



SEM Brief 4: Weekly Hours

Ana Antolin
Laura Babbitt
Drusilla Brown
Le Dang Trung

10 June 2020

Main conclusion: Workers in Better Work factories work 1.4 hours fewer than in non Better Work factories. The treatment channels are that workers in Better Work factories are more likely to be a member of a union and have representation channels within their factory, are more likely to be paid appropriately for their overtime work and are less likely to be paid by the piece.

1. Reduced Form

As reported in Brief 1, workers in Better Work factories work 1.4 hours per week fewer than workers in other factories, after controlling for demographic characteristics, time and factory characteristics.

2. Theory

Work hours are commonly thought to be determined by hourly pay, whether workers are paid by the piece and the voicing mechanism available in the factory.

The impact of hourly pay could be positive or negative. The higher the hourly compensation, the greater the remuneration for each additional hour of work. The substitution effect will induce greater work time. The income effect will reduce work effort.

Piece rate pay could induce workers to work fewer hours. Piece rate pay is commonly thought to increase output per hour, allowing workers to earn their pay in a shorter period of time.

Overtime may also be the result of coercion. Workers may also work overtime if they are afraid of losing their job. In contrast, overtime may be reduced if workers have stronger voicing mechanisms.

Overtime may also be affected by pay deception related to overtime. As a matter of law, overtime must be paid for any hours after the standard workday of eight to nine hours. However, it is not uncommon for factories to only pay overtime once a worker has completed the production target. As with hourly pay, paying for overtime according to the law can have a substitution and an income effect, leaving the over effect theoretically undetermined.

Consider first the reduced form Better Work treatment effect on the main theoretical variables. They are reported in Table 4.1. Better Work increases the probability that workers are being properly paid overtime, as reported in column 1. Better Work also reduces the probability that workers are being paid solely by the piece, as can be seen in column 2. Workers in Better Work factories also report stronger voicing mechanism, as reported in columns 3 – 5.

Perhaps contrary to expectation, workers in Better Work factories are more likely to fear losing their job, as reported in column 6. However, such an outcome is consistent with efficiency wage theory. Efficiency wage theory holds that employers offer an above-market compensation package in order to induce work effort and loyalty to the organization. As a consequence, work

is more desirable than the worker's outside option. Workers in Better Work factories, then, are more likely to fear losing their job.

However, we do not see a Better Work treatment effect on hourly compensation, as can be seen in column 7. Therefore, the efficiency wage mechanism must be working through other aspects of working conditions.

Test of the basic theory is reported in Table 4.2. Overtime hours decline with hourly pay, compliant pay for overtime and voicing mechanisms. Overtime pay rises with piece rate pay.

3. Simultaneous Equation Modeling (SEM)

We next use SEM to determine which of these channels is the mechanism through which Better Work reduces work hours. The treatment channels are depicted in Figure 4.1. Note that once theoretical variables have been endogenized to the Better Work treatment, the Better Work treatment variable is no longer significant in explaining work hours.

In the SEM, Better Work is affecting whether workers are being properly paid for overtime, voicing mechanisms (Representation, Help, Union Membership), whether workers are being paid by the piece and whether workers fear losing their job.

The length of the workweek is affected by whether workers are being properly paid for overtime, worker voice, hourly pay and whether workers are paid by the piece. Recall that the treatment effect of hourly pay, overtime calculations and piece rate pay have an ambiguous effect on work hours. As can be seen in Figure 4.1, the higher hourly pay and properly paying for overtime reduce the length of the workweek while offering incentive pay makes the workweek longer.

So, what is going on here? Paying workers legally for overtime increases the wages earned in the hours just after the end of the regular workday. The fact that the treatment effect is negative on work hours suggests that the income effect is stronger than the substitution effect, reducing work hours. However, paying people piece rate potentially increases the return to all hours of work. The effect could only occur if the additional compensation from an hour of piece rate pay is higher than the additional hour of work at overtime pay.

The SEM reveals the treatment channels for Better Work. Stronger voicing mechanisms are promoted by Better Work and these in turn reduce work hours. Similarly, compliant overtime pay practices also reduce work hours. Better Work also reduces reliance on piece rate pay, further reducing work hours.

Note importantly that fear of losing one's job is not translating into increased hours. If there had been a channel, that would have told us that excess work hours are being driven by coercion. This result tells us that workers who fear losing their job are those who are likely receiving an efficiency job configuration.

Data Construction

Work_Week

What days of the week do you usually work?

What time do you begin and end each day you usually work?

monthlywageUSD

How often are you paid?

How much did you receive the last time you were paid?

USD_Hour

monthlywageUSD/ Work_Week

Training

OT_After

Do you get paid for overtime work? Yes, after 8 or 9 hours of work.

Piece_Rate, Time_Rate

Do you get paid by the piece or by time?

Day_Off

How many weeks per month do you work on your day off/Sunday?

Training (a= 0.6779) 5-point agree scale

Applicable_Training Overall, the on-the-job training I receive is applicable to my job.

Training_Needs Overall, the training I receive on the job meets my needs.

Representation (a= 0.6703) Binary

Union Are you a member of union?

