

Reducing Child Undernutrition: Past Drivers and Priorities for the Post-MDG Era

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(based on Smith and Haddad 2014)

Why important?

- 162 million children under 5 are stunted (about 30% of all under 5's in the developing world)
- 45% of all deaths under 5 are related to stunting
- Large income losses—stunted children 30% less likely to be living in poverty as adult
- Nutrition specific interventions can address about 20% of stunting—need other sectors to step up, but which?
- Are the pre-MDG priorities the same as the post MDG ones?
- Stunting will be the new measure for tracking undernutrition in the post MDG era –should this change our emphasis?
- Does governance matter for undernutrition reduction?

Questions Addressed

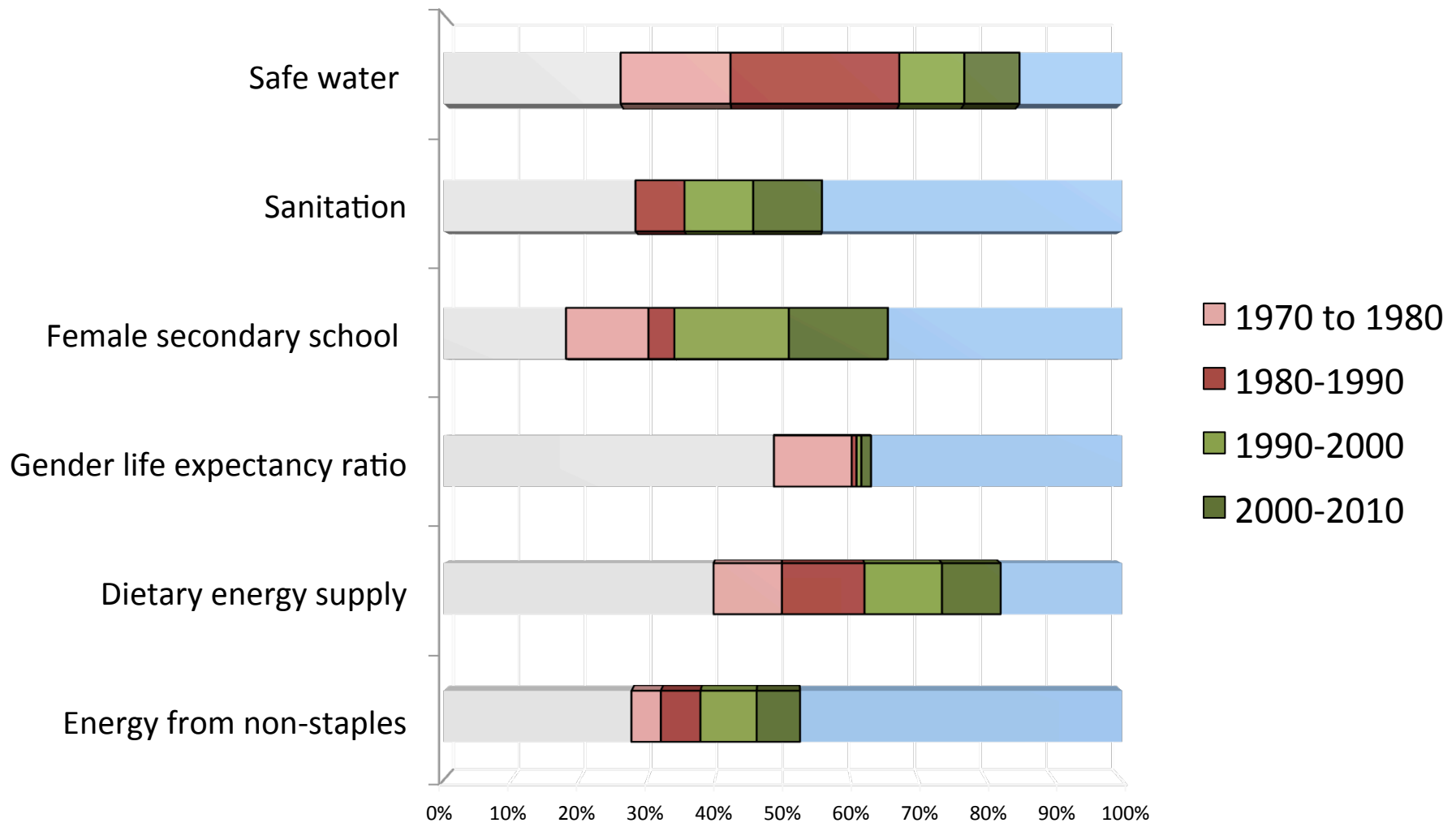
- Which underlying and basic determinants of stunting have been important over the past 40 years?
- Are there any regional patterns to the drivers?
- Has there been a structural shift pre and post MDGs?
- What are the priority determinants in SSA and SA?
- Does replacing underweight with stunting change priorities?
- How important is governance for future reductions in undernutrition?

