

# Changes in nutrition outcomes in Ethiopia, 2000-2016

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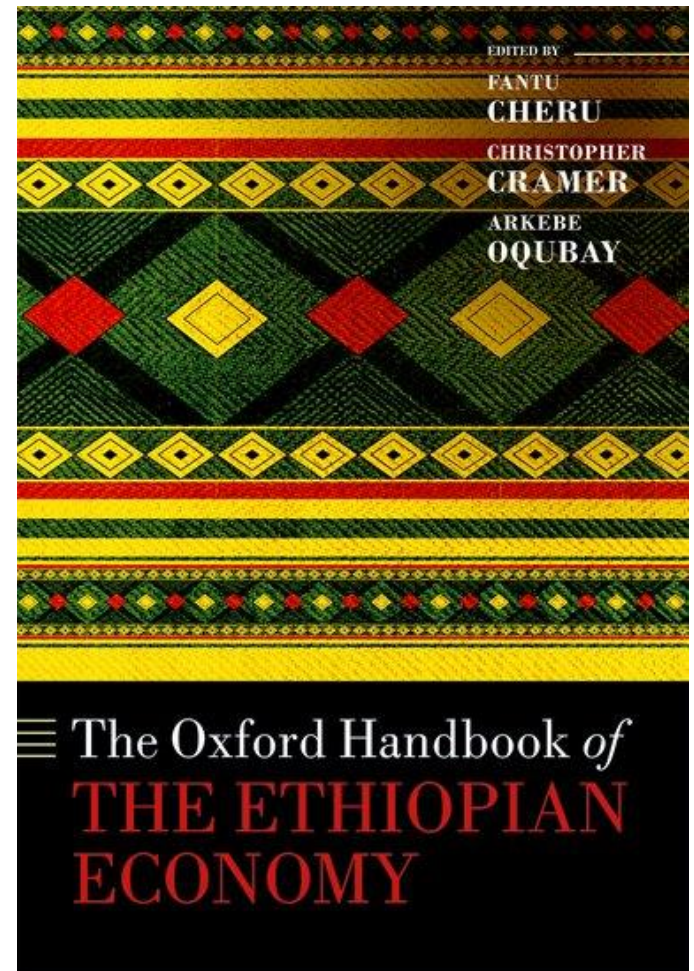
# This presentation

Hirvonen, Kalle, Headey, Derek, Golan, Jenna, & Hoddinott, John (2019):

Changes in child undernutrition rates in Ethiopia, 2000-2016.

In C. Cramer, F. Cheru, & A. Oqubay (Eds.), *The Oxford Handbook of the Ethiopian Economy*. Oxford: Oxford University Press.

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# Chronic undernutrition

1. Typically measured using **Height-for-Age Z-score (HAZ)**
  - For given age and sex: HAZ measures the distance in height to the median child of a healthy and well-nourished population
2. A child is considered stunted if this distance is -2 standard deviations or more:  $HAZ \leq -2$ .
3. In a healthy and well-nourished population this is rare: about 2% have  $HAZ \leq -2$ .
4. Higher stunting prevalence rates imply chronic under-nutrition.
5. According to WHO (1995) stunting rates of
  - $> 40 \%$  = very high malnutrition severity
  - $30-39 \%$  = high malnutrition severity
  - $20-29 \%$  = medium malnutrition severity
  - $<20$  = low severity malnutrition severity