Factory_Union Which of the following do you have in your factory? Union

Factory_Bargaining Which of the following do you have in your factory? A collective bargaining agreement

Factory_Committee Which of the following do you have in your factory? Worker-manager committee

Help (a= 0.8239) 5-point comfort scale

Supervisor_Help If you have a complaint or concern about work, how comfortable would you feel seeking help from Your supervisor

Coworker_Help If you have a complaint or concern about work, how comfortable would you feel seeking help from A co-worker

HR_Help If you have a complaint or concern about work, how comfortable would you feel seeking help from HR

Trade_Union_Help If you have a complaint or concern about work, how comfortable would you feel seeking help from The trade union

Committee_Help If you have a complaint or concern about work, how comfortable would you feel seeking help from A worker-manager committee

ComplaintBox_Help If you have a complaint or concern about work, how comfortable would you feel seeking help from Suggestion/Complaint box

Demographic Controls

Age

Factory_Experience

i.Position

i.Education

Female

i.Married

Work_Experience

changed_jobs

Factory Characteristics

Factories_Nearby Are there other factories nearby where you could get another job?

Vietnam

bw_factory

Time Control

endline

Figure 4.1 Weekly Hours SEM

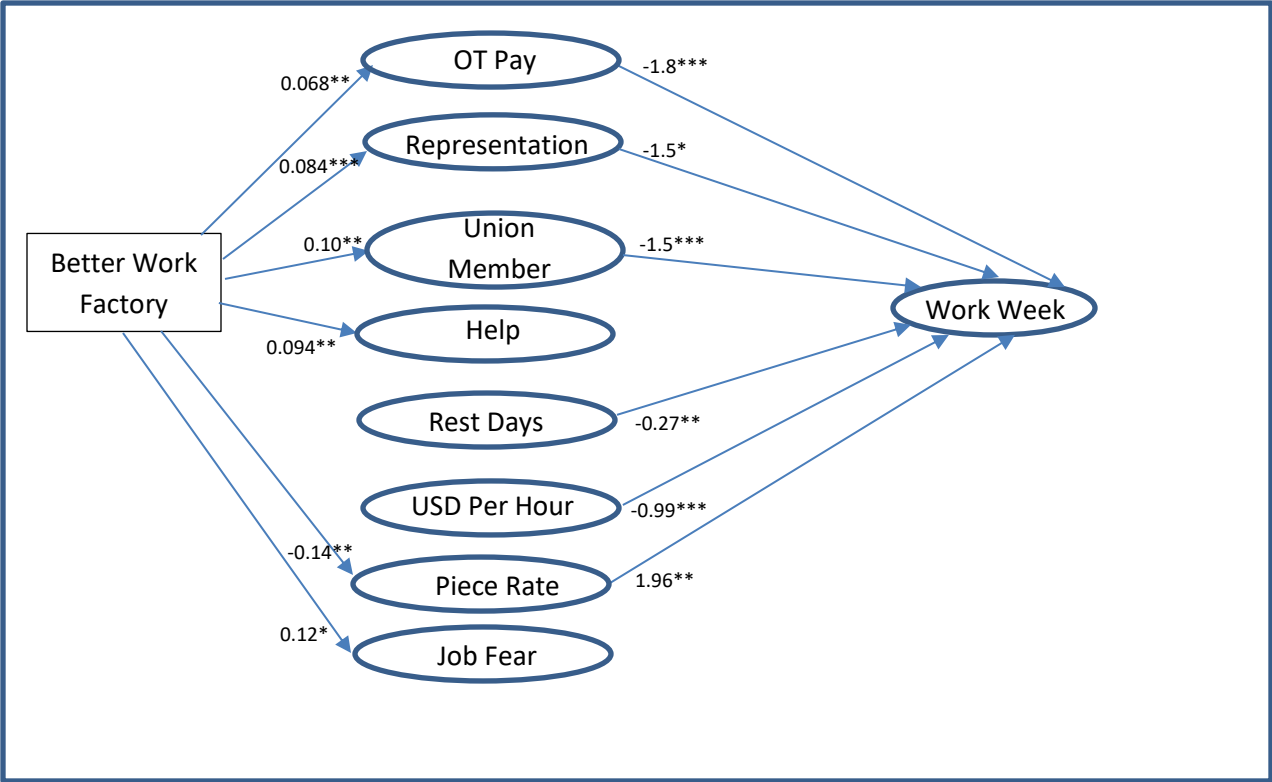


Table 4.1 Reduced Form Treatment Effect

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	OT After 8/9 hours	Piece Rate	Representation	Help	Union	Job Fear	USD Hour
bw_factory	0.0696*** (0.0136)	-0.140*** (0.0128)	0.0929*** (0.0116)	0.0931*** (0.0286)	0.111*** (0.0158)	0.124*** (0.0327)	0.0695 (0.247)
Constant	0.582*** (0.123)	0.422*** (0.117)	0.562*** (0.106)	3.276*** (0.263)	0.0385 (0.145)	3.650*** (0.335)	-0.489 (2.317)
Observations	5,848	6,004	4,440	4,441	5,945	6,030	5,906
Number of uniqueID	3,501	3,545	2,771	2,918	3,505	3,564	3,495

Random Effects Panel Estimator

Demographic, Country, Time Controls

Standard errors in parentheses

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

Table 3.2 Training Theoretical Model

VARIABLES	(1) Work_Week
bw_factory	-0.781** (0.329)
USD_Hour	-0.987*** (0.0168)
Training	0.173 (0.261)
OT After 8/9 Hours	-1.656*** (0.356)
Piece Rate	2.372*** (0.437)
Bonus Pay	1.34e-06*** (2.93e-07)
Time Rate	-0.213 (0.338)
Day Off	-0.286** (0.127)
Representation	-1.411** (0.651)
Help	-0.207 (0.193)
Union	-1.474*** (0.377)
Job Fear	-0.164 (0.134)
Constant	63.94*** (3.395)
Observations	3,257
Number of uniqueID	2,321

Standard errors in parentheses

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

Random Effects Panel Estimator

Demographic, Country, Time Controls

Standard errors in parentheses

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