Breastfeeding policy: a globally comparative analysis
By Hee Joo Kim
Intro - Exclusive Breastfeeding

- WHO (World Health Organization) recommends exclusive breastfeeding for 6 months

- Rates can go from 1% to 89%

- Beneficial to both mother and child
Benefits - Infant

- Improves:
  - Nutritional Status
  - Neurocognitive Development

- Lower Rates of:
  - Infant Mortality (malnutrition)
  - Chronic Diseases

- Lowers Risk of:
  - Diarrheal Disease
  - Respiratory Illness

Benefits - Mothers

- Longer intervals between births which leads to...
  - Lower risk of maternal morbidity and mortality
  - Lower rates of breast cancer
  - Potential lower rates of ovarian cancer, osteoporosis, coronary heart disease

http://www.huffingtonpost.com/beth-woolsey/20-things-every-parent-should-hear_b_3209356.html
WHY?

?????
Most Common Reason

Need to go back to work...

Figure 1. Bar Graph Illustrating Female Labor Force Statistics
Rationale

Purpose
- Analyzed countries that..
  - Guaranteed Mothers breast feeding breaks
  - How long these breaks are
  - How often the breaks are

Hypothesis
- Countries with national policy that guarantee breastfeeding breaks have more women performing exclusive breastfeeding.
Methods

- Multivariate regression analysis to test correlation between national policy of breastfeeding breaks and rates of exclusive breastfeeding (under 6 months).

- Participation
  - All members of United Nations (UN)

- Obtained from:
  - International Labour Organization (ILO)
  - World Bank’s “Doing Business” law library
  - Lexadin World Law Guide legislation
  - World Alliance for Breast Feeding Action
  - Maternity Protection component in ILO’s Database of Conditions of Work and Employment Laws.
Methods - Continued

- Guaranteed Breaks?
- Are they paid?
- How much time is allotted?
- How many months after birth?
- Variations
  - 1 block of time vs multiple blocks of time
Analysis

- All data included controls year collected
- “Parsimonious” model
- 116 countries with all three data
- Examined effect of breastfeeding break policies with controls:
  - National Resources
  - Level of Urbanization
- “Full” Model
- 108 countries with all four data
- Examined effect of breastfeeding break policies with parsimonious model and
  - Female Literacy Rate (access of information)
Analysis continued

- Breastfeeding breaks can impact on women labor force
- Tested to see if countries with higher number of female labor force positively correlated with countries with policy on breastfeeding breaks and exclusively breastfed infants.
- Analyzed information and saw interaction between breaks and female labor force
- Parsimonious model 115
- Full model 108
Variable - Outcome

- Data obtained from Global Data Bank on Infant and Young Child Feeding
- Nature of this source - data more frequently shows rates in low income countries
- Collected from 129 countries
- Date ranges from 2000 - 2011
- Used most recent data
Key Independent Variable

1. Paid Breastfeeding Breaks
   - Either Yes or No
   - Verified if legislation has been in place for at least a year

2. Per Capita Gross Domestic Product
   - Obtained GDP to use as indicator of national economic resource level
   - Used GDP of year exclusive breastfeeding rates were available

3. Female Literacy Rates
   - Defined as % of females 15 and older
   - World Bank’s World Development Indicators Online
   - Pro or Con
   - Unavailable data on higher income countries used 99%
Key Independent Variable cont’d

1. Urban Percentage of Population
   - Population living in urban area used as control
   - Urbanization negatively associated with breastfeeding rates
# Variable Chart

Table 1. Descriptive statistics for dependent and independent variables included in regressions ($n = 108$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outcome</strong></td>
<td></td>
</tr>
<tr>
<td>Infants exclusively breastfed until the age of 6 months, %</td>
<td>32.07 (1–88)</td>
</tr>
<tr>
<td><strong>Predictor</strong></td>
<td></td>
</tr>
<tr>
<td>National policy guaranteeing paid breastfeeding breaks until infant at least 6 months old, % of countries</td>
<td>73 (−)</td>
</tr>
<tr>
<td>PPP-adjusted per capita GDP, international dollars</td>
<td>7203 (311–42 297)</td>
</tr>
<tr>
<td>Population living in urban area, %</td>
<td>48.55 (9.5–97.18)</td>
</tr>
<tr>
<td>Literate women 15 years of age or older, %</td>
<td>72.05 (15.0–99.7)</td>
</tr>
<tr>
<td>Female share of the labour force, %</td>
<td>41.13 (15.37–53.83)</td>
</tr>
</tbody>
</table>
Results

Figure 2. Pie chart illustrating number of countries providing breastfeeding breaks

- 71% No policy
- 25% Paid Breaks
- 4% Unpaid Breaks
Table 2. Characteristics of national policies on breastfeeding breaks in the workplace, 2012

