The association between work-related breastfeeding policies and breastfeeding initiation and duration

Population level data from 57 low-and-middle-income countries

Lauren Maxwell, José Mendoza Rodriguez, Ilona Vincent, Efe Atabay, John Frank, Jody Heymann, Arijit Nandi

Existing research

- Breastfeeding (BF) has immediate and long-term effects on infant and child health[1]

- Empirical analysis of the effect of maternal leave policies in high income countries suggests maternal leave policies lead to a longer duration of BF[2,3]

- No work has examined the association between BF breaks at work and the initiation and duration of BF

1. Black RE, Allen LH, Bhutta ZA, Caulfield LE, De Onis M, Ezzati M, et al. Maternal and child under nutrition: global and regional exposures and health consequences. The lancet 2008;371:243-60.
2. Baker M, Milligan K. Maternal employment, breastfeeding, and health: Evidence from maternity leave mandates. Journal of health economics 2008;27:871-87.
3. Ogbuanu C, Glover S, Probst J, Liu J, Hussey J. The effect of maternity leave length and time of return to work on breastfeeding. Pediatrics 2011:peds. 2010-0459.

Research questions

1   Are breastfeeding breaks at work associated with initiating BF?

2   Does the duration of BF in countries that have implemented BF breaks at work policies differ from the duration in countries that have not implemented these policies?

Data

- DHS data from 57 countries w/ at least one survey since 2004 (36 have duration data)

- 45 countries ever implemented BF breaks at work, 12 countries did not

- Dataset Restrictions
  - women ages 15-49
  - last child born

- Global, longitudinal database of country-level BF breaks at work and maternal leave policies
  - National labor legislation
  - Additional sources (International Labour Organization, Social Security Programs Throughout the World database)

Exposure/Outcome of interest

- Exposure
  - BF breaks at work (country-level policy)

- Exposure operates through women's work at the time of birth
  - Limited temporal information on women's employment status
  - Identify women most likely to be affected by the policy
    - worked for cash rather than in kind
    - worked away from home
    - worked in an occupation other than domestic/agricultural work
    - did not work for themselves or relatives

- Outcome
  - self-reported data on monthly breastfeeding

Propensity score matching

- Observations matched across countries (country-level exposure)

- Selected matching algorithm that provides the highest reduction in mean bias with the smallest loss to sample size

