

Expansions in Paid Maternity Leave Coverage and Women's Labour Market Outcomes

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Motivation

- During the past few decades, governments in many countries have enacted some form of family policies with the aim of promoting greater gender equality and enhancing child welfare, such as maternity leave (henceforth ML).
- The ML Convention (ILO 2000) extended the period of leave from 12 to 14 weeks.
- To improve children's health and the well-being of their mothers both physically and mentally.
- The recent trend in most developed countries is to promote prolonged entitlements (varies between 20 and 70 weeks). Examples include Australia, UK, Canada and Denmark.



Motivation (2)

- Research primarily from developed countries suggest that ML had negative impact on women's earnings at extended durations (Ondrich et al. 1996; Ruhm 1998). While Shapiro & Mott (1994) found a small, positive impact of longer leaves on women's earnings but Bertrand et al. (2010) found that leaves up to six months are neutral in their effect on relative wages.
- On the other hand, longer mandates increased the time women spend at home with their infants (Baker & Milligan 2008).
- The labour market effects of the expansions in ML coverage are less clear in a developing country context.
- Only a few developing countries have investigated the impact of paid ML (Zveglic & van der Meulen Rodgers 2003; Lai & Masters 2005) but not at the extended durations.

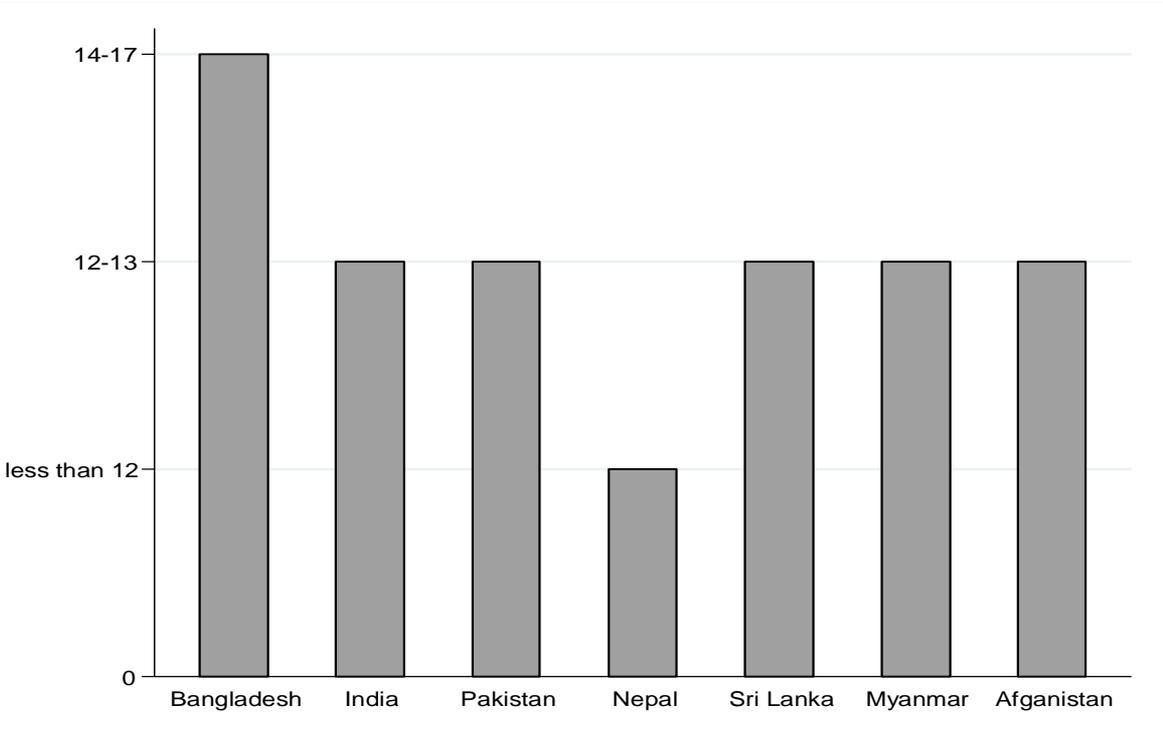


Objectives of this Paper

- Examine the effects of the ML legislation amendments on the Bangladeshi women's labour market outcomes.
- The Bangladesh context provides us the unique opportunity where the government enacted a new reform in 2006—paid ML extended from 12 to 16 weeks.



