0.330)	2.274*** (0.190)
Observations	1,545	2,333
Number of participant	900	1,267

Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

- Women are taught to use sanitary napkins in both the AT and the FT.
- Use of sanitary napkins is connected with improved health outcomes.
- A treatment effect is initially observed during FT but there is no long-term effect nor is a treatment effect observed as a consequence of AT.
- Limits on the use of sanitary napkins may be a consequence of lack of access rather than training.

*Note regional differences in AT

VI Understanding the Dynamics of the AT Program

Simultaneous Equation Modeling (SEM)

- The analysis of training conducted on the outcome variables indicates significant treatment effects.
- Simultaneous equation estimation explores the relationship among variables and reveals the path through which Advanced Training reaches its ultimate objectives.
- Training can be visually represented as a 'web' of interconnected variables.
- The slides below present a schematic diagram for each training theme. Text explains the causal links.
- See the Appendix for an explanation of SEM analysis.

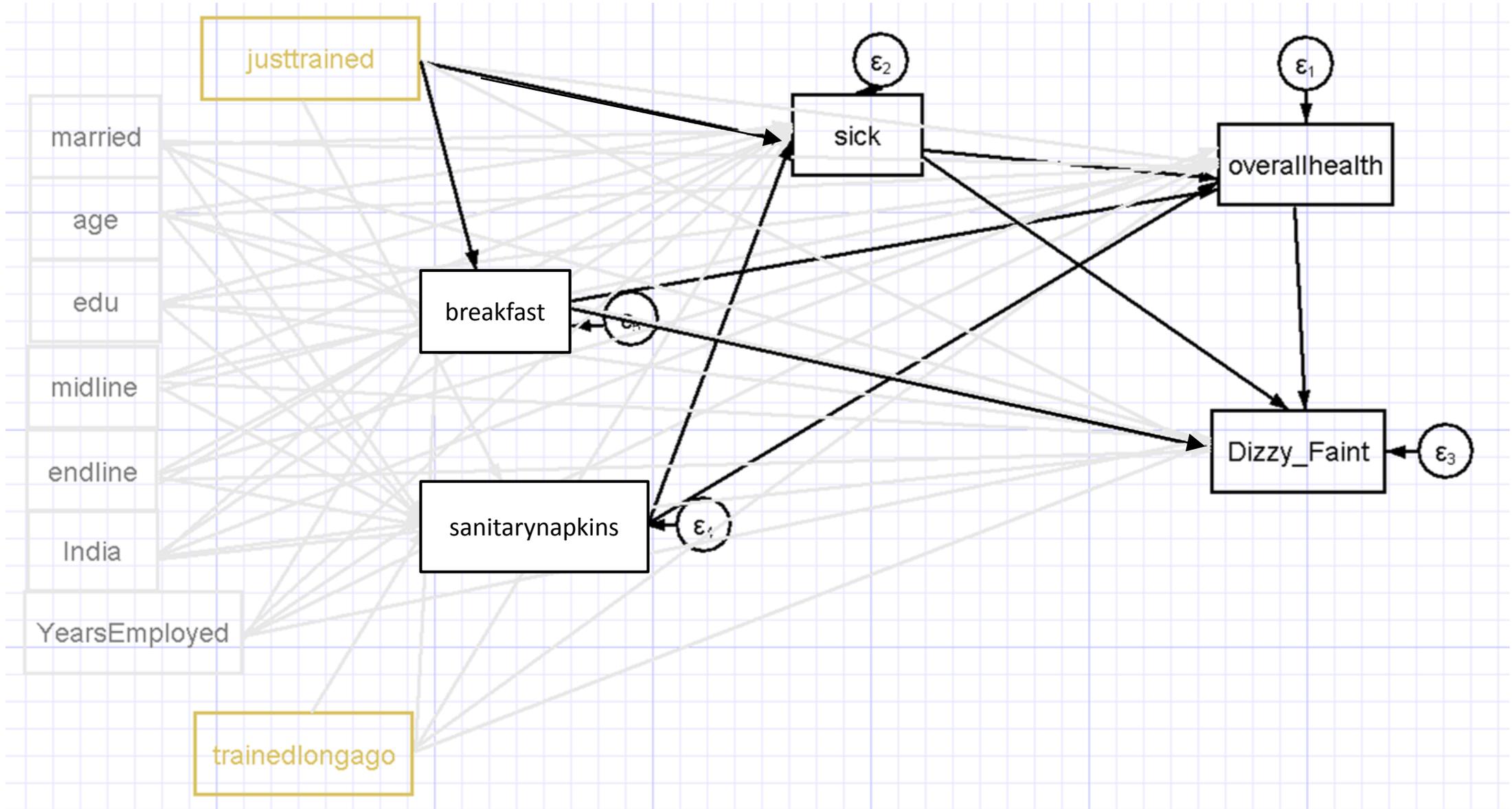
Unit 1: Health and Nutrition

Health, Mental Health, Family Health

Worker Health

- Breakfast and sanitary napkins both have an impact on a worker's overall health.
- How often a person eats breakfast also impacts how often they feel dizzy or faint at work.
- Sanitary napkin usage impacts how often a person is sick.
- Training has an impact on how often a person eats breakfast in the short term, but not in the long term.
- Training does not have an impact on sanitary napkin usage.
- Training was found to have a short term effect during Foundational Training but this effect did not continue in the long term or into the Advanced Training.