**Should we care?**



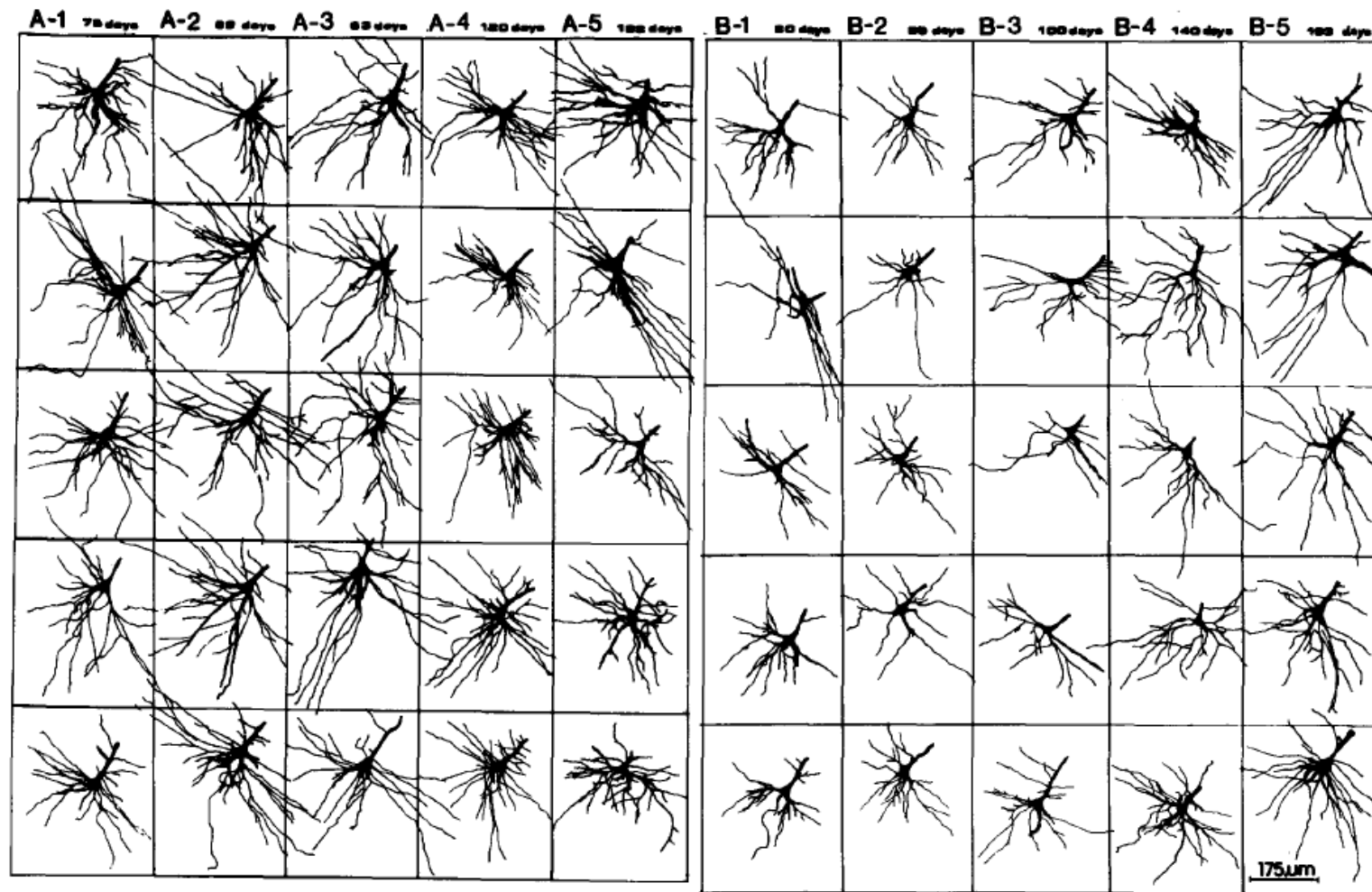


Figure 3. Pyramidal cell drawings from (A) well-nourished and (B) malnourished infants. On the left side pyramidal cells from (A) reveal dendritic branches that extend more than 175 µm from the perikaryon. On the right side of Figure 3B, cells are poorly branched with short dendritic processes.

Source: Cordero et al (1993)

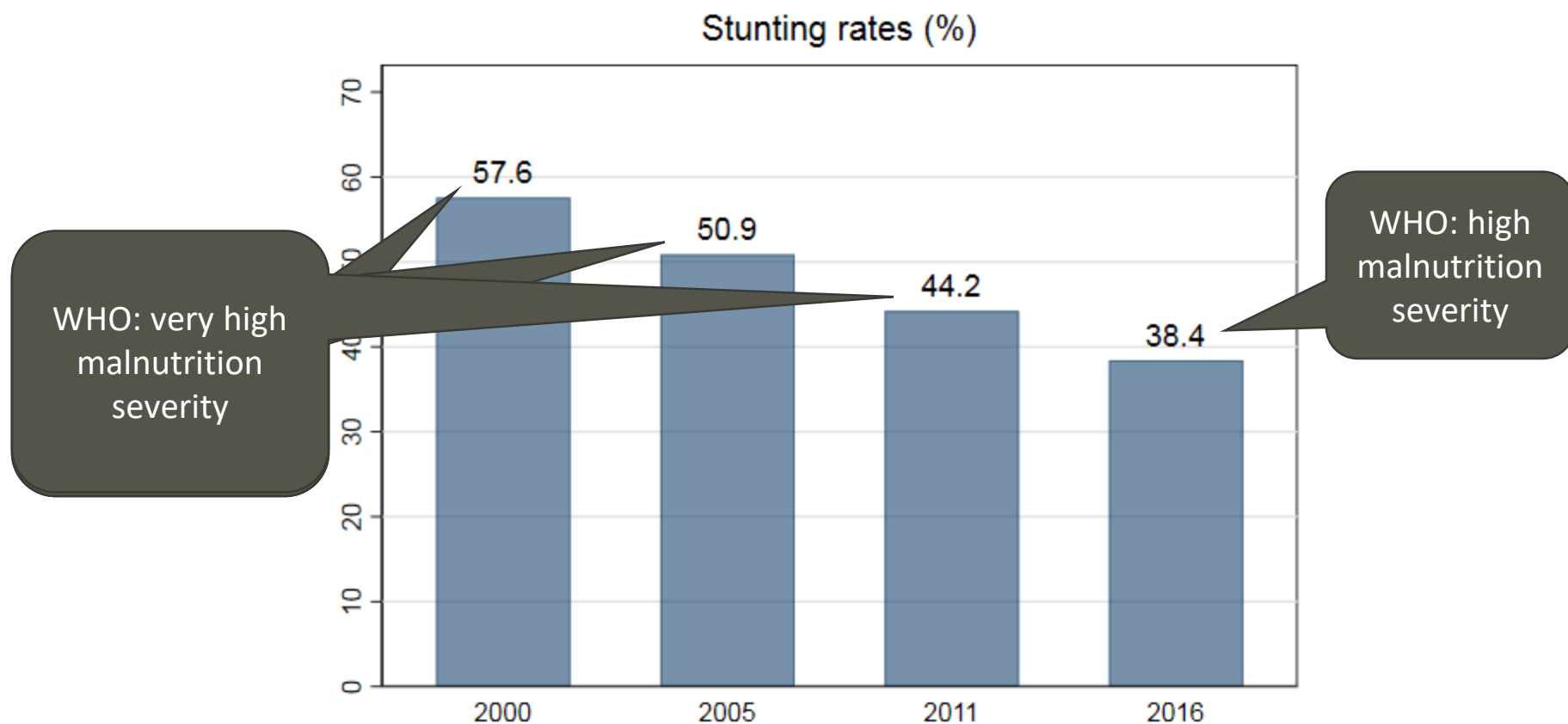
# Yes, we should we care

Stunting is a marker for a number of development outcomes:

- i. Sufficient nutrition is a critical input for brain development (fastest in the first years of life)
- ii. Considerable body of research shows that stunted children attain less schooling and score poorly on tests measuring cognitive ability
- iii. All this is then linked to economic productivity, welfare and poverty 20 years later when these children are adults.



