



LRF

Center for Economics
of Breastfeeding



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Causal Effects of Breastfeeding on Child Development: An Economist's View

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How does an Economist view Breastfeeding?

- Investments in early childhood are crucial for child development and long-term well-being (Almond et al., 2018)
- Many different types of inputs in early life
 - Breastfeeding (breast milk) is one of such inputs
- Newborn mainly sleeps and eats
- Breast milk versus something else

- This talk: focus on healthy full-term infants, child outcomes, settings where alternatives to BM are not obviously unhealthy.



Why are CAUSAL effects important for an economist?

- From societal point of view: weigh **costs** versus **benefits**
- **Costs**
 - straightforward to calculate; accounting exercise
 - for the economy to reach high breastfeeding rates, e.g.
 - Maternity leave duration
 - Public health interventions, health personal
 - Regulations that facilitate breastfeeding during work hours (mandatory lactation rooms, paid BF time, work from home etc.)



Why are CAUSAL effects important for an economist? (continued)

- Potential **benefits** for
 - Children
 - Temporary versus longer-term effects
 - If no longer-term effects, effort could be used on other potentially more important inputs
 - Mothers
 - Labor force participation (wages, pension savings), later health
 - Family dynamics
 - Father's involvement, division of housework
- To weigh costs against benefits, we need **causal** evidence on the **benefits**
- Evidence on causal effects is really scarce!



Lots of Correlational Studies

- Document beneficial associations between BF and child outcomes
- Compare apples to oranges
 - Mothers are typically very different
 - Not random whether mother breastfeeds or not
- Controls
 - Most include only few background characteristics
 - Including more controls often reduces magnitude of correlation substantially
- **IQ as an example** (Horta et al. 2015)
 - Many studies document positive correlations
 - But once controlling for most obvious control (parental IQ), correlation is strongly reduced. Still easy to think about other important omitted variables
- Bottom line: correlations do not answer the question of causality



So How Do We Ideally Get at Causal Effects?

1. Natural Experiments

- Find random factor affecting whether the mother breastfeeds – referred to as instrumental variable (IV)
- Only one study convincingly uses this methodology: Fitzsimons and Vera-Hernandez (2021)

2. Field Experiments (RCT)

- Researchers randomly implement some “treatment” to manipulate breastfeeding behaviors
- Only one large-scale study: the Promotion of Breastfeeding Intervention Trial (PROBIT) (PIs Michael Kramer, Richard Martin, Emily Oken)



Causal Evidence from a Natural Experiment

Fitzsimons and Vera-Hernandez (2021)

- Setting
 - Children of low-educated mothers in the United Kingdom
 - Millennium Cohort Study (MCS)
 - Children born around 2000, before formula with DHA and ARA was available
- The random factor affecting BF
 - Born on a weekend (little hospital BF support) vs during the week (more BF support)
 - Early BF support strongly affects BF for at least 3 months
- Results
 - **Large improvements in child cognitive development at ages 3-7 (0.5 SD)**
 - No effects on child health or socioemotional development
 - No effect on factors in the social environment (maternal mental health, attachment, time investments)



Causal Evidence from a Field Experiment (RCT)

Brenøe, Stearns, and Martin (2021)

- Setting
 - 30 hospitals in Belarus
 - Healthy full-term infants born 1996-1997
- Cluster-randomized RCT
 - Intervention: WHO Baby Friendly Hospital Initiative
 - Control: status quo (routine separation of mother/child, delayed onset of BF, routine use of water/formula/other liquids, early intro of solid foods)
 - Intervention increased BF duration and BF exclusivity
- Results
 - Intervention significantly and persistently increased **weight-for-age** (WAZ)
 - No robust effects on other child health or cognitive measures through age 16
 - Substantial changes in infant feeding patterns
 - Estimated increase in calories explains major share of weight gain in early infancy



Lessons from the UK and Belarus

- Difference in results likely due to difference in feeding situation
 - UK: (partial) BF for 3+ months vs very little BF
 - Belarus: much vs less BF (e.g. at 3 months, control mothers still BF 3.5 times per day)
 - DHA, ARA seems important for cognitive development
- Positive causal effect on cognitive development when alternative lacks specific fatty acids
- Nutrition relevant for weight gain
- No evidence of health or socioemotional effects that economists care about



Conclusion (as an Economist Views the Evidence)

- We do not know much about the causal effects
- Definitely need more causal evidence from settings where alternative to BF is high-quality formula