Worker Health



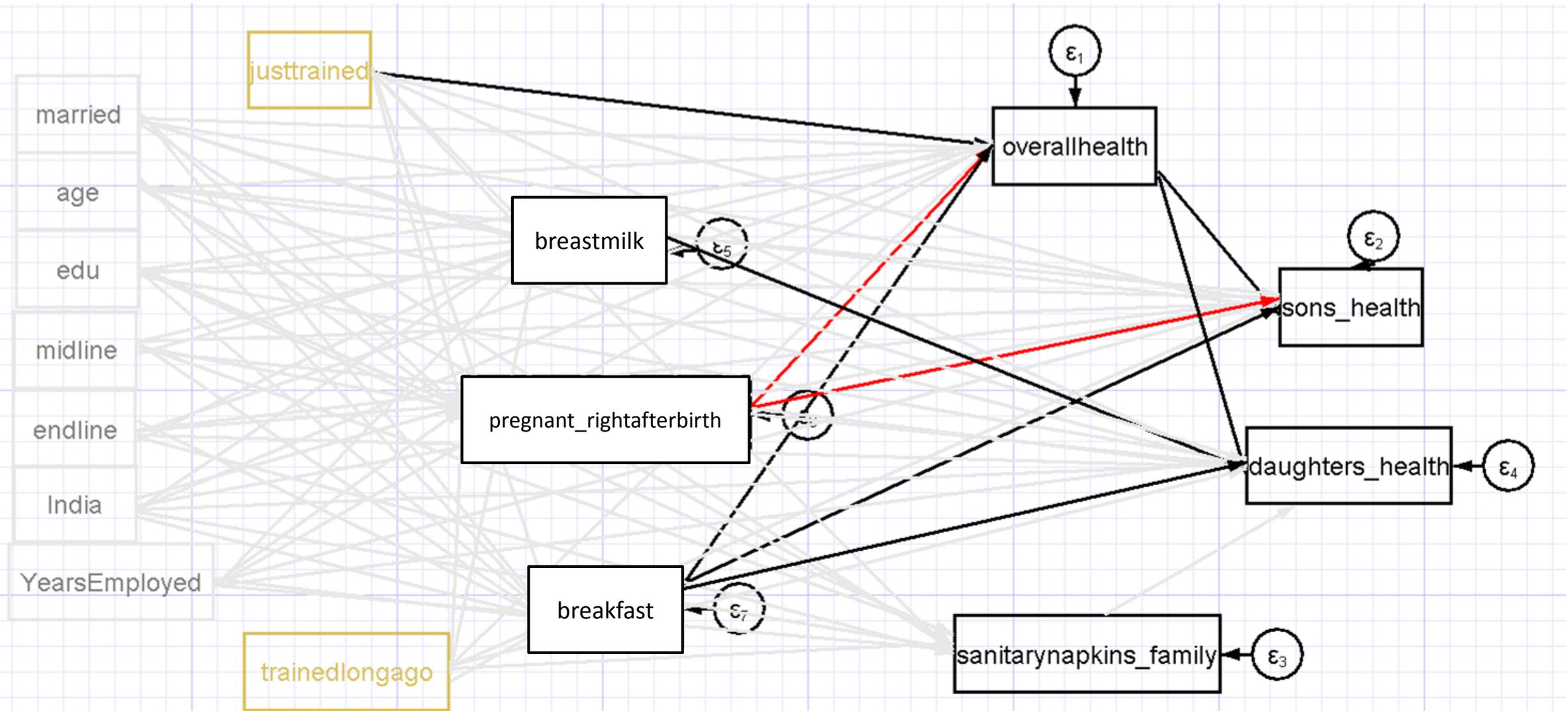
Worker Health Regression Results

VARIABLES	(1) overallhealth	(2) sick	(3) Dizzy_Faint	(4) sanitarynapkins	(5) breakfast
sick	0.140*** (0.0219)		0.354*** (0.0199)		
sanitarynapkins	0.106*** (0.0183)	0.0491*** (0.0172)			
breakfast	0.0491** (0.0199)		0.0341* (0.0178)		
justtrained	0.0105 (0.0585)	0.0942* (0.0556)	-0.00701 (0.0526)	0.0815 (0.0674)	0.105* (0.0618)
trainedlongago	0.0932 (0.0880)	0.135 (0.0837)	-0.000850 (0.0792)	0.0219 (0.101)	0.0543 (0.0931)
overallhealth			0.0574*** (0.0186)		
Constant	2.760*** (0.164)	4.395*** (0.118)	2.694*** (0.150)	3.829*** (0.119)	3.087*** (0.109)
Observations	2,303	2,303	2,303	2,303	2,303

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Family Health

- How often a worker eats breakfast impacts her own health and the health of her daughters and sons.
- Believing breastmilk is good for babies has a positive impact on the health of her daughters.
- Sanitary napkin use by the women in the worker's family is not impacted by the training and does not have an impact on her daughter's health.
- Training has a positive impact in the short term on a worker's overall health.
- When the worker is healthier, her children are also healthier.
- There is a counterintuitive relationship between understanding that it is not healthy to be pregnant right after birth and the health of the worker and her son.
- This effect may be due to a salience bias, e.g., as a worker learns more about health she becomes more critically aware of her own and her children's health.

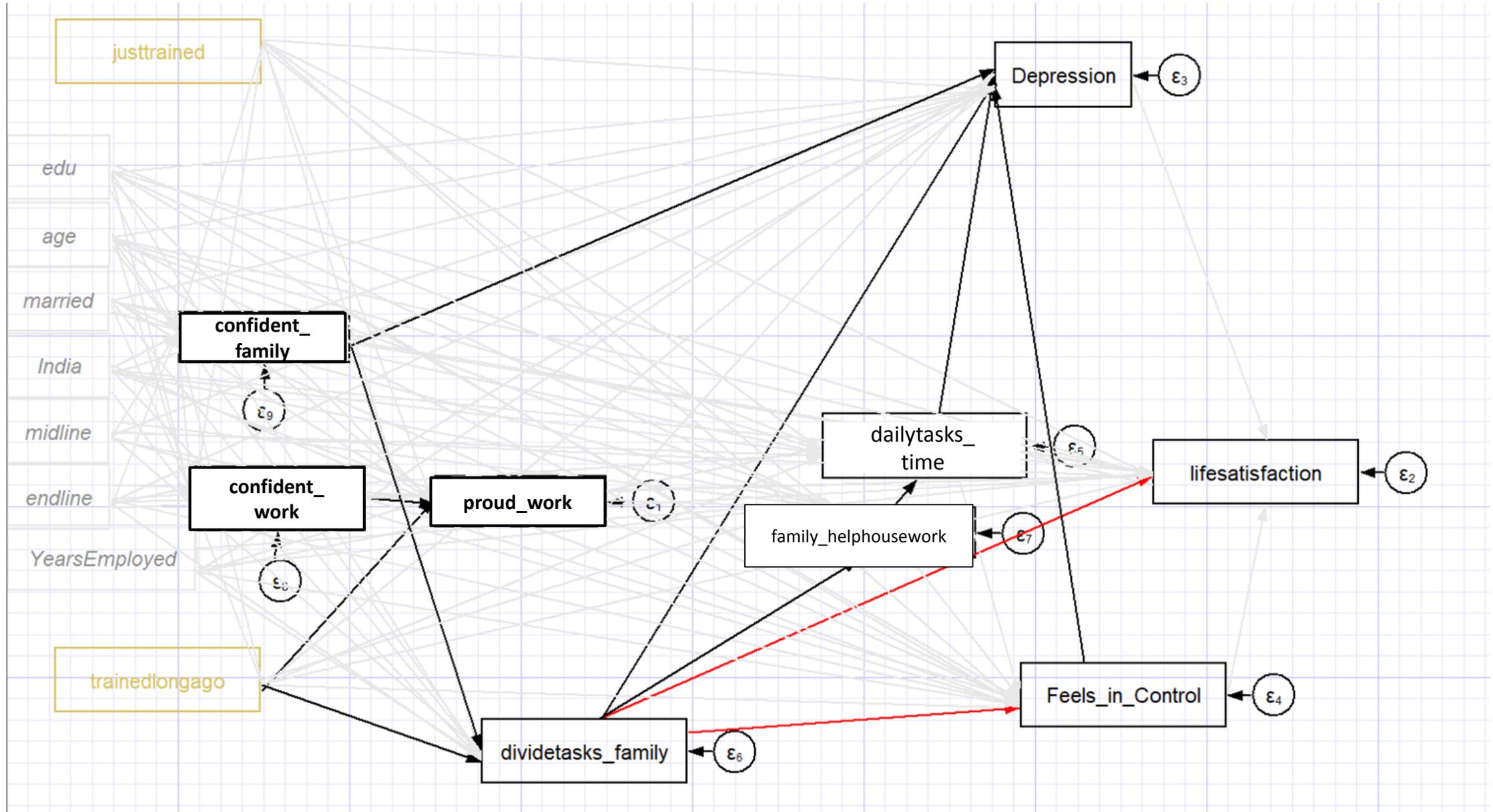


Family Health Regression Results

VARIABLES	(1) overallhealth	(2) sons_health	(3) sanitarynapkins_family	(4) daughters_health	(5) breastmilk	(6) pregnantrightafterbirth	(7) breakfast
overallhealth		0.552*** (0.0357)		0.517*** (0.0399)			
sanitarynapkins_family				0.00248 (0.0302)			
breastmilk		0.0491 (0.0383)		0.108*** (0.0426)			
pregnantrightafterbirth	-0.0906*** (0.0308)	-0.0653** (0.0255)		0.0106 (0.0284)			
breakfast	0.119*** (0.0387)	0.0594* (0.0330)		0.0955*** (0.0374)			
justtrained	0.286*** (0.117)	-0.0289 (0.0964)	0.0572 (0.158)	-0.0930 (0.107)	0.156 (0.112)	0.144 (0.165)	0.0563 (0.131)
trainedlongago	0.235 (0.172)	-0.0277 (0.141)	0.0138 (0.232)	-0.166 (0.157)	0.112 (0.165)	-0.00252 (0.242)	0.196 (0.193)
Constant	3.264*** (0.301)	1.436*** (0.292)	2.375*** (0.370)	0.782*** (0.327)	3.483*** (0.263)	2.273*** (0.386)	2.749*** (0.307)
Observations	530	530	530	530	530	530	530

Standard errors in parentheses
 **** p<0.01, ** p<0.05, * p<0.1

Worker Mental Health



Worker Mental Health

- The importance of confidence as the cornerstone for many different aspect of training emerges in the mental health module.
- Confidence is a mediating variable in many of the final outcomes.
- When a worker is confident at work, she is more likely to be proud of the work she does.
- When a worker is confident with her family, she is less depressed.
- When a worker is confident with her family, she is more likely to speak with them about dividing home tasks to ease her work burden.
- When a worker has spoken with her family about dividing tasks, her family is more likely to help with housework and she reports less depression.
- When a worker's family helps with housework, she has more time to finish her daily tasks and is less depressed.
- Training has an impact in the long term on whether a worker is proud of her work and whether she has spoken to her family about dividing tasks.
- Workers also report less depression when they feel in control of their lives.
- There is an inverse relationship between whether a worker has spoken to her family about dividing tasks and whether she feels in control of her life and her life satisfaction.
- Such an outcome can occur if a worker has spoken with members of her family about dividing tasks, but the family has not actually helped out. She may then feel even less in control of her life and less satisfied overall.