Figure: Duration of ML in Weeks in South Asia



Source: Authors' calculation based on data derived from
<http://www.ilo.org/dyn/travail/travmain.home>



Objectives of this Paper (2)

- This paper is primarily interested in the impact of ML length (from 12 to 16 weeks) on wages and working hours of women who will be entitled to take leave.
- Adopt a difference-in-differences (Diff-in-Diff) approach, taking advantage of the multidimensional eligibility criteria in the ML law.
- Control for sample selection bias because ML may alter the distribution of wages by influencing employment decisions.
- Investigate the impact of extended paid ML on the probability of a birth.



Main Findings

- The increased ML length (from 12 to 16 weeks) has increased working hours of eligible women but did not affect their wages.
- The results are robust to various control groups design.
- The results are not driven by selection in full-time employment before and after the reform.
- The estimates demonstrate that the extended ML coverage negatively affects fertility of eligible women.



Comparing with Relevant Studies

Wages

- Contrast to findings reported by Ruhm (2000) for Europe— extended periods (i.e., nine months) of paid ML decreased wages by 3%.
- However, Ruhm compares all workers, not just eligible women.
- In current setting, the wage results comparing mothers of 1 and 2 children, for example, will not capture changes in wages offered to women overall.

Working hours

- Contrast to early interventions (Baker & Milligan 2008) in Canada.
- Substantial extensions of paid ML to 29-70 weeks led new mothers choose to work fewer hours.
- The leave entitlement in Bangladesh is quite modest compared to Canada and thus the effects of ML legislation could be different in Bangladesh.



Maternity Leave Legislation in Bangladesh

Key Features

ML before 2006 [Maternity Benefit Act 1939]	ML after 2006 [Labour Act 2006]
12 weeks paid leave for female wage workers in manufacturing and service sectors. Excludes women holding a managerial position or those working in an agricultural or informal sector.	16 weeks paid leave for female wage workers in manufacturing and service sectors, while the exception of the coverage remained unchanged
ML benefit available <u>only twice</u> irrespective of the number of children	ML benefit is limited only up to the birth of <u>first two</u> children
Permanent workers in private and public enterprises and employed by the firms for at least <u>nine</u> months	Permanent workers in private and public enterprises and employed by the firms for at least <u>six</u> months

Maternity Leave Legislation in Bangladesh (2)

Key Features

ML before 2006 [Maternity Benefit Act 1939]	ML after 2006 [Labour Act 2006]
Maternity benefits financed by employers. It depends on total wages earned during the three months prior to ML divided by the number of days actually worked during that period	No change
No provisions for paternity leave but both men and women can use sick and annual paid leave	No change



Maternity Leave Legislation in Bangladesh (3)

Key Features

Enforcement [Before 2006]	Enforcement [After 2006]
A fine up to Tk.500 (USD 8.38) in case of contravention of any provision of the ML benefits [Maternity Benefit Act 1939]	This penalty was extended to Tk. 5000 (USD 64.22) [Labour Act 2006]
A fine up to Tk.1000 (USD 12.78) in case of contravention of any provision under the Factories Act of 1965	No change



Data and Sample

- LFS 2002, 2005 and 2010, conducted by the Bangladesh Bureau of Statistics (BBS)
- Cross sectional household surveys in the form of unit record files
- Each survey contains information on 40,000 households from all 64 districts (and 6 regions) in Bangladesh.
- Households are selected from both rural and urban areas.
- **Choice of sample:** Include private-sector wage employees aged 15-45 at the time of the survey, who works full time in a non-managerial position in formal and non-agricultural sectors. This resulted in 1843 observations in LFS 2002, 2113 in LFS 2005 and 2141 in LFS 2010.
- Pooled the sample from the three surveys, resulting in 6067 observations.



Empirical Framework

- **Diff-in-Diff approach:** pre- and post-legislation differences in wages and working hours between treatment and control groups
- **Treatment:** women aged 15-45 with 1 child at the time of the survey
- **Controls:** women with 2 children, all men and single men of a similar age group
- **Dependent variables:** \ln monthly wages, \ln hourly wages, \ln weekly hours. Hourly wages are converted to real values in the base year of 2002.
- **Independent variables:** Educational attainment and training received, age-groups, married and being Muslim, industry, urban areas and region of residence, local unemployment rate and an interaction between region and time dummies. \ln monthly hours is also included as a control when outcome variable is \ln monthly wages.