The Data and Models

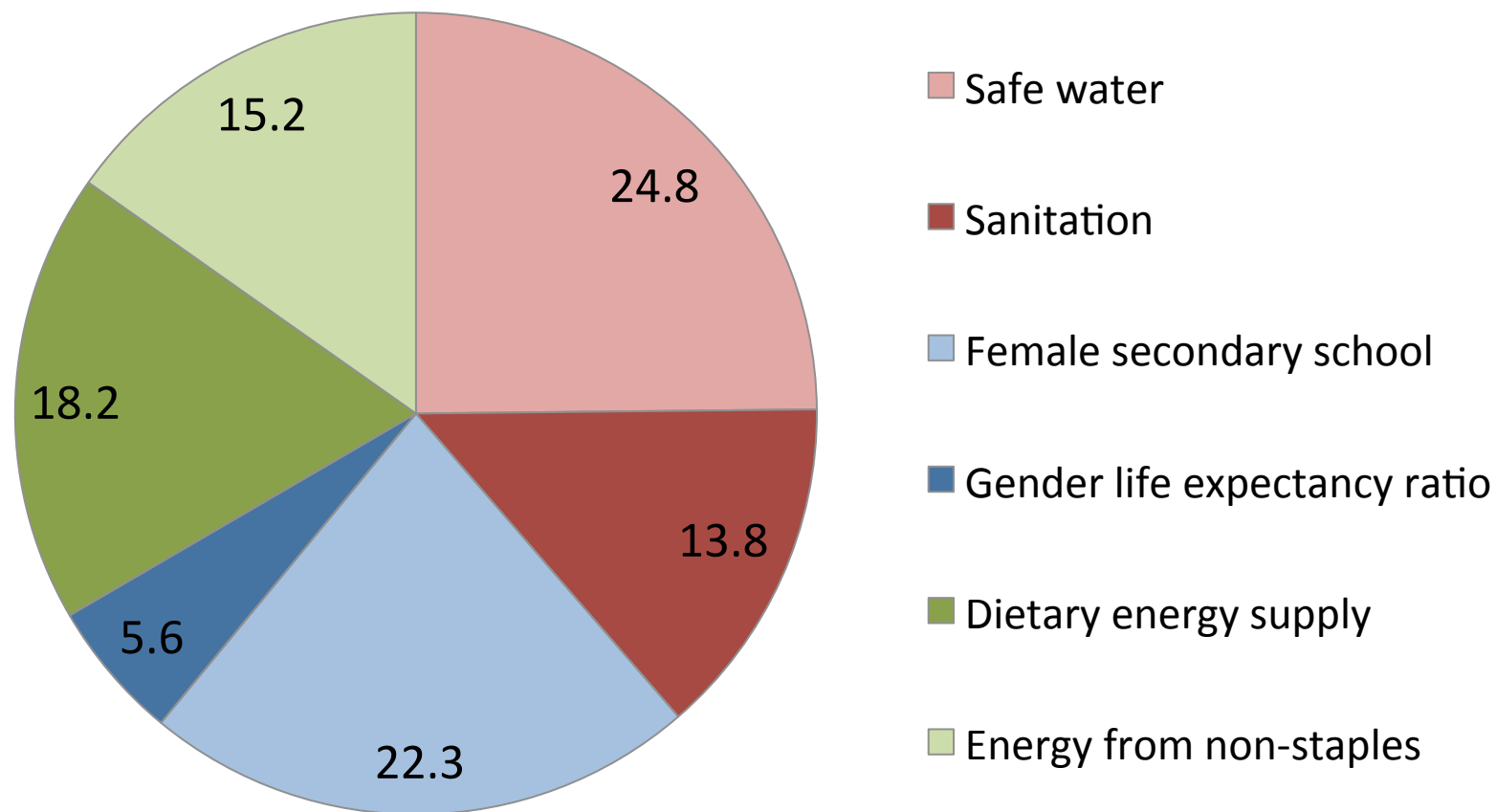
- Panel econometric estimates
- 116 middle and low income countries, 1970-2012
- Underlying determinants model
Stunting=f(food, gender equity, female education, water, sanitation)
- Basic causes model
Stunting=f(GDP per capita, demographics, governance indicators)
- Drivers of underlying determinants
Underlying determinant=f(GDP per capita, demographics, governance indicators)
- Short Term (first differences) and Long Term (within country difference from mean) models