Worker Mental Health Regression Results

VARIABLES	(1) <u>proud work</u>	(2) <u>lifesatisfaction</u>	(3) <u>Depression</u>	(4) <u>Feels in Control</u>	(5) <u>dailytasks time</u>	(6) <u>dividetasks family</u>	(7) <u>family helphousework</u>	(8) <u>confident work</u>	(9) <u>confident family</u>
<u>proud work</u>		0.0150 (0.0366)	0.0132 (0.0240)						
<u>Depression</u>		-0.0213 (0.0321)							
<u>Feels in Control</u>		-0.0268 (0.0259)	0.196*** (0.0165)						
<u>dailytasks time</u>		-0.0268 (0.0261)	0.0346** (0.0171)	0.00666 (0.0221)					
<u>dividetasks family</u>		-0.0943*** (0.0361)	0.0500** (0.0237)	-0.0540* (0.0297)			0.184*** (0.0260)		
<u>confident work</u>	0.452*** (0.0181)	-0.0550 (0.0358)	-0.0187 (0.0235)	0.0169 (0.0280)					
<u>confident family</u>		-0.00331 (0.0341)	0.0470** (0.0223)	0.0278 (0.0290)		0.316*** (0.0197)			
<u>family helphousework</u>				0.000424 (0.0224)	0.169*** (0.0205)				
<u>justtrained</u>	0.0657 (0.0532)	-0.0528 (0.0894)	-0.0556 (0.0587)	0.00480 (0.0750)	0.105 (0.0719)	0.0747 (0.0560)	0.0933 (0.0731)	-0.0268 (0.0554)	0.0442 (0.0601)
<u>trainedlongago</u>	0.138* (0.0798)	0.0108 (0.134)	-0.0864 (0.0880)	0.000632 (0.113)	0.159 (0.108)	0.164* (0.0840)	0.141 (0.110)	0.0771 (0.0901)	0.0724 (0.0902)
Constant	2.368*** (0.120)	2.871*** (0.279)	2.382*** (0.176)	3.814*** (0.213)	2.818*** (0.156)	2.806*** (0.130)	3.595*** (0.169)	4.021*** (0.110)	4.048*** (0.0969)
Observations	2,255	2,255	2,255	2,255	2,255	2,255	2,255	2,255	2,255

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

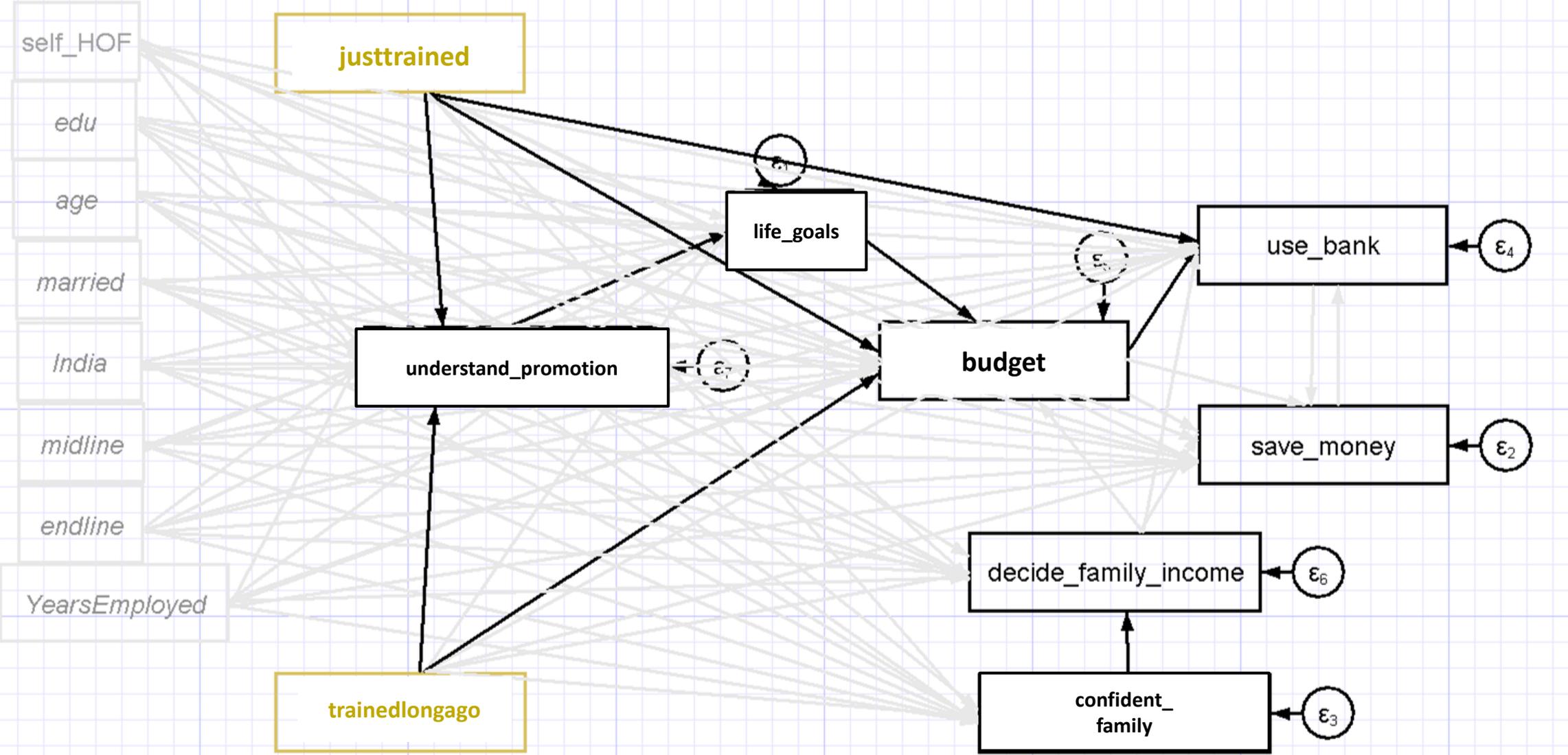
Unit 2: Functional Literacy and Personal Finance

Financial Planning

Financial Planning

- Understanding how to get a promotion has an impact on whether a worker has life goals. A promotion may help her see a path to achieving her goals through a better position and higher pay.
- Having life goals impacts whether a worker uses a budget.
- Using a budget impacts whether a worker uses a bank.
- Training has both a short and long term impact on whether a worker understands how to get a promotion and whether she uses a budget.
- Training also has a short term impact on whether a worker uses a bank.
- Neither training nor other mediating variables have an impact on whether a worker is actually able to save money.
- If a worker is confident voicing her opinion with her family, she is more likely to have a say in deciding how to spend family income.
- Training does not have an effect on a worker's confidence at home.

