

## Household dietary diversity and the nutritional status of children in South Africa

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September 3<sup>rd</sup>, 2015

Kramer Law Building, University of Cape Town  
5<sup>th</sup> ISCI conference, 2-4 September 2015

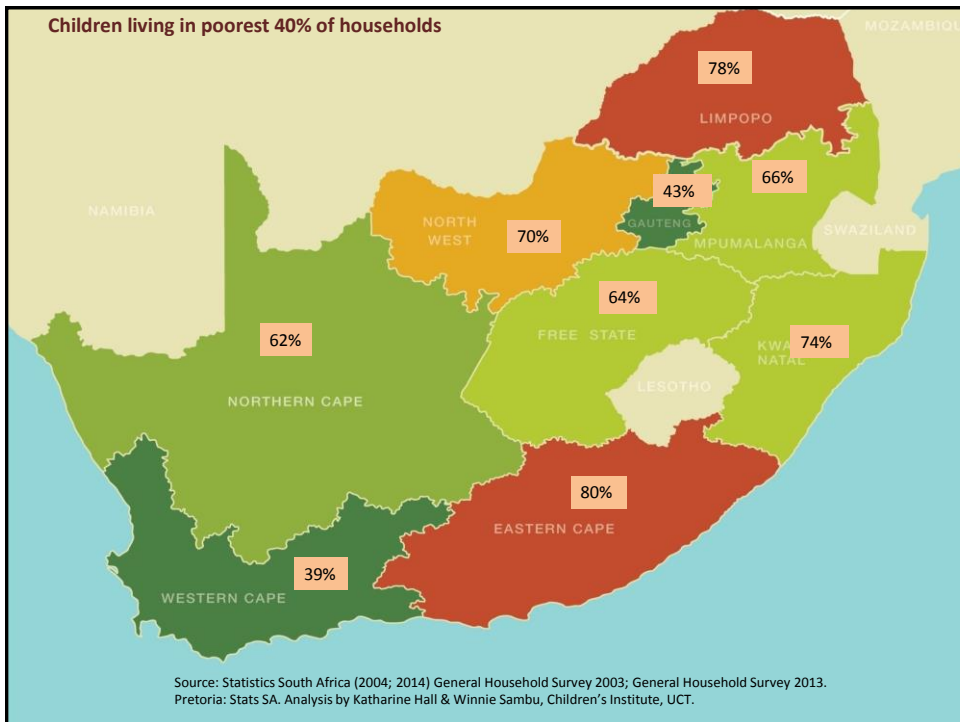


### Overview

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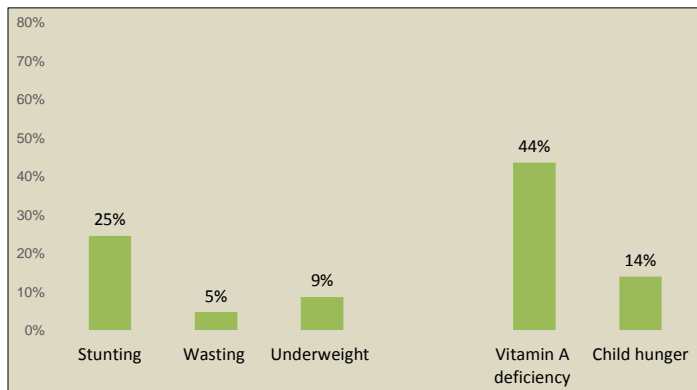
- There are over 18 million children in South Africa; half live in three provinces – KwaZulu-Natal, Eastern Cape & Limpopo
- 55% live in urban areas
- Poverty levels have reduced over the years, but over 50% still live in poverty
- 64% of children live in the poorest 40% of households





### Nutritional indicators...

- 14% suffer from reported child hunger (GHS, 2013)
- 25% of children under 5 years are stunted



Source: Hall K, Sambu W and Berry L (2014) Early Childhood Development: A statistical brief. Cape Town: Children's Institute, University of Cape Town and Ilifa Labantwana.



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- Children in rural areas worse off than those in the urban areas
  - Many questions...
    - Why are there high levels of poor nutritional outcomes?
    - What are the causes?