1. Which underlying and basic determinants of stunting have been important over the past 40 years?

Which underlying determinants have increased the most over the past 40 years?

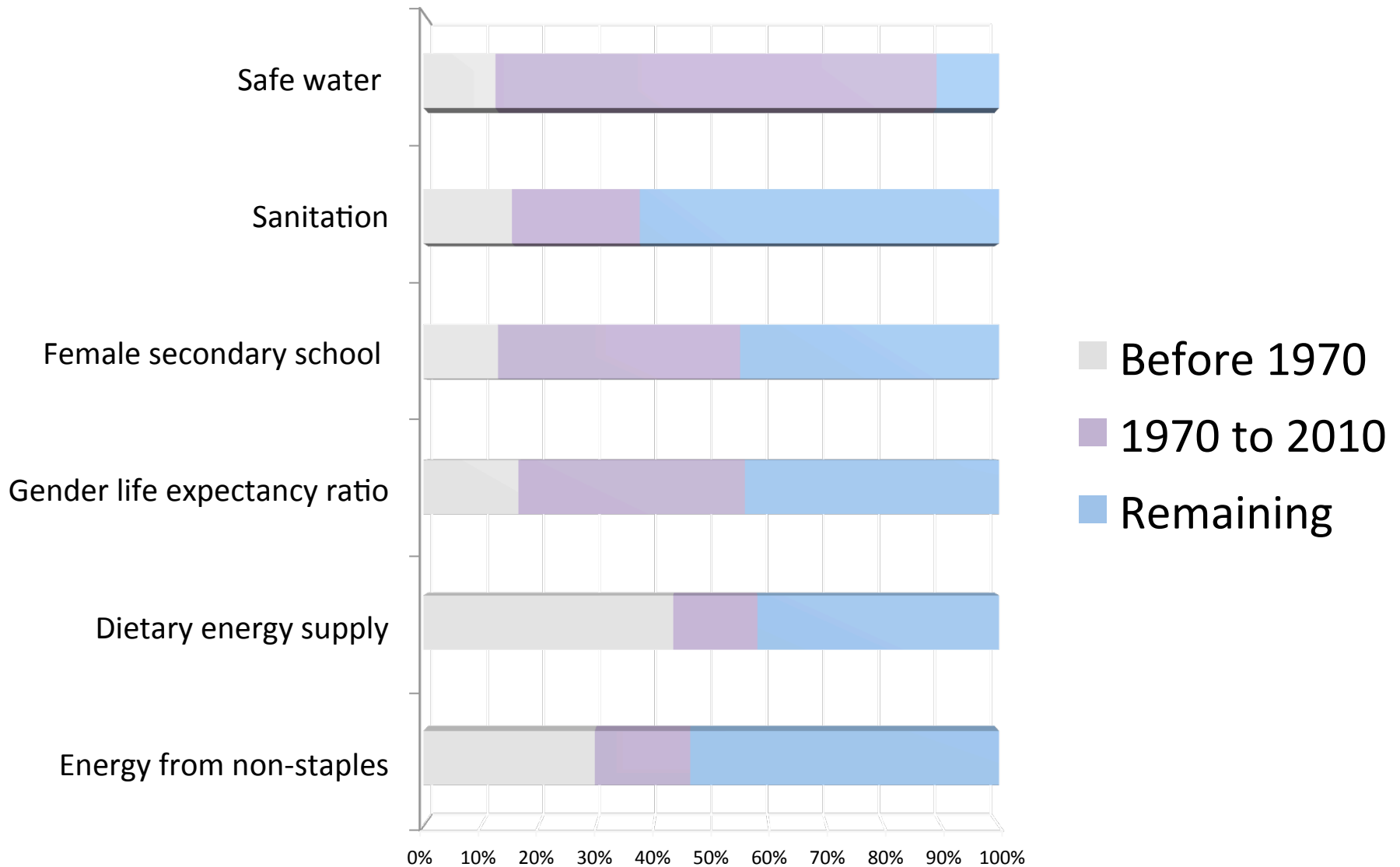


Contributions of underlying determinants to total estimated stunting reductions, 1970-2010