- nearest neighbor matching without replacement

- optimal caliper for initiation and duration analyses

6

Matching variables

Child

1st child
short preceding interval
antenatal care
place of birth

Mother

maternal age category
education category
marital status

Household

urban/rural
wealth quintile
number of household members

Country

GDP
% urbanization
% labor force that is women
health expenditures

Methods – BF initiation

Log binomial regression

- probability of initiating BF (risk ratios)
- random effect for country
- adjust for propensity score
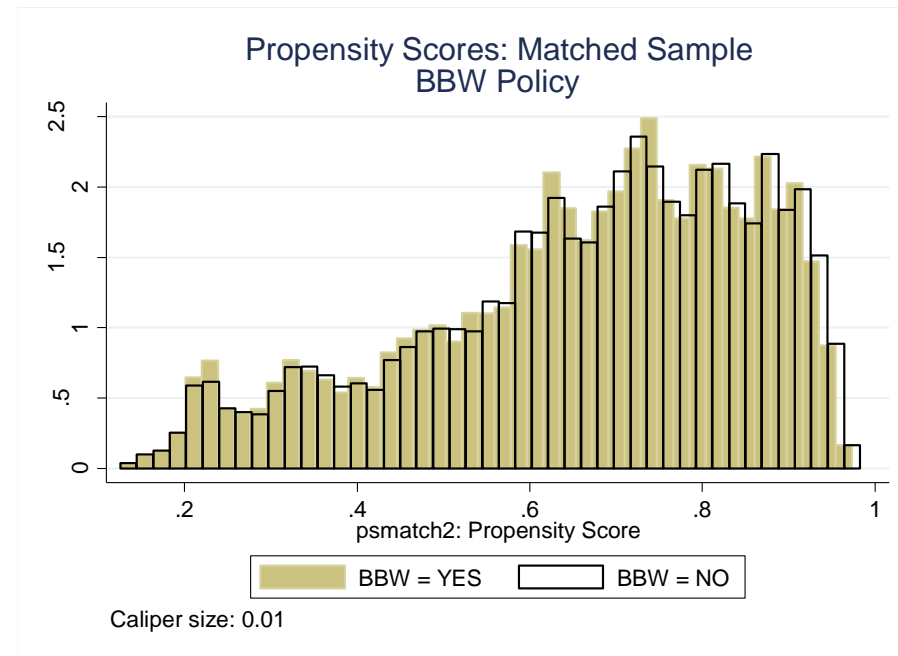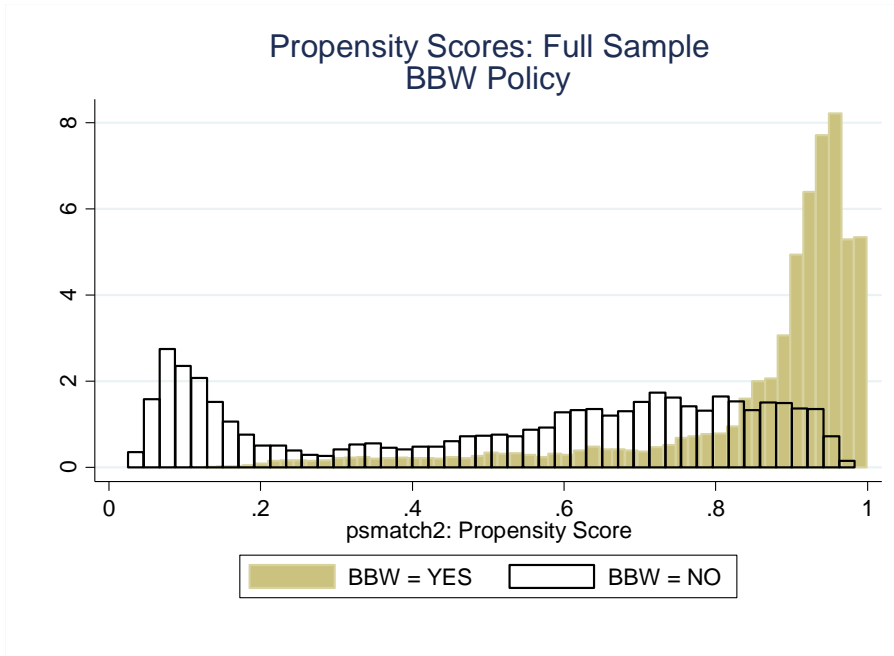- include interaction between policy and wealth quintile and policy and restricted definition of work

Methods – BF duration

Cox proportional hazards

- likelihood of discontinuing BF
- assume time is continuous (monthly measures)
- robust standard errors to account for clustering
- adjust for propensity score
- models stratified by region
- evaluate proportional hazards assumption using –log/log plots

Variable	BF breaks at work policy n=189,636	No BF breaks at work policy n=50,601
Ever breastfed (%)	94	93
Mean BF duration (months)	14	16
Rural residence (%)	60	73
Mother's median age (years)	28 (15, 49)	28 (15, 49)
Antenatal care (%)	84	92.
Education		
No formal education (%)	33	21
Primary (%)	28	44
Secondary or higher (%)	40	35
Usually works (%)	53	59
	27	28

Propensity score estimation

Propensity Scores: Full Sample BBW Policy; Propensity Scores: Matched Sample BBW Policy. Caliper size: 0.01

Association between BF breaks at work policies and BF duration

| Wealth quintile	Restricted work N=28,824 HR (95% CI)	Unrestricted work N=31,109 HR (95% CI)
Poorest	0.85 (0.81, 0.89)	0.96 (0.91, 1.00)
Poor	0.80 (0.76, 0.85)	0.90 (0.86, 0.95)
Middle	0.80 (0.76, 0.84)	0.90 (0.85, 0.95)
Rich	0.78 (0.74, 0.82)	0.88 (0.83, 0.93)
Richest	0.72 (0.68, 0.76)	0.81 (0.77, 0.86)