## Food Security

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“Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

World Food Summit, 1996



## Why continue to talk about food insecurity?

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- Continues to affect millions
- Damaging to livelihoods and reduces self-sufficiency
- Causes malnutrition in people of all ages
- Causes morbidity and;
- Results in mortality



## Measuring food security at household level

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- Diet quantity
  - Nutrient adequacy – amount of nutrients individuals consume vs daily caloric requirement
  - Food energy acquisition – budget surveys
  - Percentage of households that are food energy deficient
- Diet quality
  - **Dietary diversity**
  - Percentage of food energy acquired from the staples - such as rice, maize cassava - in the total dietary energy available



## Dietary Diversity

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- The different types of food or food groups that household or individual acquires
  - A simple count of food or food groups
- Combine different food groups to get different scores:
  - HDDS is used as a proxy measure of the socio-economic level of the household
  - WDDS
  - IDDS
- Attractive indicator as questions are simple and can be asked at household level



## Why dietary diversity?

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- a more varied diet is necessary for proper growth and healthy living
- associated with reduction of risk of mortality from cancer and cardiovascular diseases
- highly correlated with household income
- highly correlated with caloric and protein adequacy and consumption
- **associated with improved birth weight**
- **associated with improved nutritional status of children**



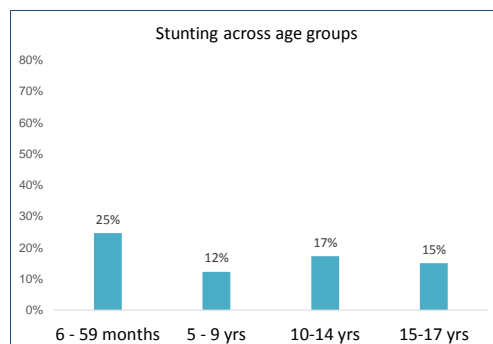
## Investigating the links using South African data

- National Income Dynamics Study (NIDS) 2008
  - A panel survey of over 7,000 households
  - Data on anthropometric measurements
  - Data on household food consumption over 30 days period



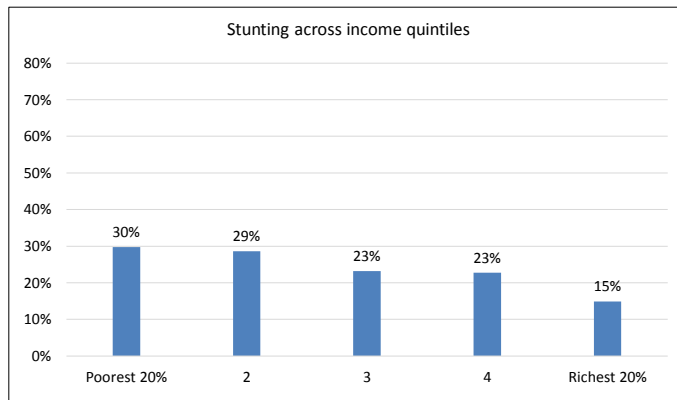
## Nutritional status of children

- Stunting remains the most common form of malnutrition
  - 25% of children under 5
  - 17% of children aged 6 months to 17 years are stunted