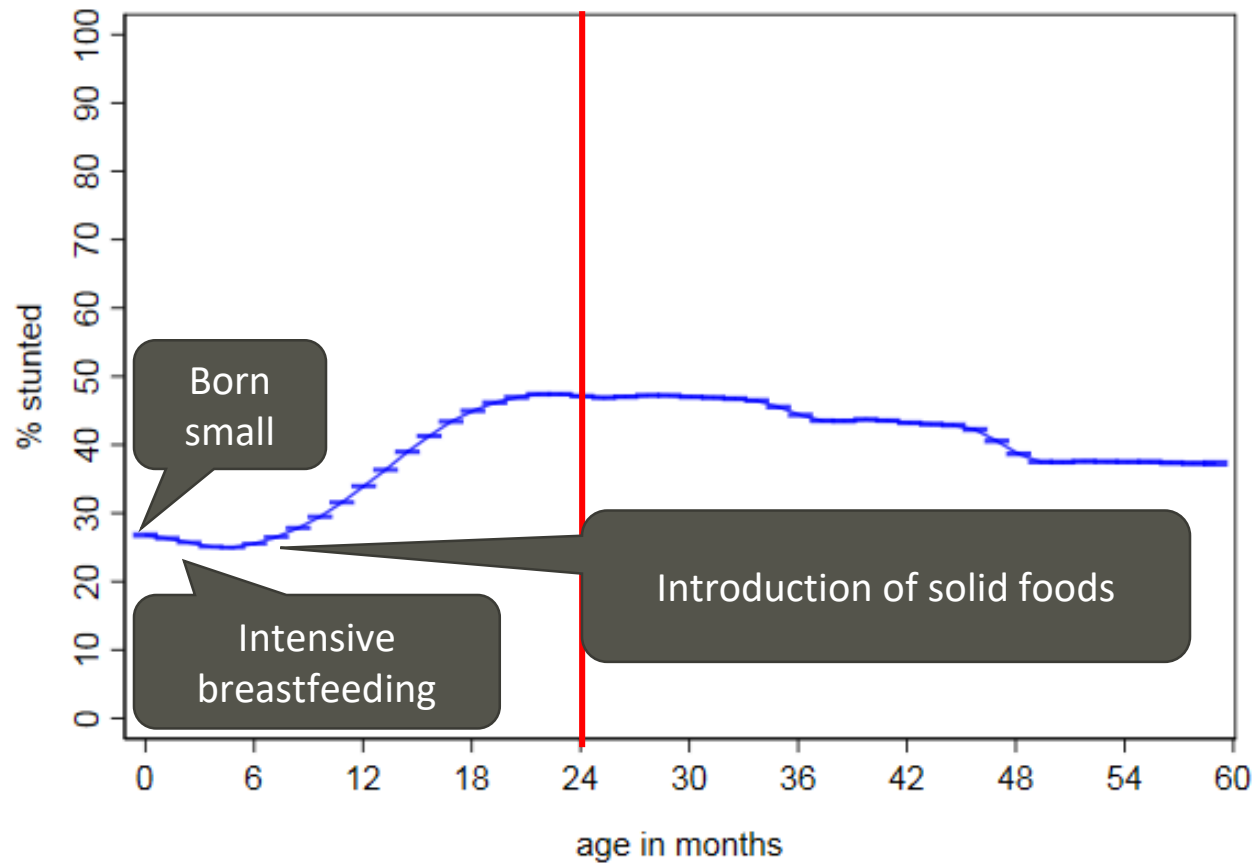
# Ethiopia since 2000: one of the fastest reductions in stunting rate in the world



Source: Demographic and Health Survey (DHS) – Ethiopia 2000, 2005, 2011, 2016



# Stunting-age relationship: Global evidence



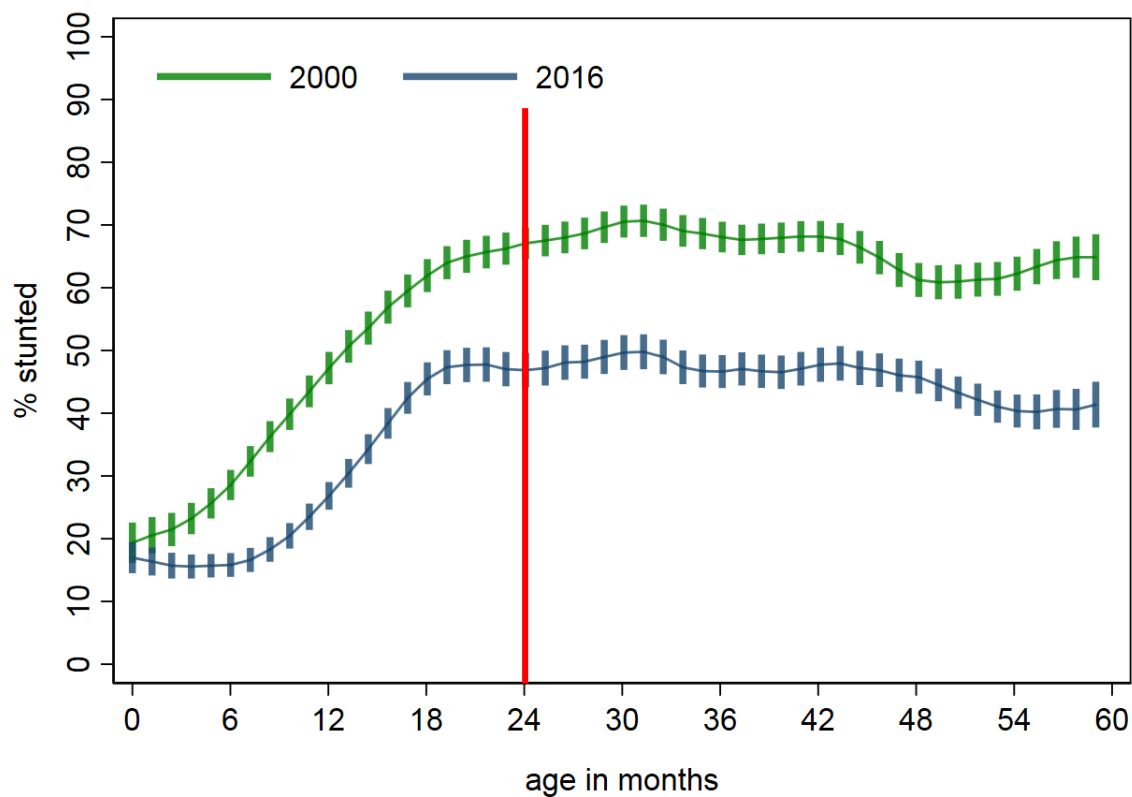
Source: DHS data for 65 middle and low income countries; more than 1 million observations.