Financial Planning



Financial Planning Regressions Results

VARIABLES	(1) lifegoals	(2) save_money	(3) confident_voiceopinion	(4) use_bank	(5) budget	(6) decide_family_income	(7) understand_promotion
lifegoals		0.00916 (0.0103)			0.301*** (0.0292)		
use_bank		0.387 (1.182)					
budget		0.00857 (0.0446)		0.0395* (0.0232)			
decide_family_income		0.0345 (0.0213)		-0.00388 (0.0350)	0.0687 (0.0571)		
justtrained	0.0139 (0.0533)	0.0163 (0.107)	0.0118 (0.0553)	0.0923* (0.0530)	0.302*** (0.0821)	0.0216 (0.0285)	0.135** (0.0620)
trainedlongago	0.0684 (0.0792)	0.0429 (0.114)	0.0786 (0.0821)	0.0970 (0.0816)	0.434*** (0.122)	0.0676 (0.0423)	0.242*** (0.0921)
understand_promotion	0.272*** (0.0170)						
save_money				-0.0961 (0.929)			
confident_family						0.0390*** (0.0102)	
Constant	2.966*** (0.119)	-0.00981 (0.646)	4.229*** (0.102)	0.563** (0.222)	1.440*** (0.195)	0.577*** (0.0679)	3.964*** (0.114)
Observations	2,546	2,546	2,546	2,546	2,546	2,546	2,546

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

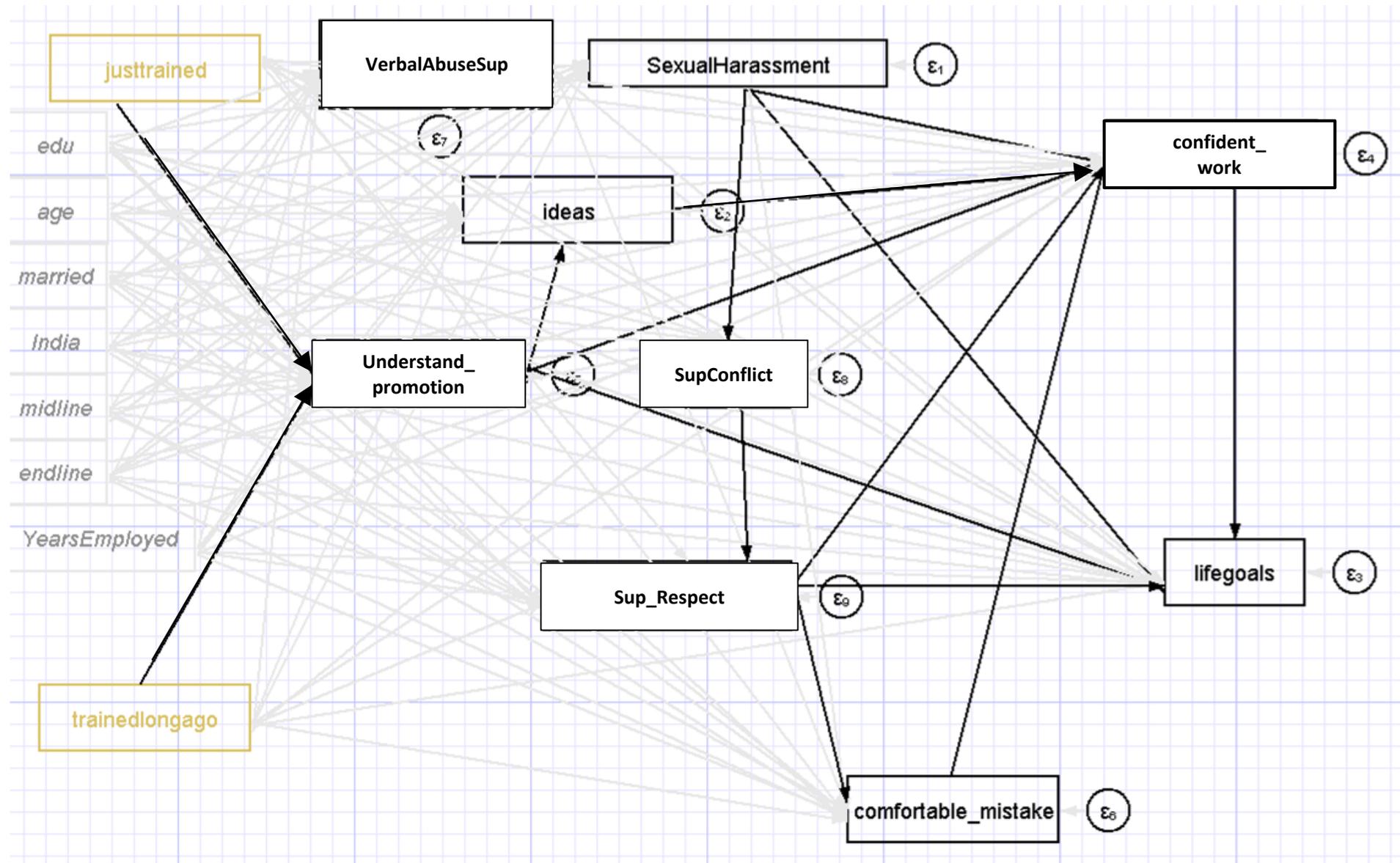
Unit 3: Communication

Supervisor Relationship, Coworker Relationship

Supervisor Relationship and Understanding of Factory Dynamics

- Understanding how to receive a promotion is key to many other variables such as having life goals, offering ideas at work and being confident at work.
- Training impacts understanding how to receive a promotion in the short and long term in this model and is the key to many aspects of a better work environment.
- Decreased sexual harassment in the workplace has an impact on confidence, having life goals and how much conflict a worker has with her supervisor.
- Conflicts with supervisor impact whether a worker thinks her supervisor respects her.
- Whether a worker thinks her supervisor respects her impacts how comfortable she is making a mistake at work, whether she has life goals and whether she has confidence in the workplace.
- Being comfortable telling someone she has made a mistake at work has an impact on her confidence.
- Because confidence at work is central, it is very important to understand how much a worker's relationship with her supervisor impacts confidence.

Supervisor Relationship and Understanding of Factory Dynamics



Supervisor Relationship Regression Results

VARIABLES	(1) SexualHarassment	(2) ideas	(3) lifegoals	(4) confident_opinion	(5) understand_promotion	(6) comfortable_mistake	(7) SupConflict	(8) Sup_Respect
SexualHarassment			0.120*** (0.0380)	0.0798** (0.0379)		0.0195 (0.0471)		
ideas			-0.000671 (0.0388)	0.114*** (0.0386)				
confident_work			0.218*** (0.0206)					
understand_promotion		0.0440*** (0.00969)	0.191*** (0.0188)	0.187*** (0.0184)				
SupConflict			0.0107 (0.0168)	0.0262 (0.0167)		0.0385* (0.0209)		0.0430* (0.0222)
Sup_Respect			0.0767*** (0.0171)	0.192*** (0.0167)		0.228*** (0.0198)		
justtrained	0.0108 (0.0307)	-0.00524 (0.0300)	0.0466 (0.0545)	-0.00964 (0.0543)	0.156** (0.0658)	-0.0541 (0.0679)	-0.0360 (0.0695)	0.0561 (0.0728)
trainedlongago	0.00215 (0.0455)	-0.0229 (0.0445)	0.100 (0.0807)	0.0199 (0.0804)	0.272*** (0.0973)	0.0847 (0.100)	-0.0346 (0.103)	0.158 (0.108)
comfortable_mistake				0.214*** (0.0171)				
Constant	3.661*** (0.0565)	0.411*** (0.0674)	1.638*** (0.197)	1.238*** (0.198)	3.993*** (0.121)	2.843*** (0.230)	3.362*** (0.128)	3.535*** (0.153)
Observations	2,217	2,217	2,217	2,217	2,217	2,217	2,217	2,217