Cox proportional hazards regression
Poorest household wealth quintile, restricted definition of work
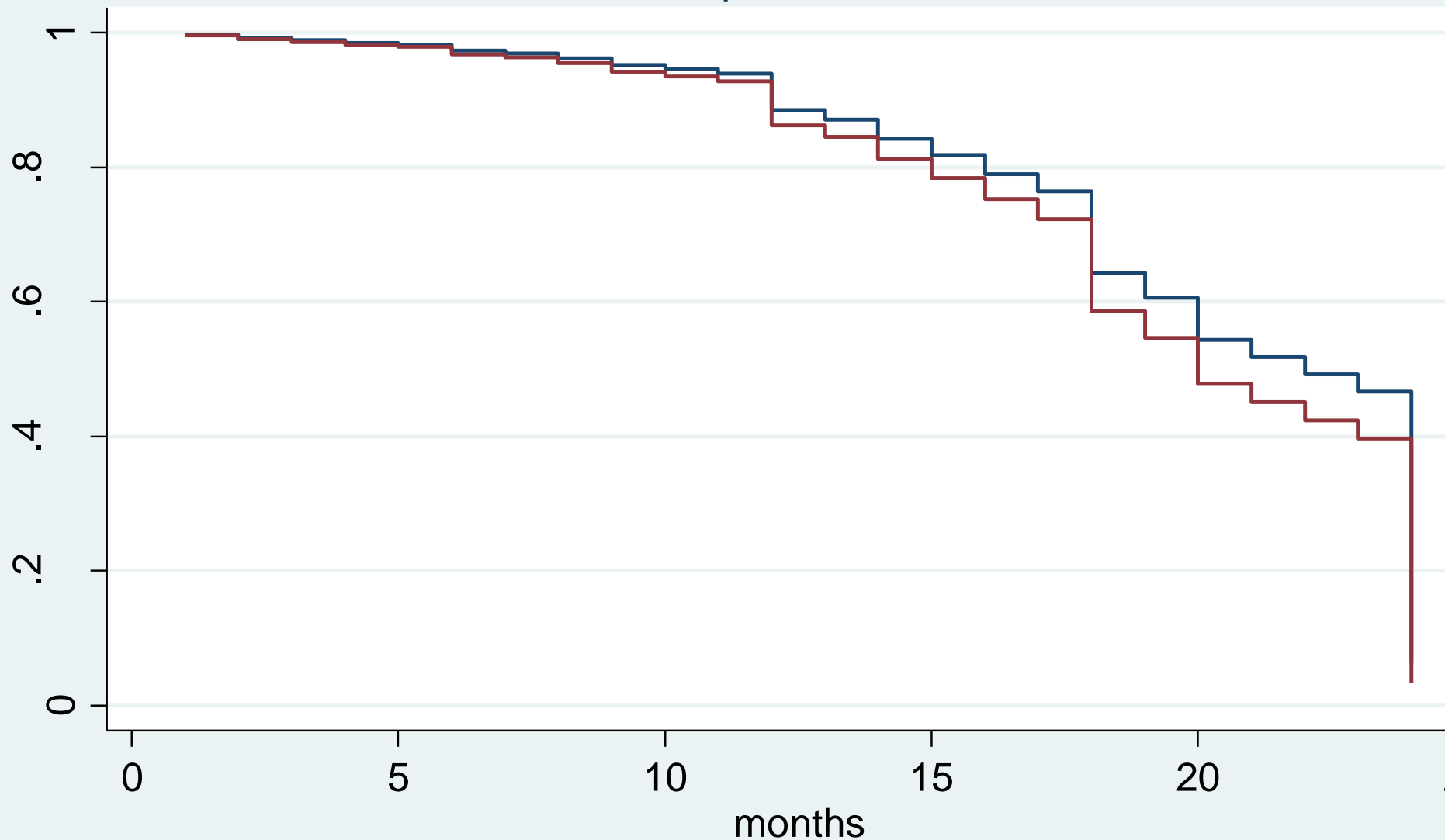
Cox proportional hazards regression
Richest household wealth quintile, restricted definition of work