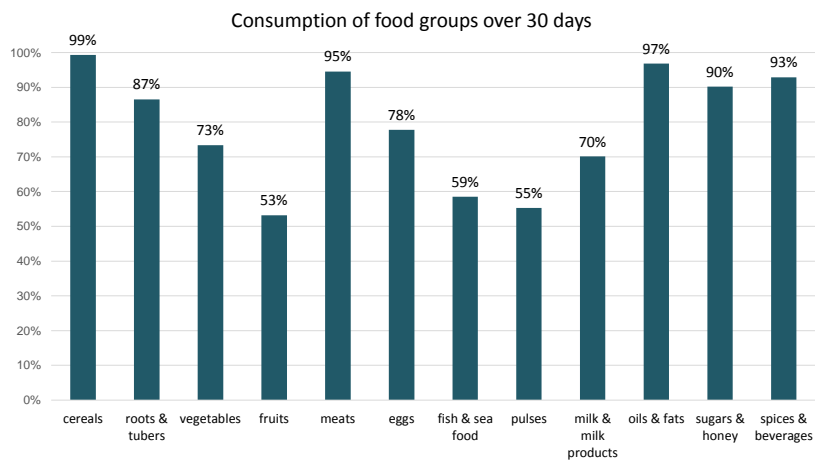


## Stunting across income quintiles

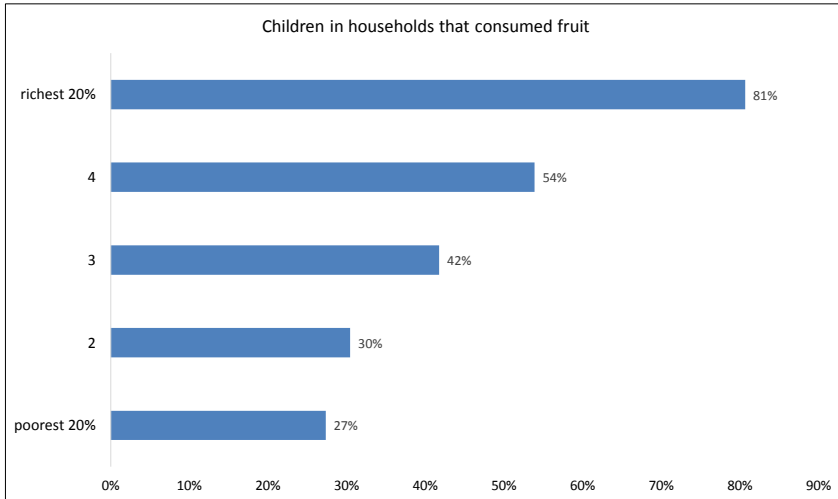
- Stunting rates across income quintiles for children under 5 years



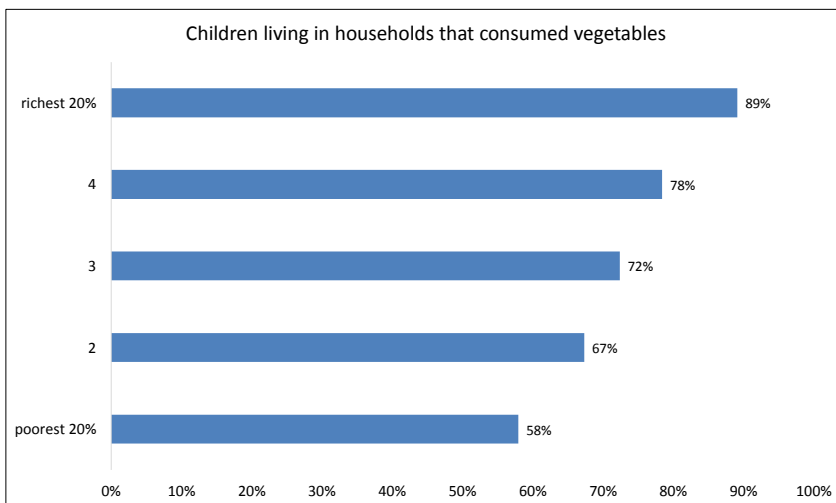
## What's on the menu?



## Low consumption of fruit

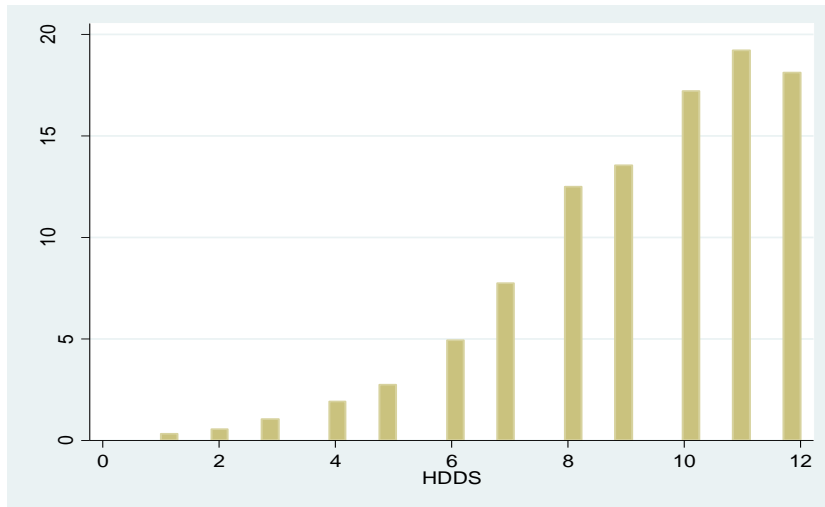


## Children living in households that consumed vegetables





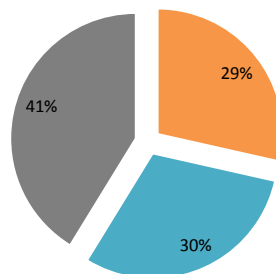
## A household dietary diversity score (HDDS)