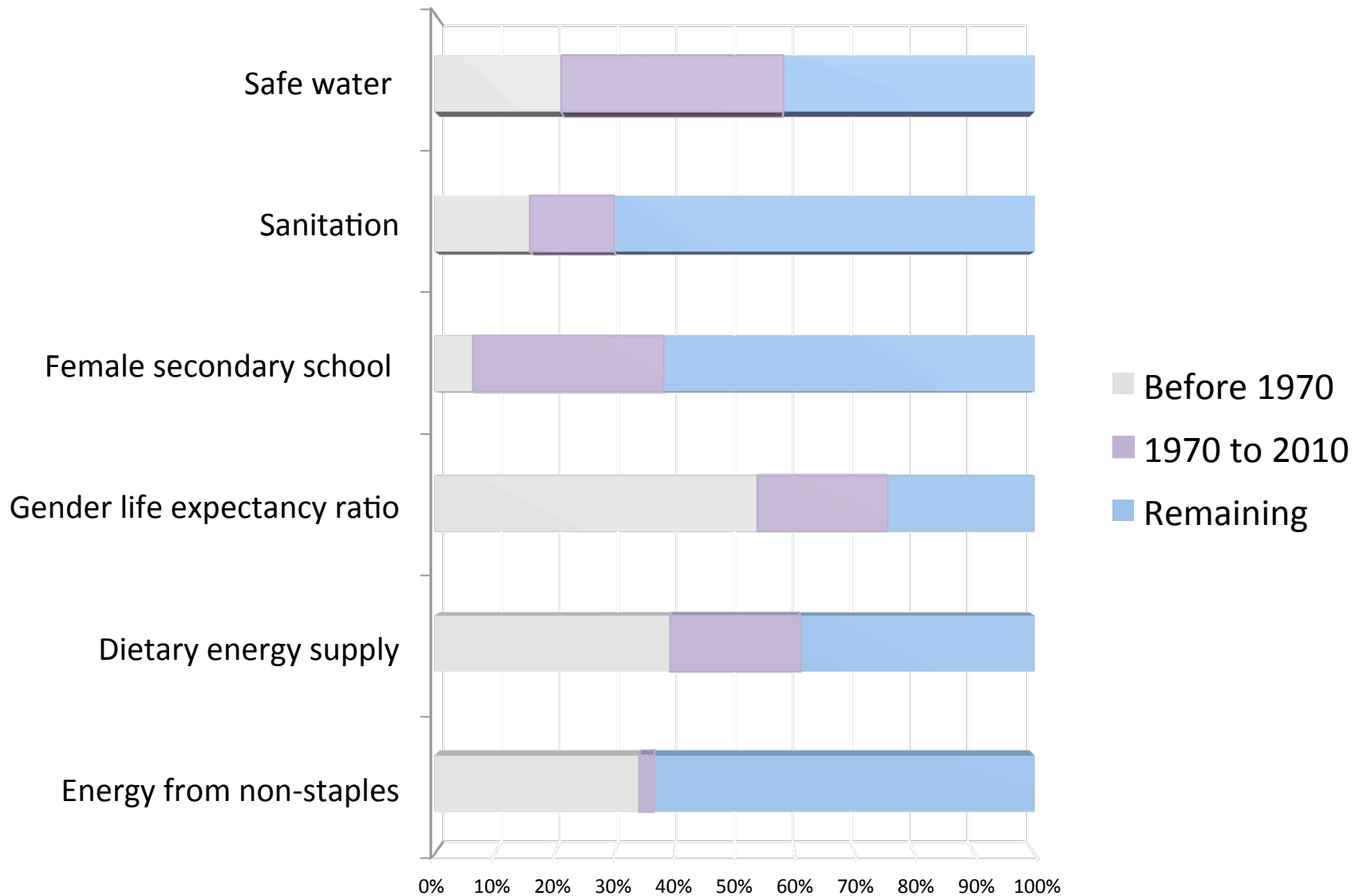


2. Are there any regional patterns to the drivers?

South Asia: Which underlying determinants have increased the most over the past 40 years?



Sub-Saharan Africa: Which underlying determinants have increased the most over the past 40 years?



In terms of the magnitude of different drivers on stunting

- Gender equality variable is twice as effective in reducing stunting in South Asia compared to other countries
- Food supply was more effective in reducing stunting in South America than in other areas
- Food supply diversity was not significant in Sub Saharan Africa

3. Has there been a structural shift pre and post MDGs?

NO

4. What are the priority determinants in SSA and SA?

Priorities have

- (a) a strong historical effect on stunting AND
- (b) scope for substantial increases

South Asia:

- access to sanitation
- diversity of food supply
- gender equality

Sub-Saharan Africa:

- access to sanitation
- women's secondary education
- gender equality

5. Does replacing underweight with stunting change priorities?

NOT TOO MUCH

Safe water access is a more important with underweight, but the scope for increasing coverage remains lower than the other determinants

6. Does governance matter for
undernutrition reduction?

Yes, but not clear how just yet

Table 7. Basic determinants--Pathways of influence

Basic determinant	Underlying determinant						
	Stunting	Access to safe water	Access to sanitation	Female secondary school enrollment	Female-to-male life expectancy ratio	Per capita dietary energy supply	Percent of dietary energy from non-staples
Per capita GDP (\$ PPP)	-		+	+		+	+
Governance a/							
Governance index	-	+					
Bureaucratic effectiveness	-	+	+				
Law and order	-	+					
Political stability	-	+			-		+