Adapted from Headey, Hoddinott & Menon (2017)





# Stunting-age relationship: Ethiopia

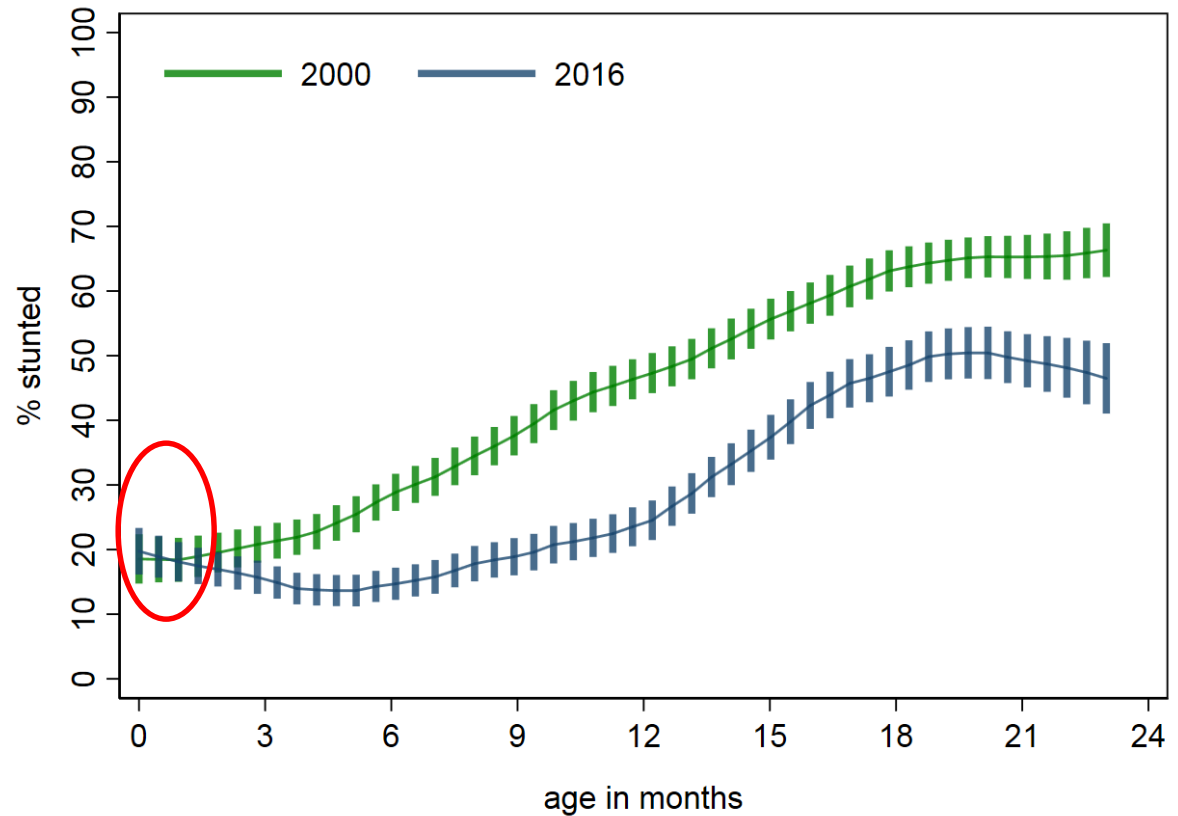


Source: Demographic and Health Survey (DHS) – Ethiopia 2000 & 2016



# Hypotheses

**Hypothesis 1: Marginal improvements in birth sizes**

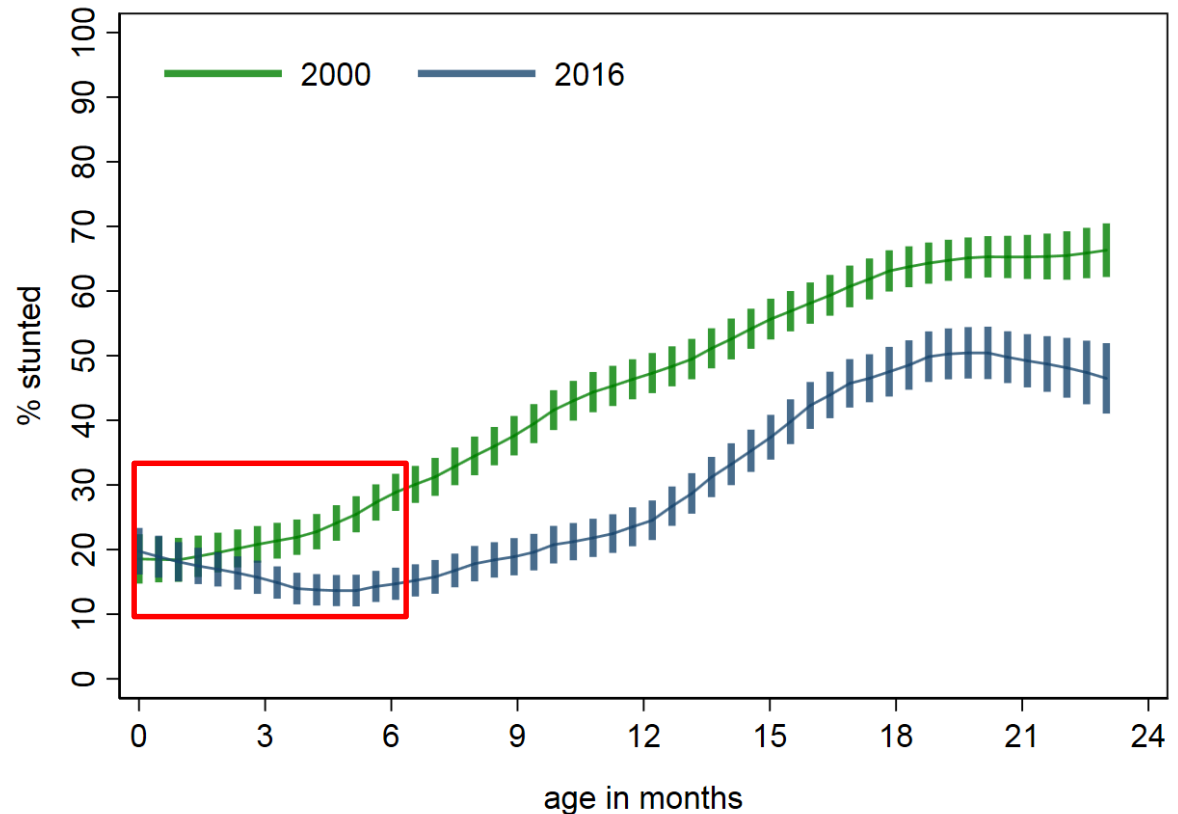


*Source: Demographic and Health Survey (DHS) – Ethiopia 2000 & 2016*

# Hypotheses

Hypothesis 1: Marginal improvements in birth sizes

**Hypothesis 2: 'More Intensive' breastfeeding**



Source: Demographic and Health Survey (DHS) – Ethiopia 2000 & 2016

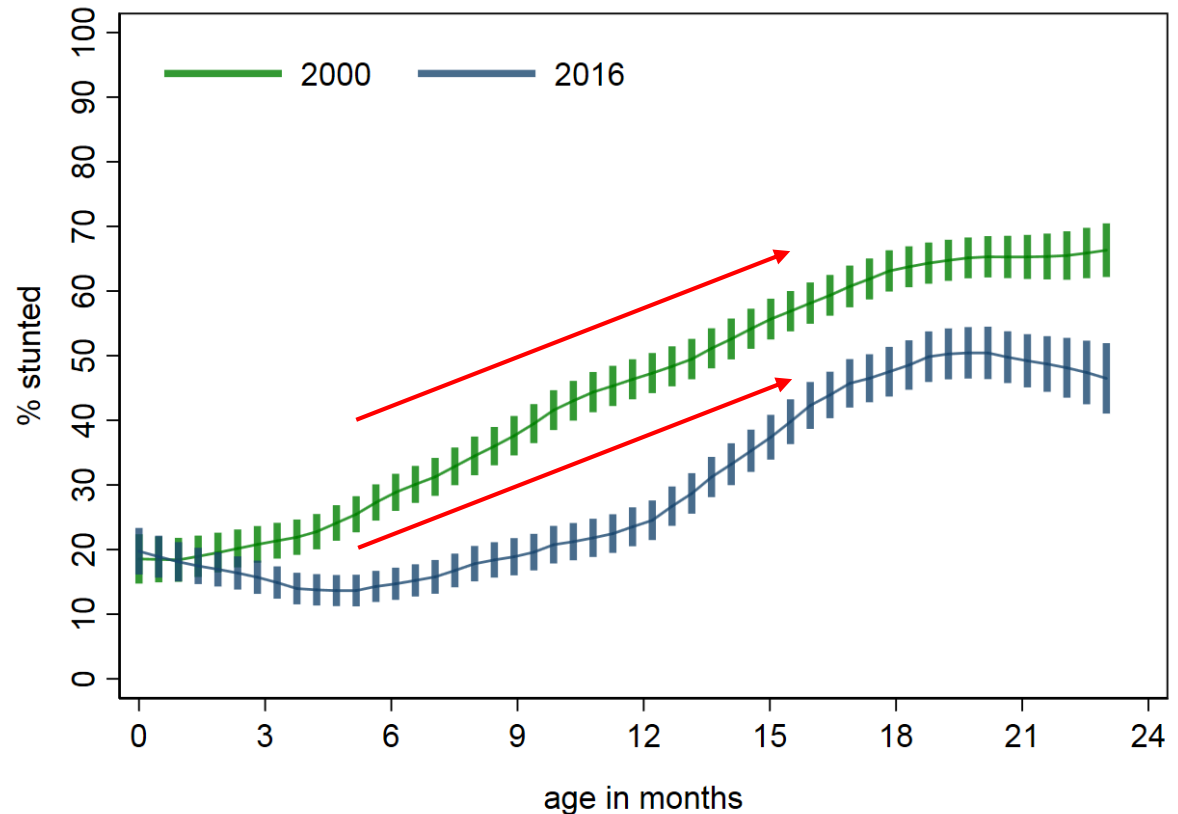
# Hypotheses

Hypothesis 1: Marginal improvements in birth sizes