Empirical Framework (2)

$$Y_{ijt} = cons + \alpha_{ij} + \beta_1 Z_{ijt} + \beta_2 Z_{ijt} * T_{it} + \beta_3 T_{it} + \beta_4 X_{ijt} + \varepsilon_{ijt} \quad (1)$$

$$Y_{ijt} = cons + \alpha_{ij} + \beta_1 F_{ijt} + \beta_2 F_{ijt} * T_{it} + \beta_3 T_{it} + \beta_4 X_{ijt} + \varepsilon_{ijt} \quad (2)$$

Y_{ijt} = the outcome variable corresponding to women i surveyed at t in district j

α_{ij} = several fixed effects (e.g., region and industry)

Z_{ijt} = a dummy variable equals to 1 if a woman has 1 child and is equal to zero if a woman has 2 children

F_{ijt} = a dummy variable equals to 1 if a woman has 1 child and is equal to zero if men/or single men

T_{it} = a dummy variable equals to 1 if the respondent surveyed in post-2006 and 0 otherwise

X_{ijt} = a vector of personal and household characteristics

ε_{ijt} = error term



Descriptives

Table 1: Sample statistics for the selected analysis variables

Variable	Women with 1 child	Women with 2 children	All men	Single men
Age 15-25	0.425 (0.496)	0.203 (0.403)	0.366 0.482	0.802 (0.399)
Age 25-35	0.480 (0.501)	0.622 (0.486)	0.424 (0.494)	0.239 (0.427)
Primary	0.235 (0.425)	0.189 (0.392)	0.209 (0.406)	0.236 (0.425)
Secondary	0.250 (0.434)	0.271 (0.445)	0.403 (0.490)	0.458 (0.498)
Post-secondary	0.070 (0.256)	0.065 (0.247)	0.095 (0.293)	0.094 (0.292)
Graduate	0.080 (0.272)	0.072 (0.259)	0.123 (0.328)	0.099 (0.299)
Job-related training	0.020 (0.140)	0.031 (0.173)	0.040 (0.197)	0.024 (0.153)
Married	0.915 (0.280)	0.928 (0.259)	0.644 (0.479)	
In hourly wage	1.921 (0.748)	2.143 (0.789)	2.287 (0.784)	2.089 (0.776)
In monthly wage	7.236 (1.017)	7.476 (0.849)	7.620 (1.069)	7.399 (1.111)
In weekly working hours	3.940 (0.238)	3.908 (0.263)	3.967 (0.225)	3.963 (0.216)
Urban	0.655 (0.477)	0.608 (0.489)	0.507 (0.500)	0.451 (0.498)
Unemployment rate (%)	0.051 (0.011)	0.048 (0.011)	0.049 (0.012)	0.049 (0.012)
<i>N</i>	188	280	4157	1442

Standard deviations are in parentheses.



Regression Results

Table 2: Effects of ML changes on labour market outcomes

Outcomes	(1)	(2)	(3)	(4)
1. ln hourly wage				
Women with 1 child (2 children)	-0.152*	-0.133	-0.151**	-0.169**
	(0.078)	(0.084)	(0.067)	(0.068)
Post 2006 law dummy * women with 1 child (2 children)	0.035	0.010	0.017	0.042
	(0.158)	(0.161)	(0.160)	(0.150)
<i>N</i>	468	468	468	468
Women with 1 child (all men)	-0.320***	-0.302***	-0.310***	-0.313***
	(0.052)	(0.052)	(0.052)	(0.049)
Post 2006 law dummy * women with 1 child (all men)	-0.089	-0.111	-0.107	-0.082
	(0.090)	(0.097)	(0.101)	(0.093)
<i>N</i>	4345	4345	4345	4345
Women with 1 child (single men)	-0.181***	-0.187***	-0.190***	-0.192***
	(0.036)	(0.046)	(0.038)	(0.036)
Post 2006 law dummy * women with 1 child (single men)	-0.132	-0.173	-0.171	-0.150
	(0.090)	(0.104)	(0.109)	(0.098)
<i>N</i>	1630	1630	1630	1630
2. ln monthly wage				
Women with 1 child (2 children)	-0.231*	-0.201	-0.226*	-0.248**
	(0.137)	(0.123)	(0.120)	(0.119)
Post 2006 law dummy * women with 1 child (2 children)	0.128	0.098	0.108	0.129
	(0.201)	(0.204)	(0.205)	(0.187)
<i>N</i>	468	468	468	468
Women with 1 child (all men)	-0.388***	-0.378***	-0.387***	-0.392***
	(0.065)	(0.069)	(0.070)	(0.066)
Post 2006 law dummy * women with 1 child (all men)	-0.060	-0.082	-0.086	-0.044
	(0.134)	(0.141)	(0.154)	(0.138)
<i>N</i>	4345	4345	4345	4345
Women with 1 child (single men)	-0.165***	-0.163***	-0.164***	-0.165***
	(0.039)	(0.037)	(0.028)	(0.031)
Post 2006 law dummy * women with 1 child (single men)	-0.118	-0.168	-0.175	-0.139
	(0.152)	(0.161)	(0.173)	(0.150)
<i>N</i>	1630	1630	1630	1630