Standard errors in parentheses

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

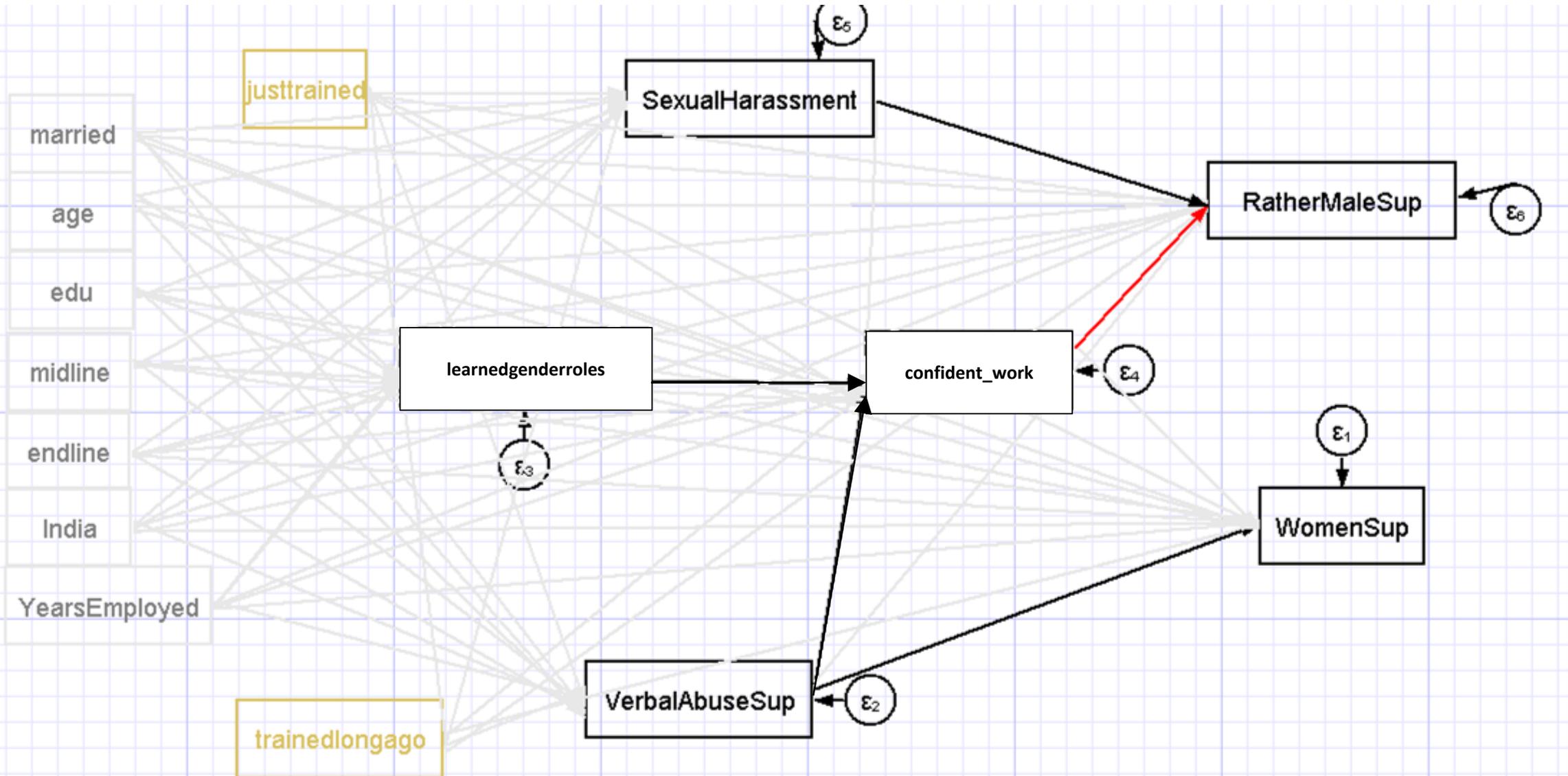
Unit 4: Gender, Social Status and Relationships

Gender at Work, Household Power, Children's Educational Opportunities

Gender at Work

- Whether a worker understands that gender roles are learned has an impact on her confidence at work.
- Less sexual harassment means a lower preference for a male supervisor.
- Less verbal abuse means a worker is more confident at work and believes women can be good supervisors
- Training does not have an impact on a worker's understanding of gender socialization.
- There is an interesting relationship between being confident and preferring a male supervisor.
- One reason that women might be rejecting female supervisors may be due to status considerations. Women are still seen as lower status than men, so for a female worker who is already lower-status by virtue of her own gender, it might be seen as a further demotion to work for a female supervisor.
- Similarly, women with expertise have less authority and influence than men with expertise.

Gender at Work



Gender at Work Regression Results

VARIABLES	(1) WomenSup	(2) VerbalAbuseSup	(3) learnedgenderroles	(4) confident_work	(5) SexualHarassment	(6) RatherMaleSup
VerbalAbuseSup	0.0536** (0.0263)			0.0545*** (0.0191)		0.00983 (0.0258)
learnedgenderroles				0.214*** (0.0192)		
SexualHarassment				0.0201 (0.0381)		0.168*** (0.0513)
justtrained	-0.0153 (0.0787)	-0.0387 (0.0592)	0.0774 (0.0580)	-0.0105 (0.0563)	0.00242 (0.0298)	0.0461 (0.0758)
trainedlongago	-0.151 (0.117)	-0.107 (0.0881)	0.0914 (0.0864)	0.0937 (0.0838)	-0.0201 (0.0443)	-0.0560 (0.113)
confident_work	-0.0236 (0.0270)					-0.0815*** (0.0260)
Constant	2.754*** (0.201)	3.566*** (0.109)	3.996*** (0.107)	2.873*** (0.189)	3.646*** (0.0550)	2.050*** (0.256)
Observations	2,556	2,556	2,556	2,556	2,556	2,556

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Regional Differences in Perceptions of Learned Gender Roles

VARIABLES	(1) BANGLADESH: Most differences in men and women's behavior are learned while growing up.	(2) INDIA: Most differences in men and women's behavior are learned while growing up.
justtrained	-0.0582 (0.152)	0.131*** (0.0451)
trainedlongago	0.0185 (0.189)	0.115 (0.108)
Constant	3.983*** (0.137)	3.495*** (0.262)
Observations	1,386	1,326
Number of participant	713	737