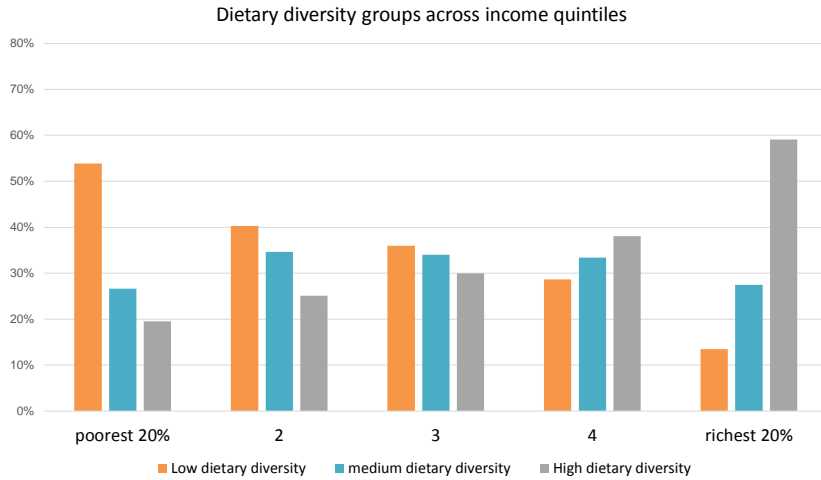
## Dietary Diversity groups

Dietary Diversity groups

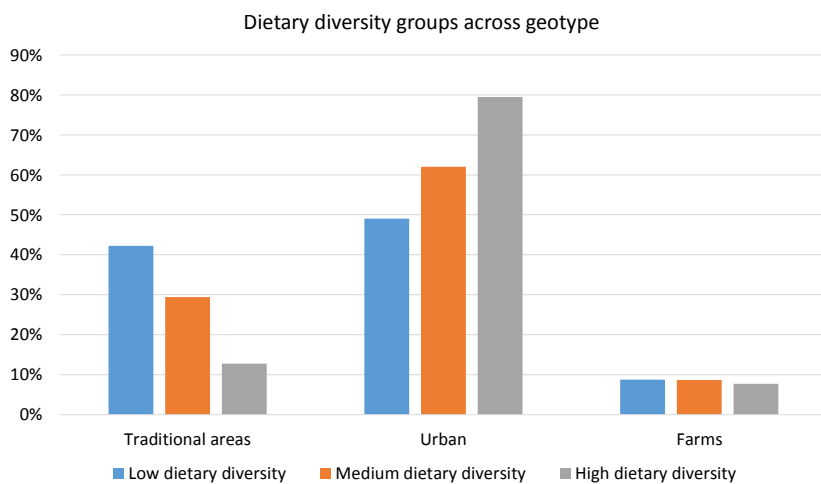
- Low dietary diversity
- Medium dietary diversity
- High dietary diversity



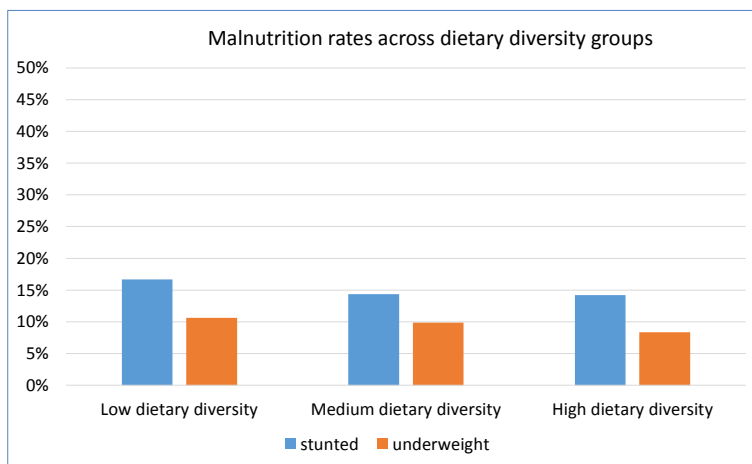
## Dietary diversity across Income quintiles