Regression Results (2)

Table 2: Continued

Outcomes	(1)	(2)	(3)	(4)
3. In weekly hours				
Women with 1 child (2 children)	0.047*** (0.013)	0.045*** (0.017)	0.046*** (0.011)	0.043*** (0.011)
Post 2006 law dummy * women with 1 child (2 children)	-0.018 (0.040)	-0.013 (0.033)	-0.008 (0.034)	-0.003 (0.031)
<i>N</i>	468	468	468	468
Women with 1 child (all men)	-0.056*** (0.006)	-0.062*** (0.005)	-0.062*** (0.006)	-0.063*** (0.007)
Post 2006 law dummy * women with 1 child (all men)	0.061 (0.042)	0.072* (0.041)	0.073* (0.038)	0.078* (0.035)
<i>N</i>	4345	4345	4345	4345
Women with 1 child (single men)	-0.053*** (0.011)	-0.046*** (0.013)	-0.047*** (0.013)	-0.046*** (0.013)
Post 2006 law dummy * women with 1 child (single men)	0.066 (0.047)	0.076* (0.044)	0.076* (0.044)	0.075* (0.043)
<i>N</i>	1630	1630	1630	1630
Demographic variables	Yes	Yes	Yes	Yes
Sector fixed effects	No	Yes	Yes	Yes
Region-specific variables	No	No	Yes	Yes
Region-period	No	No	No	Yes



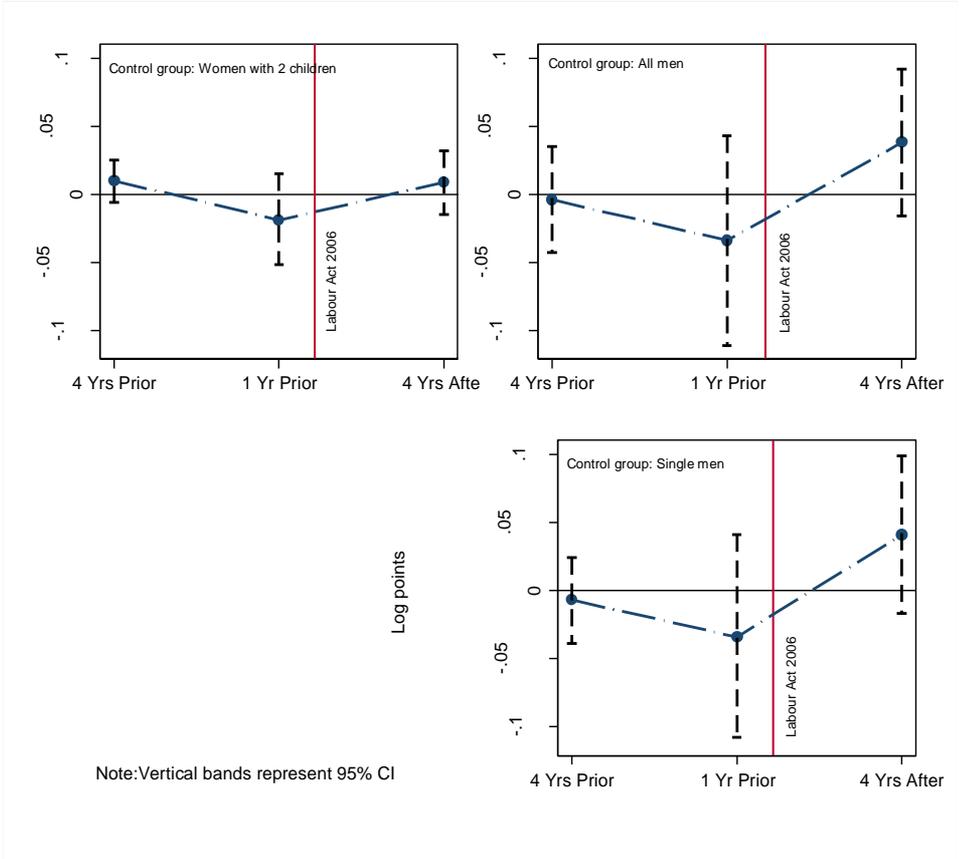
Robustness Checks (1)