Hypothesis 2: 'More Intensive' breastfeeding

**Hypothesis 3a: Morbidity prevalence remains high**

**Hypothesis 3b: Little improvement in Complementary Feeding practices**



Source: Demographic and Health Survey (DHS) – Ethiopia 2000 & 2016

# Marginal improvements in birth sizes?

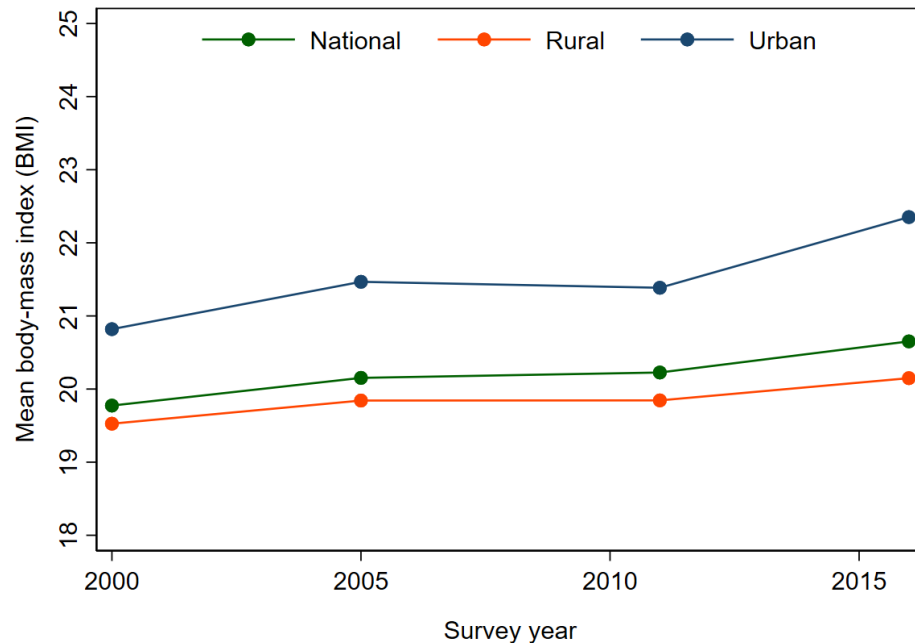
1. Difficult to verify: few children are born at health facilities
2. Self-reported birth sizes by the mothers suggest little improvement but these data are questionable
3. But we can get clues from women's BMI (who are in reproductive age)
  - There's considerable evidence that (pre-pregnancy) BMI is positively associated with infant birth weight