## Across geographical locations



## Links with child nutritional outcomes?

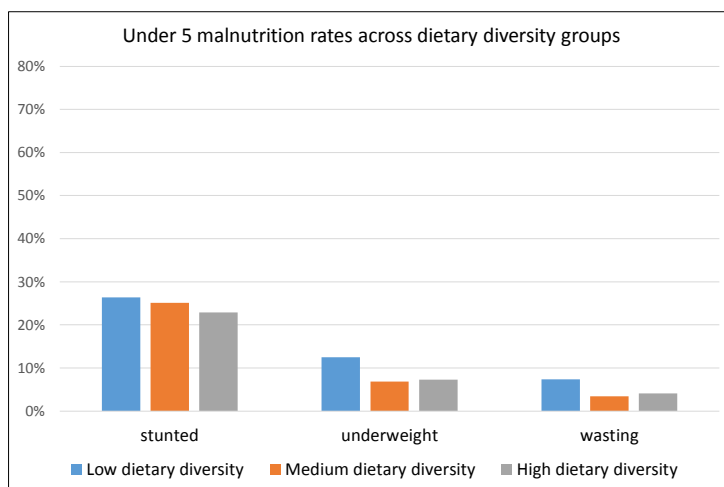


- Malnutrition rates significantly lower for higher dietary diversity groups

- Stunting rates – for children aged 6 months up to 18 years
- Underweight rates – for children aged 6 months up to 10 years



## Children under 5 years



## Under five nutritional status & dietary diversity

- Stunting, wasting and underweight rates lower for high dietary diversity group
- Results not statistically significant in the case of stunting
- Results statistically significant for underweight and wasting



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- Statistically significant differences in the case of stunting
  - For children under the age of 5 years - over 25% of children in who consumed diets low in diversity are stunted
  - Stunting rates at 14% for children living in households with consumed diets high in diversity
  - No differences observed in wasting and underweight



### Some multivariate analysis...

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	Stunting		Underweight	
	Odds Ratio	P>z	Odds Ratio	P>z
HDDS	0.948272	0.000	0.93729	0.005
Age	0.972033	0.000	1.049261	0.009
Gender	1.321075	0.000	1.036285	0.727
Water	0.799147	0.005	0.978543	0.878
Sanitation	1.088528	0.330	1.362729	0.038
Overcrowding	0.845638	0.008	0.619454	0.000
Adequate housing	0.984409	0.807	1.065565	0.585



## Children under 5 years

	Stunting		Underweight		Wasting	
	Odds Ratio	P>z	Odds Ratio	P>z	Odds Ratio	P>z
<b>HDDS</b>	0.968772	0.189	0.902873	0.003	0.929186	0.133
<b>Age</b>	0.935539	0.093	1.037744	0.544	0.785639	0.004
<b>Gender</b>	1.262894	0.025	1.03457	0.831	0.691795	0.096
<b>Water</b>	0.83453	0.215	1.124842	0.581	0.974001	0.930
<b>Sanitation</b>	1.229687	0.183	1.032549	0.888	1.141072	0.678
<b>Overcrowding</b>	0.707291	0.002	0.594627	0.001	0.976798	0.921
<b>Adequate housing</b>	1.045059	0.705	1.161301	0.402	1.082881	0.747



## Limitations & technical issues

- Data is from 2008; need for more recent data
- Measuring dietary diversity
  - Recall period?
  - Doesn't take into account the amount of food eaten?
  - A household measure – individual consumption / child consumption could be very different



## Conclusions

- Link between stunting and dietary diversity.
- But no association for children under 5 years....
- Questions, and more questions!
  - Why the high levels of stunting, even within higher income quintiles?
  - Need for more detailed & up-to-date data



	Stunting		Underweight	
	Odds Ratio	P>z	Odds Ratio	P>z
HDDS	0.940032	0.000	0.968798	0.307
Age	1.038361	0.000	1.07364	0.114
Gender	1.363031	0.000	1.030717	0.821
Water	0.792542	0.016	0.900748	0.582
Sanitation	1.010245	0.924	1.636843	0.013
Overcrowding	0.934269	0.392	0.630911	0.001
Adequate housing	0.959	0.591	0.984985	0.922