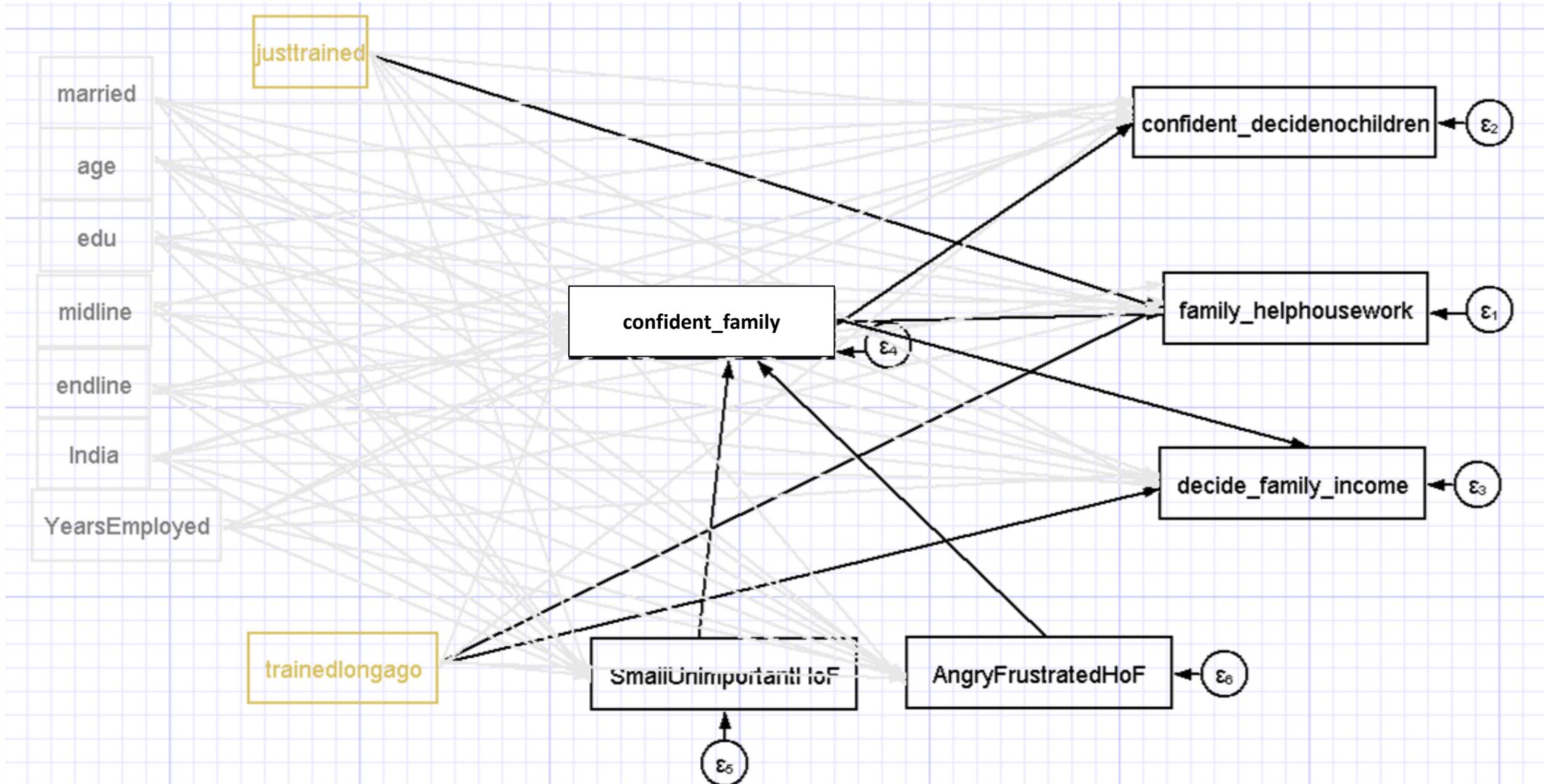
Robust standard errors in parentheses

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

Household Power

- Confidence in the family is the key mediating variable to outcomes such as a worker being confident she can decide how many children to have, her family helping with the housework and childcare and whether she makes decisions about how her family income is spent.
- Feeling small and unimportant when she talks with her head of family and feeling angry or frustrated when she talks with her head of family impact her confidence.
- Training has no direct impact on confidence.
- However, training in the short and long term impacts whether her family helps with housework and childcare.
- Training in the long term also impacts whether she helps decide how the family income is spent.

Household Power



Household Power Regression Results

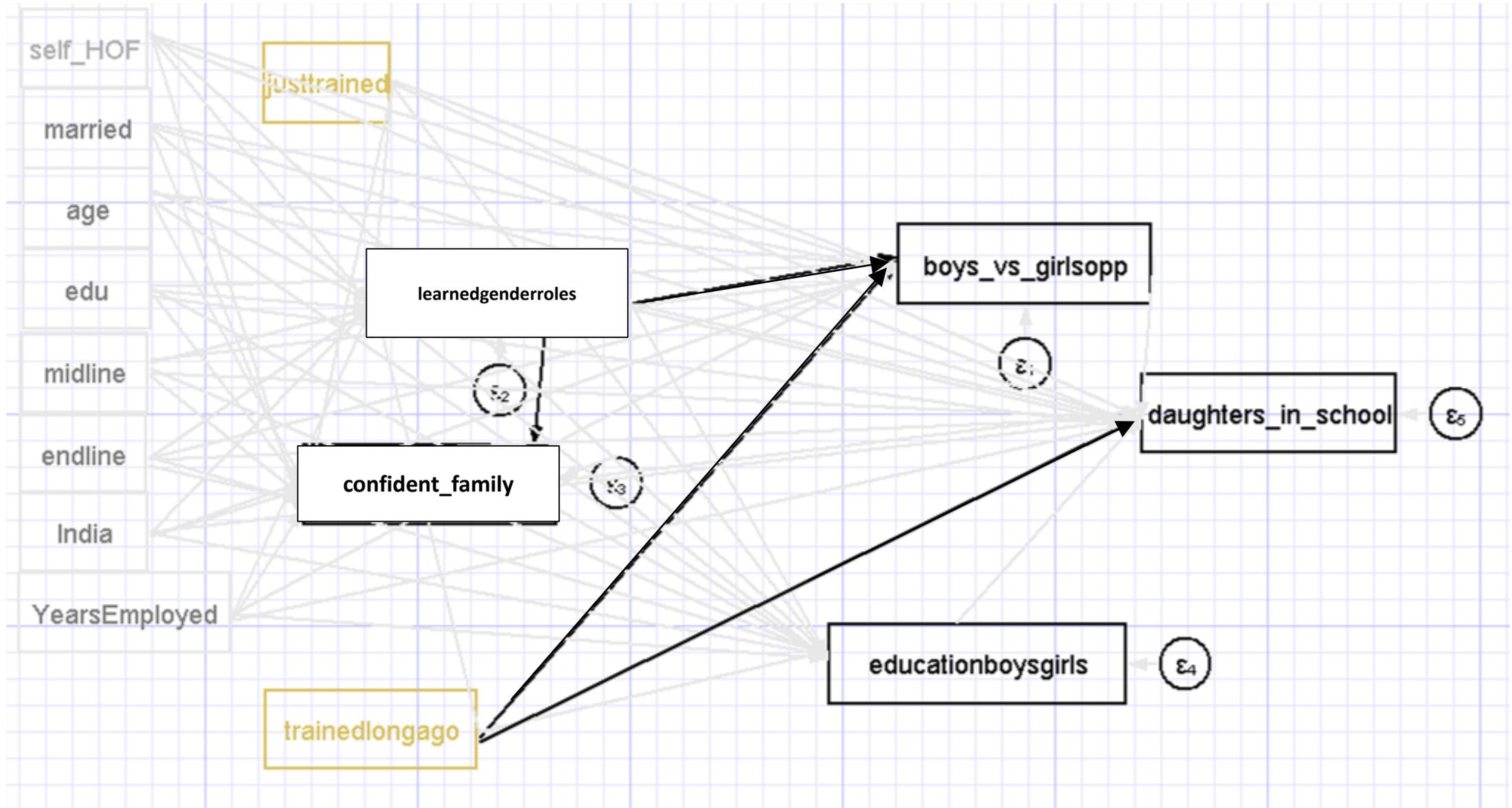
VARIABLES	(1) family_help	(2) housework_confident	(3) decidenochildren	(4) decide_family_income	(5) confident_voiceopinion	(6) SmallUnimportantHoF	(6) AngryFrustratedHoF
SmallUnimportantHoF					0.0399*		
					(0.0207)		
AngryFrustratedHoF					0.101***		
					(0.0238)		
justtrained	(0.0947) 0.225***	(0.0817) 0.0286	(0.0398) 0.0455	(0.0794) -0.00898	(0.0940) 0.0131	(0.0817) -0.000580	
trainedlongago	(0.0753) 0.338***	(0.0650) -0.00690	(0.0317) 0.104**	(0.0631) 0.0507	(0.0748) 0.118	(0.0650) 0.0406	
	(0.113)	(0.0975)	(0.0475)	(0.0947)	(0.112)	(0.0975)	
confident_family	0.319***	0.398***	0.0284**				
	(0.0262)	(0.0226)	(0.0110)				
Constant	2.920***	2.013***	0.150*	3.616***	4.087***	4.318***	
	(0.209)	(0.180)	(0.0879)	(0.180)	(0.176)	(0.153)	
Observations	2,039	2,039	2,039	2,039	2,039	2,039	

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Gender and Children's Education Opportunities

- Understanding that gender roles are learned has an impact on a worker's confidence in her family.
- It also has an impact on whether or not she thinks boys and girls should have the same opportunities.
- Training has a long term impact on whether or not she thinks boys and girls should get the same opportunities and whether or not all of her school age daughters are in school.