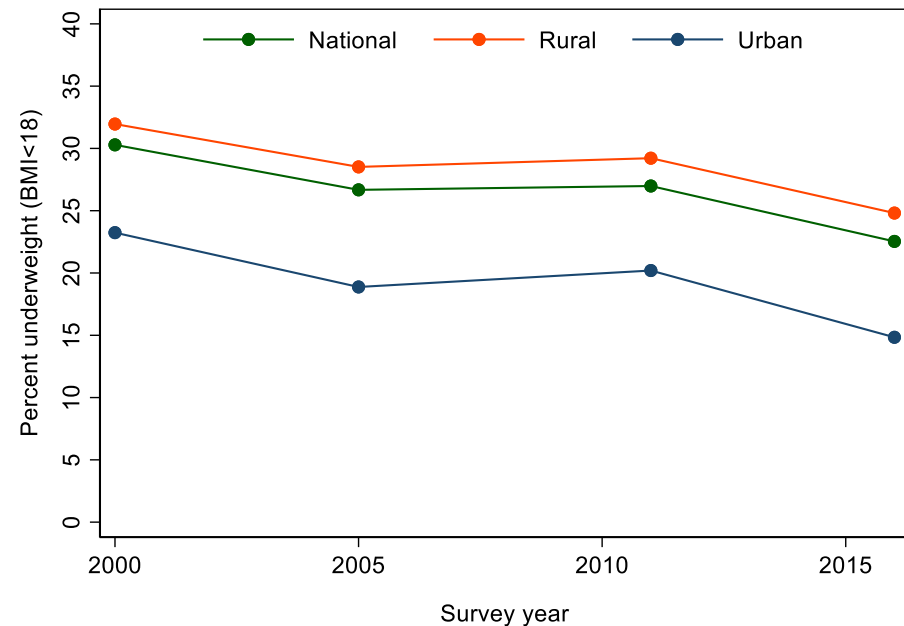
# Marginal improvements in birth sizes ✓