Restraint of corruption	-				+	-	
Democratic accountability	+/-			+		+	

Note: The designation “-“(“+”) signifies that the basic determinant has a negative (positive) impact on the underlying determinant. The designation “+/-” signifies that the impact is either positive or negative, depending on the position along a quadratic function.

a/ The governance index and each of its five dimensions were considered individually in separate regressions, with stunting and each of the six underlying determinants as dependent variables (for a total of 36 separate regression equations).

Conclusions

- Post MDGs, the UNICEF model still has great empirical validity
- Switching underweight for stunting does not change the relative priorities for future investments. Sanitation and gender equity remain common priorities.
- In South Asia, diversifying the food supply seems particularly important for the future
- In Sub-Saharan Africa, food supply is important, but is less powerful than other factors
- GDP per capita matters for stunting reduction, especially in the long run: a 10% increase leads to a 6.3% reduction in stunting rates (and 1.7% in the short run)
- Governance matters for stunting, and also for the underlying determinants, especially via expanding access to safe water
- Underlying determinants account for much more of public spending than nutrition specific or even nutrition sensitive interventions. They should not be ignored in the fight to reduce undernutrition

Limitations

- It's a cross country regression (endogeneity!)
- No data for health systems
- Food data represent availability, not access
- No cost data
- We can give a sense of regional priorities, but not country level priorities
- Results of the study are easily misinterpreted
- The past is an imperfect guide to the future