Table 3: Placebo tests

Treatment	Women with 1 child		
	(1)	(2)	(3)
	Women with 2 children		
	All men	Single men	
Outcomes/Controls			
1. In hourly wage			
Law change _{t+4}	-0.022 (0.088)	0.035 (0.056)	0.024 (0.055)
Law change _{t+1}	0.036 (0.092)	0.015 (0.028)	0.065 (0.046)
Law change _{t-4}	-0.014 (0.106)	-0.049 (0.065)	-0.090 (0.066)
<i>N</i>	468	4345	1630
2. In monthly wage			
Law change _{t+4}	0.027 (0.125)	0.054 (0.065)	0.031 (0.071)
Law change _{t+1}	-0.078 (0.179)	-0.029 (0.061)	0.047 (0.057)
Law change _{t-4}	0.050 (0.133)	-0.025 (0.103)	-0.078 (0.108)
<i>N</i>	468	4345	1630
3. In weekly hours			
Law change _{t+4}	0.018 (0.023)	-0.004 (0.020)	-0.007 (0.016)
Law change _{t+1}	-0.025 (0.035)	-0.034 (0.040)	-0.034 (0.038)
Law change _{t-4}	0.007 (0.028)	0.038 (0.028)	0.041 (0.030)
<i>N</i>	468	4345	1630
Demographic variables	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes
Region-specific variables	Yes	Yes	Yes



Figure: Effects off ML changes on log working hours for year before and after the adoption, 2002-2010



Robustness Checks (2)

Table 4: Testing for sample selection bias

Outcomes	(1)	(2)	(3)	(4)
1. In hourly wage				
Women with 1 child (2 children)	-0.128*	-0.092	-0.100	-0.113*
	(0.067)	(0.069)	(0.062)	(0.066)
Post 2006 law dummy * women with 1 child (2 children)	-0.014	-0.058	-0.045	-0.010
	(0.173)	(0.169)	(0.168)	(0.171)
<i>N</i>	468	468	468	468
Women with 1 child (all men)	-0.371***	-0.347***	-0.349***	-0.352***
	(0.029)	(0.035)	(0.029)	(0.028)
Post 2006 law dummy * women with 1 child (all men)	-0.039	-0.061	-0.059	-0.030
	(0.058)	(0.081)	(0.082)	(0.081)
<i>N</i>	4345	4345	4345	4345
Women with 1 child (single men)	-0.161***	-0.178**	-0.174***	-0.177***
	(0.031)	(0.046)	(0.037)	(0.039)
Post 2006 law dummy * women with 1 child (single men)	-0.087	-0.125	-0.123	-0.090
	(0.072)	(0.104)	(0.102)	(0.093)
<i>N</i>	1630	1630	1630	1630
2. In monthly wage				
Women with 1 child (2 children)	-0.190*	-0.150	-0.161	-0.176*
	(0.108)	(0.099)	(0.099)	(0.097)
Post 2006 law dummy * women with 1 child (2 children)	0.068	0.015	0.032	0.065
	(0.179)	(0.190)	(0.191)	(0.187)
<i>N</i>	468	468	468	468
Women with 1 child (all men)	-0.402***	-0.385***	-0.390***	-0.393***
	(0.048)	(0.046)	(0.043)	(0.040)
Post 2006 law dummy * women with 1 child (all men)	0.013	-0.014	-0.021	0.020
	(0.089)	(0.109)	(0.118)	(0.110)
<i>N</i>	4345	4345	4345	4345
Women with 1 child (single men)	-0.166**	-0.175**	-0.174***	-0.178***
	(0.057)	(0.049)	(0.034)	(0.033)
Post 2006 law dummy * women with 1 child (single men)	-0.048	-0.093	-0.106	-0.062
	(0.120)	(0.143)	(0.153)	(0.131)
<i>N</i>	1630	1630	1630	1630