Gender & Children's Educational Opportunities



Gender & Children's Educational Opportunities Regression Results

VARIABLES	(1) genderedwork	(2) boys_vs_girlsopp	(3) learnedgenderroles	(4) confident_family	(5) educationboysgirls	(6) daughters_in_school
genderedwork		-0.103*** (0.0207)		-0.118*** (0.0204)	0.192*** (0.0311)	0.000108 (0.00811)
boys_vs_girlsopp						-0.00491 (0.0100)
learnedgenderroles		0.272*** (0.0228)		0.195*** (0.0226)	0.0374 (0.0344)	0.00464 (0.00918)
confident_family						0.00994 (0.0102)
educationboysgirls						0.00547 (0.00631)
justtrained	0.0891 (0.0690)	0.0127 (0.0560)	0.0792 (0.0625)	0.0122 (0.0553)	0.0224 (0.0843)	-0.0240 (0.0214)
trainedlongago	0.316** (0.135)	0.241** (0.110)	0.142 (0.122)	0.211* (0.108)	-0.0855 (0.165)	0.0785* (0.0421)
Constant	1.821*** (0.172)	3.188*** (0.177)	4.116*** (0.155)	3.442*** (0.175)	2.455*** (0.266)	0.00115 (0.0795)
Observations	1,623	1,623	1,623	1,623	1,623	1,623

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

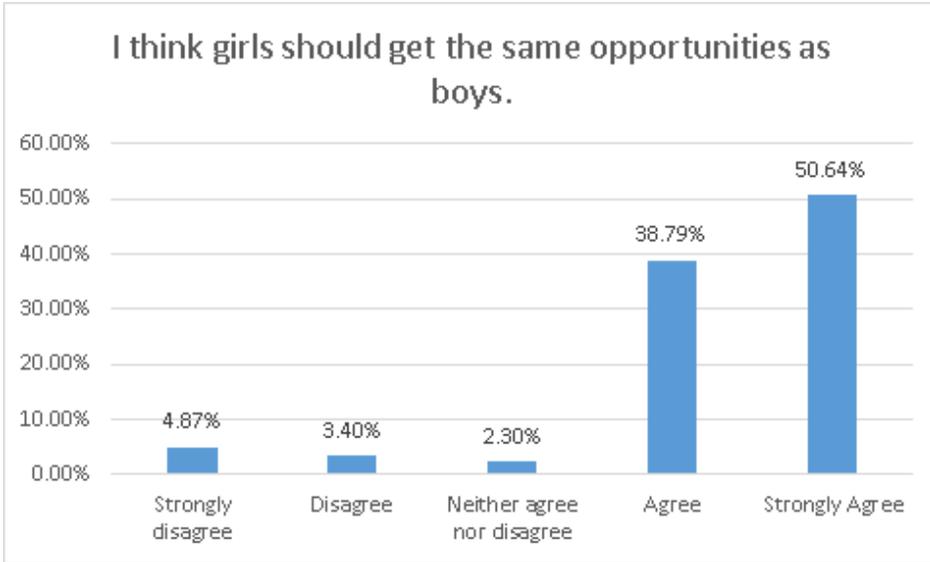
Belief Outcomes for Girls and Boys

VARIABLES	(1) genderedwork	(2) boys_vs_girlsopp	(3) learnedgenderroles	(4) confident_family	(5) educationboysgirls
genderedwork		-0.112*** (0.0164)		-0.141*** (0.0163)	0.149*** (0.0246)
learnedgenderroles		0.303*** (0.0184)		0.204*** (0.0183)	0.0710*** (0.0275)
justtrained	0.102 (0.0663)	0.0379 (0.0535)	0.0555 (0.0592)	0.0418 (0.0532)	0.00762 (0.0800)
trainedlongago	0.218** (0.0991)	0.134* (0.0800)	0.110 (0.0884)	0.114 (0.0796)	-0.128 (0.120)
Constant	1.904*** (0.121)	3.197*** (0.130)	3.968*** (0.108)	3.620*** (0.129)	2.463*** (0.194)
Observations	2,537	2,537	2,537	2,537	2,537

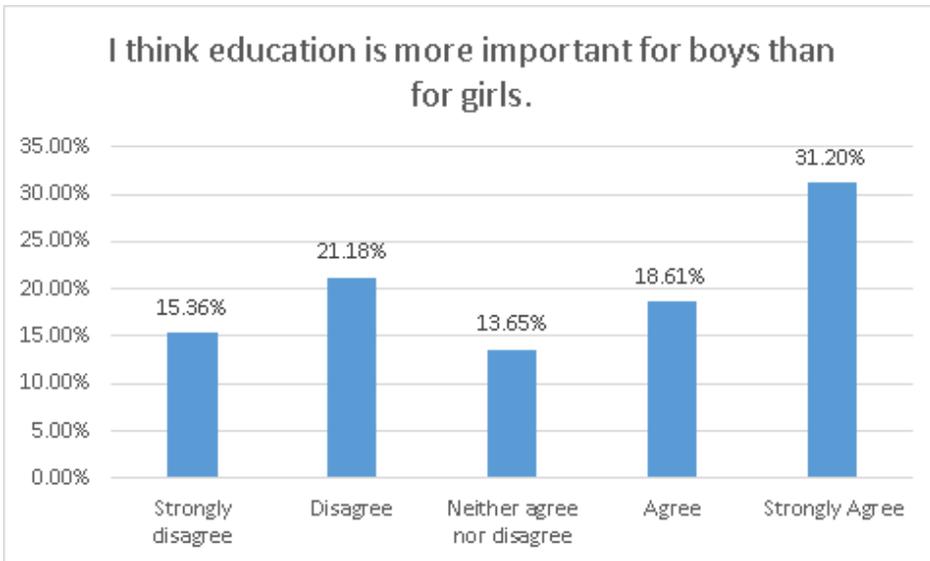
Standard errors in parentheses

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

Belief Outcomes for People without Daughters



Most people (~90%) already believe at baseline that boys and girls should get the same opportunities.



However, only about half of people think education is equally important for boys and girls.