## Women's (15-49 y) Body-Mass Index (BMI)

BMI



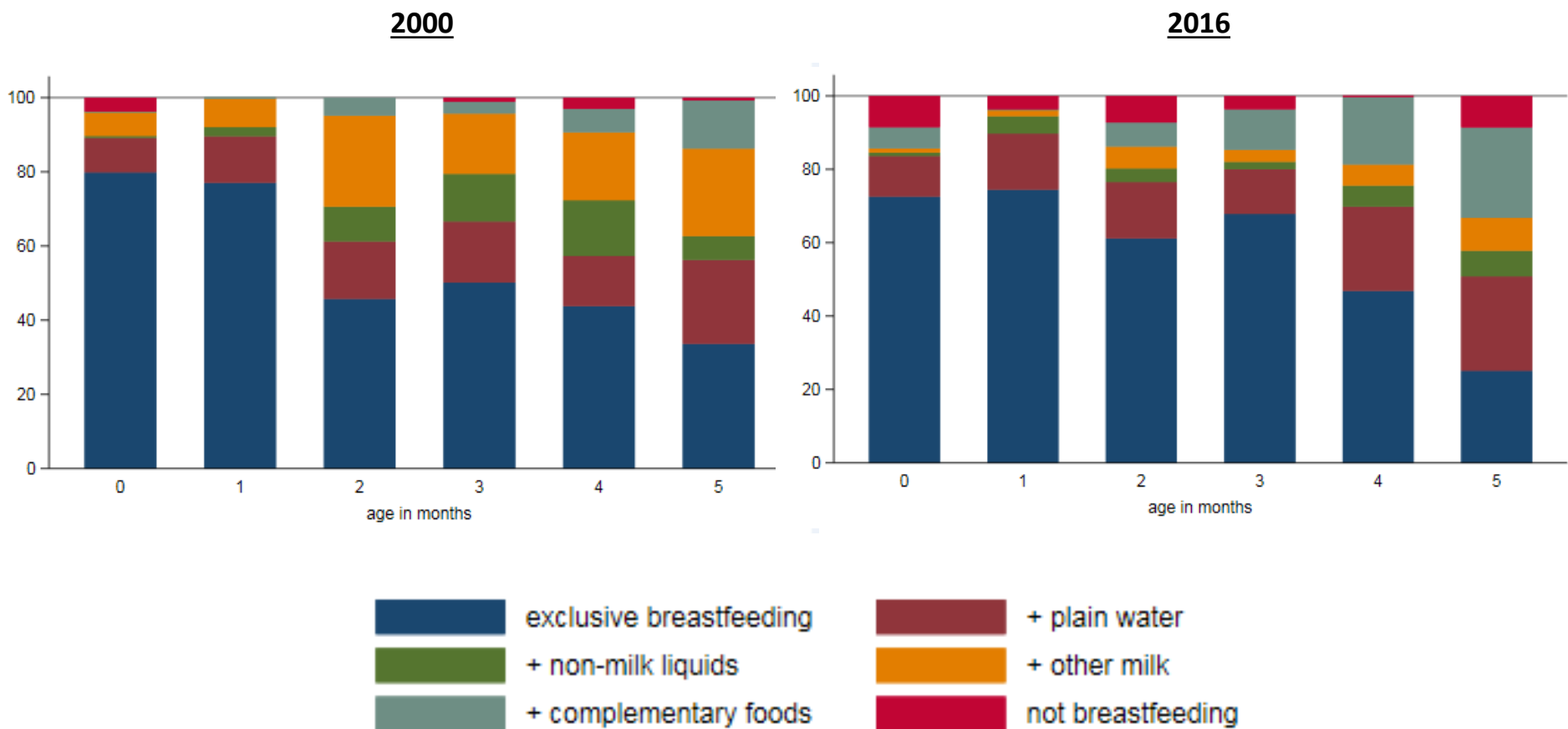
Underweight (BMI<18) prevalence



Source: Demographic and Health Survey (DHS) – Ethiopia 2000-2016



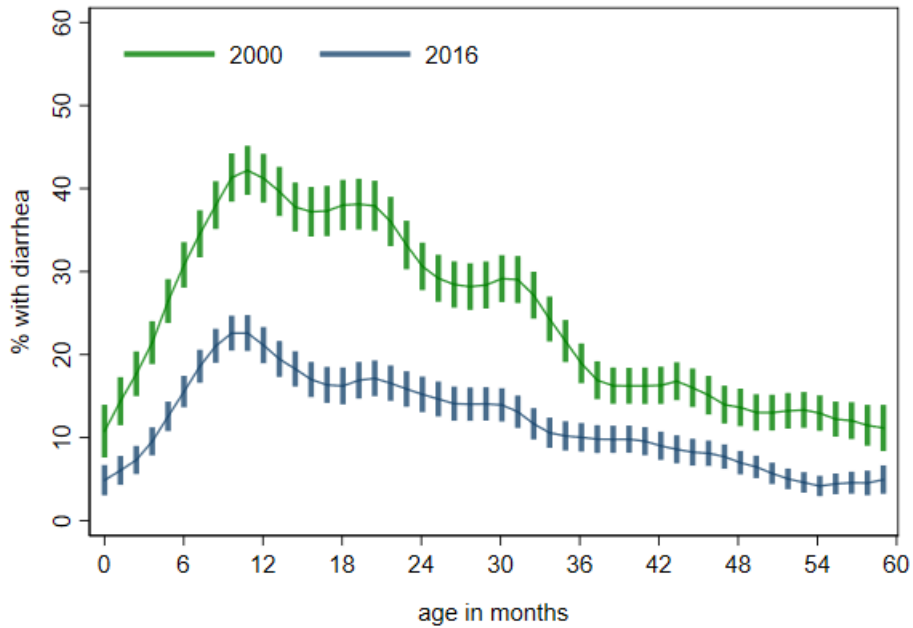
# 'More Intensive' breastfeeding ✓



Source: Demographic and Health Survey (DHS) – Ethiopia 2000 & 2016

# Child morbidities have declined

Diarrhea



Fever





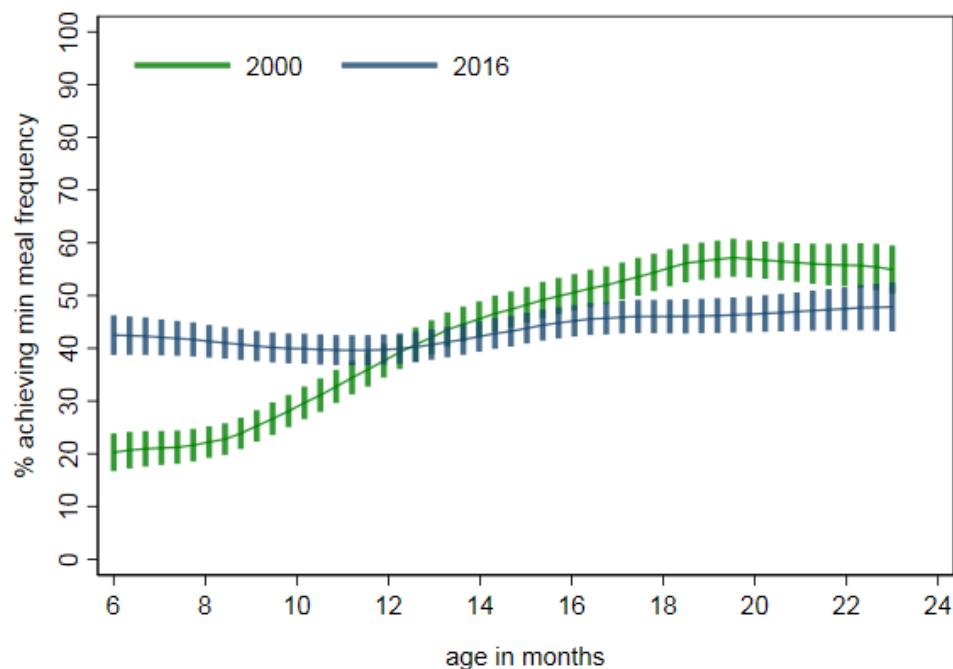
# Little improvement in CF practices?

1. **Minimum meal frequency (%):** Proportion of breastfed and non-breastfed children 6-23.9 months of age who receive solid, semi-solid, or soft foods or milk feeds the minimum number of times or more.
2. **Minimum dietary diversity (%):** Proportion of children 6-23.9 months of age who receive foods from 4 or more food groups (out of 7).
  - Problem: only available in 2011 and 2016



# Larger share of the younger children achieve recommended meal frequency

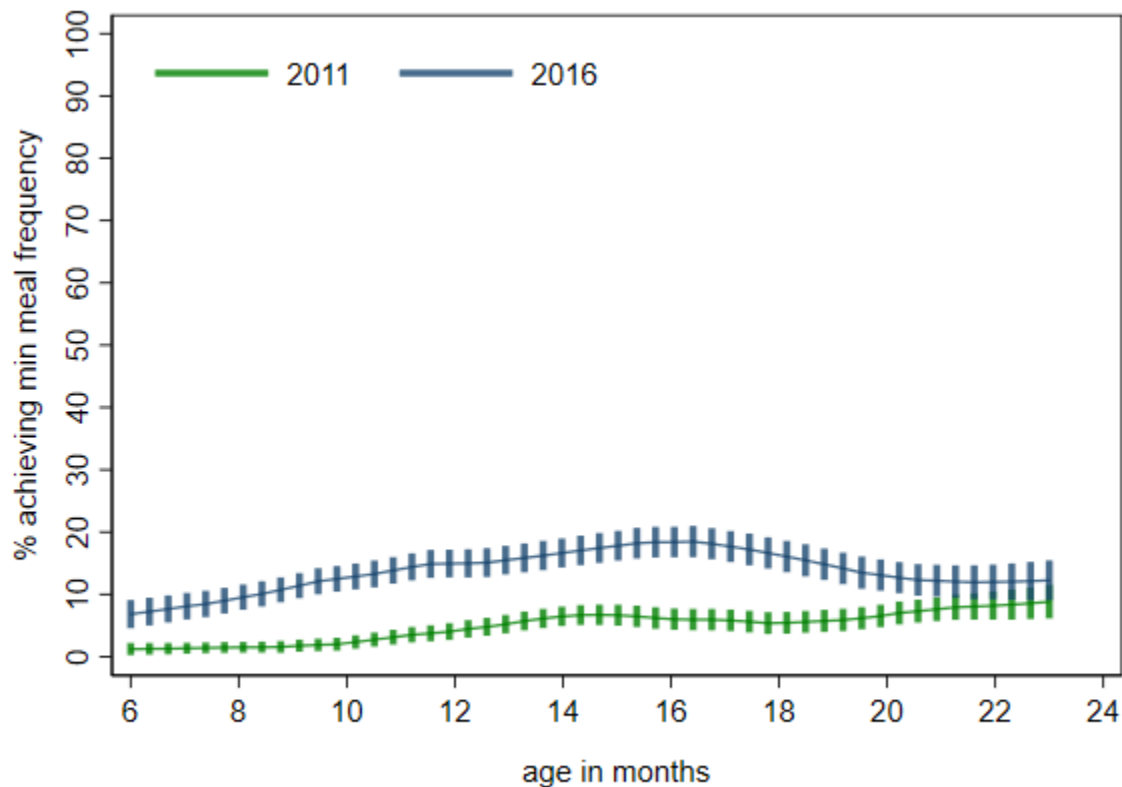
% of children achieving recommended meal frequency