Robustness Checks (2)

Table 4: Continued

Outcomes	(1)	(2)	(3)	(4)
3. In weekly hours				
Women with 1 child (2 children)	0.023 (0.020)	0.016 (0.017)	0.011 (0.014)	0.007 (0.016)
Post 2006 law dummy * women with 1 child (2 children)	-0.004 (0.062)	-0.001 (0.043)	0.001 (0.043)	0.006 (0.040)
<i>N</i>	468	468	468	468
Women with 1 child (all men)	-0.049*** (0.009)	-0.053*** (0.009)	-0.056*** (0.010)	-0.056*** (0.010)
Post 2006 law dummy * women with 1 child (all men)	0.071 (0.044)	0.081** (0.041)	0.081** (0.039)	0.085* (0.036)
<i>N</i>	4345	4345	4345	4345
Women with 1 child (single men)	-0.046*** (0.011)	-0.036* (0.015)	-0.039* (0.017)	-0.039* (0.018)
Post 2006 law dummy * women with 1 child (single men)	0.074 (0.049)	0.086* (0.044)	0.085* (0.044)	0.084* (0.043)
<i>N</i>	1630	1630	1630	1630
Demographic variables	No	No	No	No
Sector fixed effects	No	Yes	Yes	Yes
Region-specific variables	No	No	Yes	Yes
Region-period	No	No	No	Yes



Robustness Checks (3)

Table 5: Falsification test: effects of ML changes on fertility decision and full-employment

Outcomes	(1)	(2)	(3)	(4)
1. Participation in full-time employment				
Women with 1 child (2 children)	0.034*	0.028	0.025	0.023
	(0.018)	(0.017)	(0.020)	(0.019)
Post 2006 law dummy * women with 1 child (2 children)	-0.023	-0.018	-0.006	-0.008
	(0.030)	(0.031)	(0.028)	(0.030)
<i>N</i>	793	793	793	793
Women with 1 child (all men)	-0.039*	-0.042**	-0.042**	-0.042*
	(0.020)	(0.020)	(0.019)	(0.019)
Post 2006 law dummy * women with 1 child (all men)	0.052	0.043	0.047	0.043
	(0.039)	(0.029)	(0.029)	(0.027)
<i>N</i>	7695	7695	7695	7695
Women with 1 child (single men)	-0.037	-0.046*	-0.046*	-0.046*
	(0.023)	(0.022)	(0.020)	(0.020)
Post 2006 law dummy * women with 1 child (single men)	0.037	0.029	0.032	0.031
	(0.025)	(0.019)	(0.020)	(0.021)
<i>N</i>	2795	2795	2795	2795
2. Probability of a birth				
Wage employee (non-wage employee)	0.081*	0.083*	0.094**	0.098**
	(0.048)	(0.044)	(0.033)	(0.030)
Post 2006 law dummy * wage employee (non-wage employee)	-0.095*	-0.102**	-0.095**	-0.116**
	(0.052)	(0.048)	(0.046)	(0.033)
<i>N</i>	960	960	960	960
3. Fertility rates				
Fertility rates (number of children per woman)	0.049	0.048	0.103***	0.104***
	(0.040)	(0.041)	(0.038)	(0.035)
Post 2006 law dummy *Fertility rates (number of children per woman)	-0.104***	-0.098**	-0.147***	-0.135***
	(0.035)	(0.044)	(0.055)	(0.051)
<i>N</i>	960	960	960	960
Demographic variables	Yes	Yes	Yes	Yes
Sector fixed effects	No	Yes	Yes	Yes
Region-specific variables	No	No	Yes	Yes
Region-period	No	No	No	Yes



Robustness Checks (4)

- Results remain unchanged when alternative treatment groups were used, such as mothers with infants under the age of 1 and married women of child-bearing age at the time of the survey.
- There was no significant effect on wages or working hours when a dummy variable for weeks of other paid leave had been added.



Concluding Remarks

- The extension of ML length hinders women's progress towards equity in the labour market.
- This findings might points to the role of weak enforceability of labour laws in Bangladesh.
- Institutional reforms are required in order to provide the incentive for employers to respond to legal changes
- Government involvement can be useful to avoid excessive costs to employers.



Thank You