Legend: BBW Policy — No BBW Policy

Y-axis: 0, .2, .4, .6, .8, 1

X-axis (Months): 0, 5, 10, 15, 20, 25
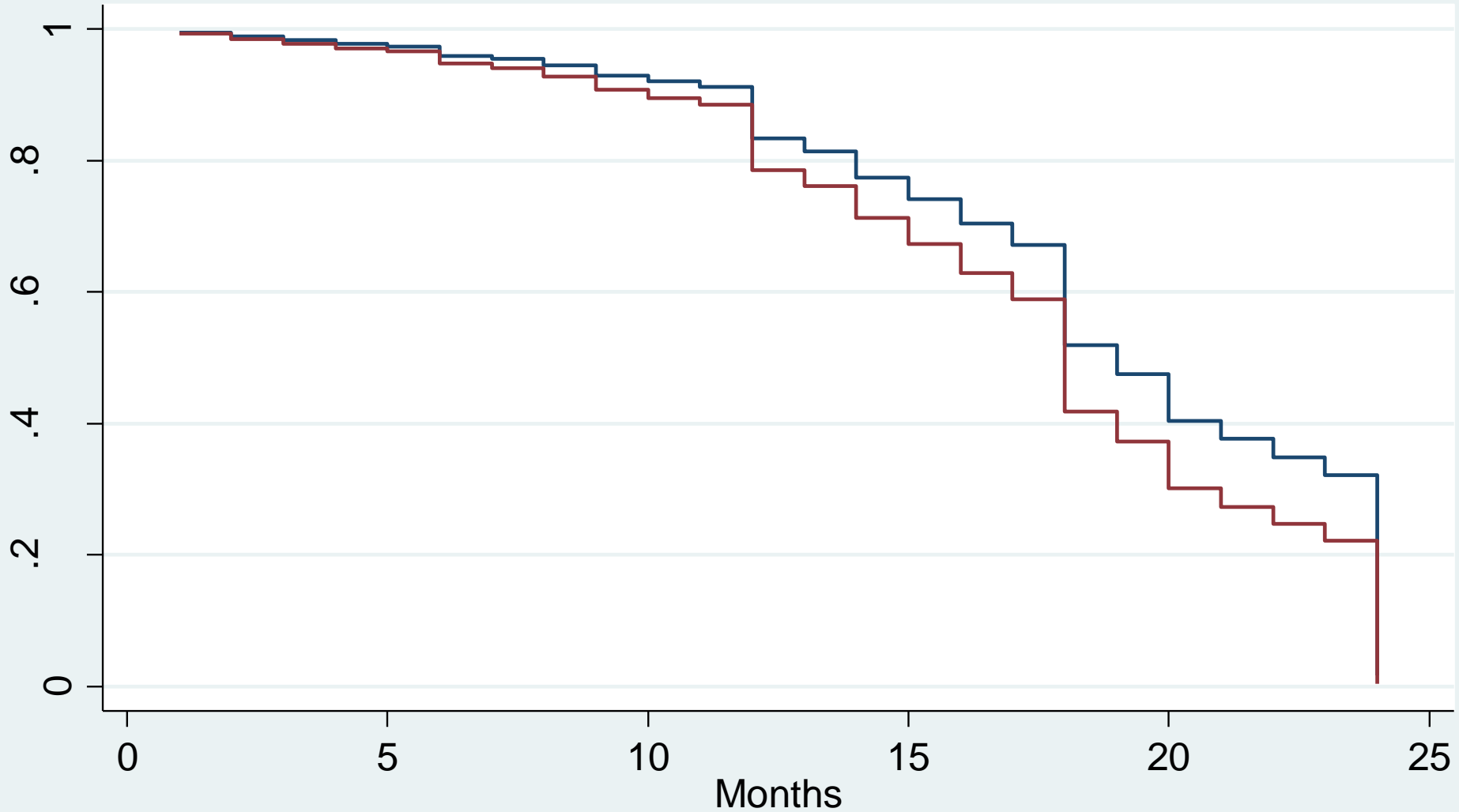
Conclusions

- No association between exposure to BF breaks at work policies and BF initiation

- Exposure to BF breaks at work likely related to BF duration; association is modified by socio-economic status

Acknowledgements

Questions?

Lauren Maxwell

lauren.maxwell@mail.mcgill.ca

Employment data (exposure)

1. Aside from your own housework, have you done any work in the last seven days?

2. As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. In the last seven days, have you done any of these things or any other work?

3. Although you did not work in the last seven days, do you have any job or business from which you were absent for leave, illness, vacation, maternity leave or any other such reason?

4. Have you done any work in the last 12 months?

5. **What is your occupation, that is, what kind of work do you mainly do?**

6. Do you do this work for a member of your family, for someone else, or are you self-employed?

7. Do you usually work at home or away from home?

8. Are you paid in cash or kind for this work or are you not paid at all?

Work-related questions

	Asked in how many countries (n=57)	Percentage missing (overall)
Where you work (at home, away)	30	72%
Work last year	56	2%
Who is your employer (self/family, other)	54	46%
Have you ever had a job	2	97%
How are you paid (cash or in kind, in kind only, not paid)	56	42%
Occupation (Domestic/agriculture, Not domestic/agriculture)	55	3.5%
Respondent currently working	57	0
Compound variables:		
Any work	57	0
Work that is more likely to be influenced by policy	57	0

Association between BF breaks at work policies and likelihood of initiating BF

	Risk Ratio	(95% CI)
Paid BBW	1.00	0.99, 1.01

*used random effect for country; adjusted for PS; included interaction between policy and wealth quintile and policy and restricted definition of work

Cox proportional hazards models, BBW Policy: Sub-Saharan Region

21