Source: Demographic and Health Survey (DHS) – Ethiopia 2000 & 2016

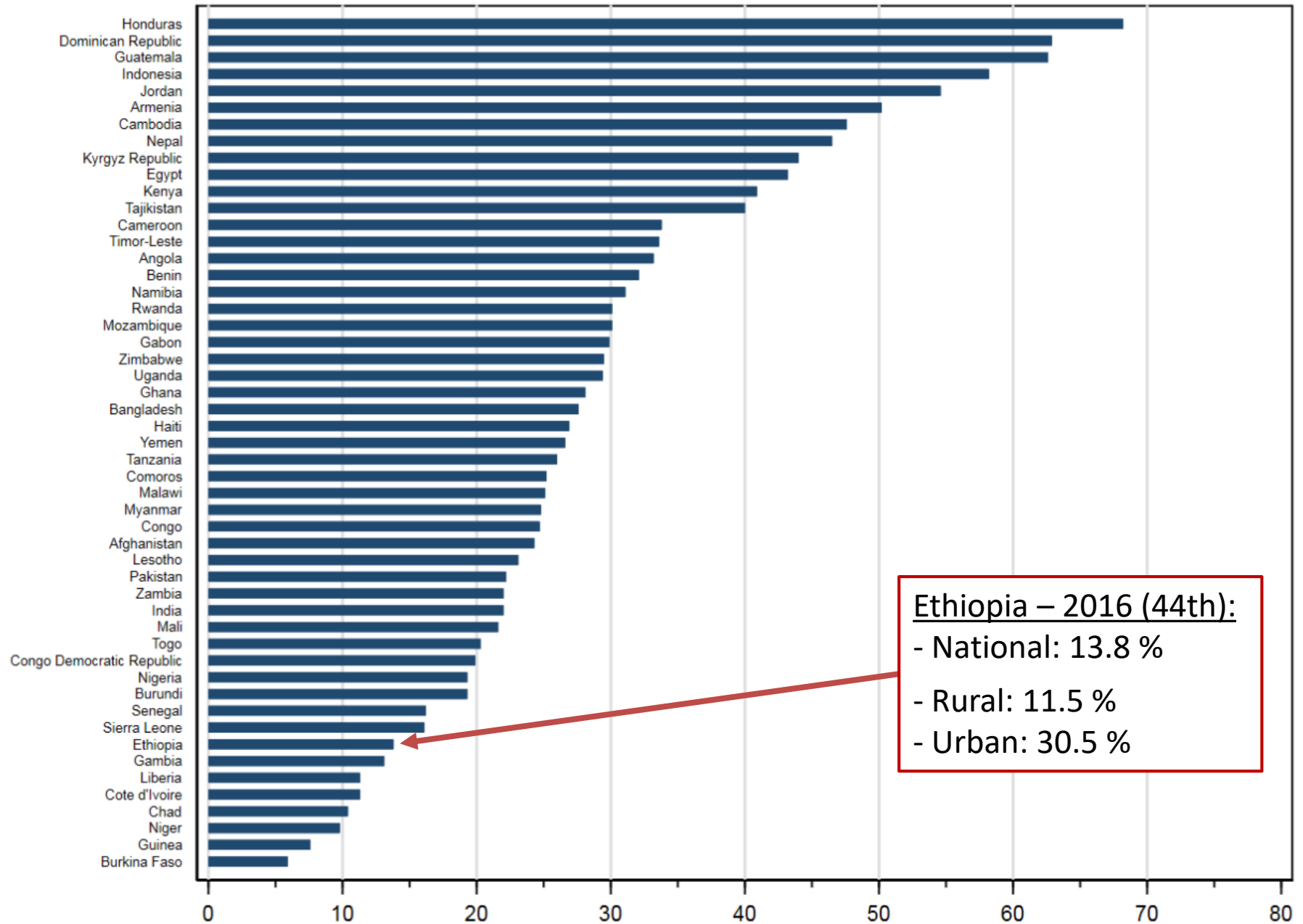
# Few children still consume a sufficiently diverse diet

% of children achieving recommended dietary diversity



Source: Demographic and Health Survey (DHS) – Ethiopia **2011** & 2016

# % of children 6-23 months fed 4+ food groups



# Summary

Considerable reduction in stunting rates since 2000.

- One of the fastest reductions in the world

Little improvement in avg birth sizes; 20% are born stunted

- Calls for focus on maternal health & nutrition

In 2016, growth faltering occurs later – likely due to improvements in ‘intensive’ breastfeeding practices.

- Median duration of exclusive breastfeeding increased from 2.5 to 3.6

However, growth still ‘collapses’ around the time when complementary foods are introduced (~ 6 mo).

- **Extremely low nutrient density in complementary foods**



# References

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## **Other relevant work ([more at essp.ifpri.info](http://essp.ifpri.info)):**

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