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No. (%) of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breastfeeding breaks allowed until child aged:</strong></td>
<td></td>
</tr>
<tr>
<td>Less than 6 months</td>
<td>3 (2.2)</td>
</tr>
<tr>
<td>6 months</td>
<td>9 (6.6)</td>
</tr>
<tr>
<td>7–11 months</td>
<td>12 (8.8)</td>
</tr>
<tr>
<td><strong>1 year</strong></td>
<td><strong>41 (30.2)</strong></td>
</tr>
<tr>
<td>13–15 months</td>
<td>14 (10.3)</td>
</tr>
<tr>
<td>16–36 months</td>
<td>25 (18.4)</td>
</tr>
<tr>
<td>Child’s age unspecified</td>
<td>32 (23.5)</td>
</tr>
<tr>
<td>Total</td>
<td>136 (100)</td>
</tr>
<tr>
<td><strong>Daily total duration of breastfeeding breaks</strong></td>
<td></td>
</tr>
<tr>
<td>30–45 minutes</td>
<td>2 (1.8)</td>
</tr>
<tr>
<td><strong>1 hour</strong></td>
<td><strong>91 (82.0)</strong></td>
</tr>
<tr>
<td>90 minutes</td>
<td>5 (4.5)</td>
</tr>
<tr>
<td>2 hours</td>
<td>13 (11.7)</td>
</tr>
<tr>
<td>Total</td>
<td>111 (100)</td>
</tr>
</tbody>
</table>
Results cont’d

- 111/137 countries had specific times allowed for breastfeeding breaks

- 30 countries, breaks can be accumulated to go home early

- 22 countries specified how many breaks can be spread
Table 3. Relationship between national policies guaranteeing breastfeeding breaks in the workplace and rate of exclusive breastfeeding of infants until the age of 6 months

<table>
<thead>
<tr>
<th>Independent variable/statistic</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paid breastfeeding breaks guaranteed until infant at least 6 months old, $\beta$ coefficient</td>
<td>8.76*</td>
<td>8.86*</td>
</tr>
<tr>
<td>Per capita GDP (2005 international dollars), $\beta$ coefficient</td>
<td>-0.60</td>
<td>-3.93</td>
</tr>
<tr>
<td>Per cent of population living in urban areas, $\beta$ coefficient</td>
<td>-0.33**</td>
<td>-0.33**</td>
</tr>
<tr>
<td>Female literacy rate, $\beta$ coefficient</td>
<td>–</td>
<td>0.22*</td>
</tr>
<tr>
<td>Constant $\beta$</td>
<td>46.23***</td>
<td>58.15***</td>
</tr>
<tr>
<td>$n$</td>
<td>116</td>
<td>108</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.199</td>
<td>0.234</td>
</tr>
</tbody>
</table>
### Table 4. Relationship between national policies guaranteeing breastfeeding breaks in the workplace and rate of exclusive breastfeeding until the age of 6 months

<table>
<thead>
<tr>
<th>Independent variable/statistic</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction of paid breastfeeding breaks guaranteed until infant at least 6 months old and female fraction of the labour force, $\beta$ coefficient</td>
<td>0.20*</td>
<td>0.19*</td>
</tr>
<tr>
<td>Per capita GDP (2005 international dollars), $\beta$ coefficient</td>
<td>$-0.49$</td>
<td>$-3.71$</td>
</tr>
<tr>
<td>Per cent of population living in urban areas, $\beta$ coefficient</td>
<td>$-0.32^{**}$</td>
<td>$-0.31^{**}$</td>
</tr>
<tr>
<td>Female literacy rate, $\beta$ coefficient</td>
<td>$-$</td>
<td>0.203*</td>
</tr>
<tr>
<td>Constant</td>
<td>45.34**</td>
<td>57.32***</td>
</tr>
<tr>
<td>$n$</td>
<td>115</td>
<td>108</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.199</td>
<td>0.229</td>
</tr>
</tbody>
</table>
Results Cont’d

Fig. 3. Predicted exclusive breastfeeding rates for typical countries, by income and breastfeeding break policy
Discussion/Conclusion

- Most countries guarantee breastfeeding breaks to working women
- Breastfeeding has many health benefits to both infant and mom
- There is a positive correlation with women who follow exclusive breastfeeding policies and countries with national laws guaranteeing breaks
  - True even after controlling for national GDP, female literacy rates, and urban population percentages
- But at least 45 countries still do not guarantee breastfeed breaks

This study is cross-sectional → demonstrate association, not cause

True effect size could differ from estimate one
  Don’t know which influenced which

Enough evidence to suggest there is correlation, so countries without legislation should see a benefits.

As shown by previous research, countries with breaks can still be competitive

These policies are in line with many international agreements
  The Convention on the Rights of Child (190)
  The Convention on the Elimination of All Forms of Discrimination against Women

Little known about women in informal economy
  Women who work independently
  Future Studies
Thank You!