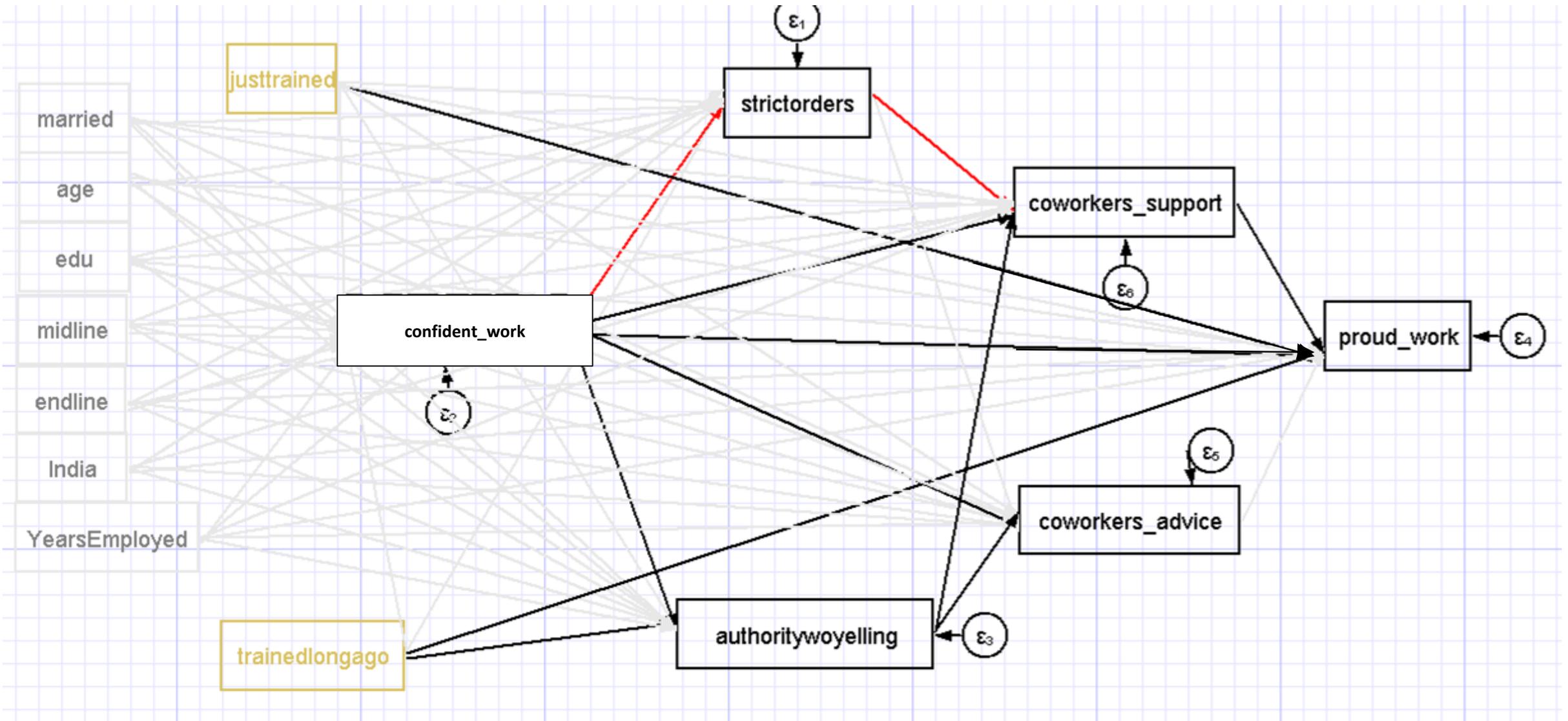
Unit 5: Leadership

Leadership

Coworker Relationship and Work Environment

- Confidence impacts how often a person asks her coworkers for support, how often her coworkers come to her for advice and whether or not she believes she can exercise authority without yelling.
- When she believes she can exercise authority without yelling, she is more likely to seek the support of her coworkers and her coworkers are more likely to come to her for advice.
- When she is more likely to seek the support of her coworkers she is also more proud of the work she does in the factory.
- Being confident at work also impacts whether she is proud of her work.
- Training has both a short and long term impact on whether she can exercise authority without yelling.
- There is a negative relationship between being confident at work and thinking workers must be motivated by strict orders, which in turn has a negative impact on whether her coworkers ask for support.

Coworker Relationship & Work Environment



Work Environment Regression Results

VARIABLES	(1) strictorders	(2) confident_opinion	(3) authoritywoyelling	(4) proud_work	(5) coworkers_advice	(6) coworkers_support
confident_work	-0.123*** (0.0258)		0.253*** (0.0218)	0.381*** (0.0177)	0.0796*** (0.0207)	0.248*** (0.0171)
coworkers_advice				-0.0267 (0.0164)		
coworkers_support				0.206*** (0.0191)		
justtrained	0.0340 (0.0753)	-0.00217 (0.0579)	0.0487 (0.0636)	0.0915* (0.0488)	0.0686 (0.0504)	-0.00548 (0.0417)
trainedlongago	-0.0202 (0.111)	0.110 (0.0855)	0.217** (0.0939)	0.154** (0.0721)		
strictorders					0.00302 (0.0156)	-0.0634*** (0.0129)
authoritywoyelling					0.107*** (0.0184)	0.201*** (0.0153)
Constant	2.997*** (0.172)	3.987*** (0.106)	2.713*** (0.145)	1.840*** (0.128)	2.085*** (0.152)	2.396*** (0.126)
Observations	2,542	2,542	2,542	2,542	2,542	2,542

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

VII Conclusions

- Training reduces absenteeism, late-coming, accidents and workforce turnover.
- Training does not affect pay or work hours.
- Training reduces the payment of production bonuses.
- Training increases the proportion of participants reaching their production target. Before training, 88 percent usually reach their production target. After training, 100 percent of participants report regularly reaching their target.
- The efficiency rate does not change over the course of treatment. Efficiency initially rises by about one percentage point but then returns to the baseline level by the endline.
- However, factories are increasing the production target.
- Training increases “at work” time by a factor of 0.02 by reducing late-coming and absenteeism.
- Training increases productivity by a factor of 0.39.
- By the end of the study, 57% of the original training group is still employed.
- The combined impact increases the implicit “at work” time by 100 hours per month.
- Thus, firms can recover the 99 hours of training investment time in about one month in the months after training is complete.

Training altered content knowledge, beliefs, confidence and behaviors and had impacts related to gender and empowerment.

After training participants were **more** likely to

- Understand how to earn a promotion
- Use boiled or purified water
- Use personal protective equipment
- Speak to their family about sharing tasks to reduce stress
- Have time to finish all tasks at home and work
- Be asked by coworkers for help or advice and
- Have their suggestions put in place by supervisors and managers.

After training participants were **less** likely to

- Be injured at work
- Agree with gender stereotypes about work assignments
- Prefer a male supervisor
- Believe that women do not make good supervisors and
- Believe that a women should tolerate violence to keep her family together.

Behaviors at home and work are determined in a system of knowledge and beliefs.

- Worker Health: Eating breakfast and using sanitary napkins improve health and reduce illness and feeling faint or dizzy at work.
- Family Health: Eating breakfast, breastfeeding and sanitary napkin use improve a women's health, which in turn improves the health of her children.
- Worker Mental Health: Confidence is the cornerstone for many different aspects of Advanced Training. Confidence at work improves pride at work. Confidence at home increases a women's probability of speaking with family members about dividing tasks. Sharing tasks then reduces depression and cognitive load.
- Financial Planning: Knowing how to get a promotion increases the probability of having life goals. Women with life goals are more likely to make a family budget. Having a budget increases the chance of having a bank account.

Empowerment is determined by family and factory context and beliefs and confidence.

- Communication: Decreased sexual harassment improves confidence at work, increases life goals and reduces conflict with supervisors. Reduced conflict with supervisors increases feelings of being respected. Feeling respected at work increases comfort seeking help with a mistake at work.
- Gender at work: Reduced gender stereotypes increase confidence at work. Reduced verbal abuse increases confidence and the belief that women can be good supervisors.
- Household Power: Confidence at home increases control over the number of children, whether family members help with housework and childcare and a woman's contribution to decisions about spending family income. Confidence is eroded when participants are made to feel small and unimportant or angry and frustrated by their interactions with family members.
- Gender Roles and Child Education: Understanding that gender roles are learned improves confidence in the family and increases the chance that a worker thinks her daughters should have the same opportunities as her sons and whether her daughters are in school.

Appendix Simultaneous Equation Estimation

- In standard analysis, we look at the impact of treatment on just one variable.
 - For example, we might wonder, “How does training impact how often a worker is sick?”
- In Simultaneous Equation Estimation, we are able to measure the impact of multiple variables on one another as a system.
 - For example, we might wonder, “How does training impact a worker’s knowledge of clean water? How does that in turn affect how often they boil their water? As a final outcome, how does that knowledge and behavior impact how often they are sick?”
- In this way, we are able to measure the full impact of training through mediating variables.
- This also enables us to take a holistic look at what factors make training most effective. For example, we have found that when training impacts a worker’s confidence, it makes other aspects of training more effective.

Sample of a simultaneous equation model

