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Health Track

PowerPoint presentation from workshop on
Validation of a Measure of Household Hunger for Cross-
Cultural Use

Session transcript:

<http://www.state.gov/s/d/rm/rls/rm/2010/148053.htm>

FANTA · 2

FOOD AND NUTRITION
TECHNICAL ASSISTANCE



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FROM THE AMERICAN PEOPLE

Validation of a Measure of Household Hunger for Cross-Cultural Use

Findings of work by:

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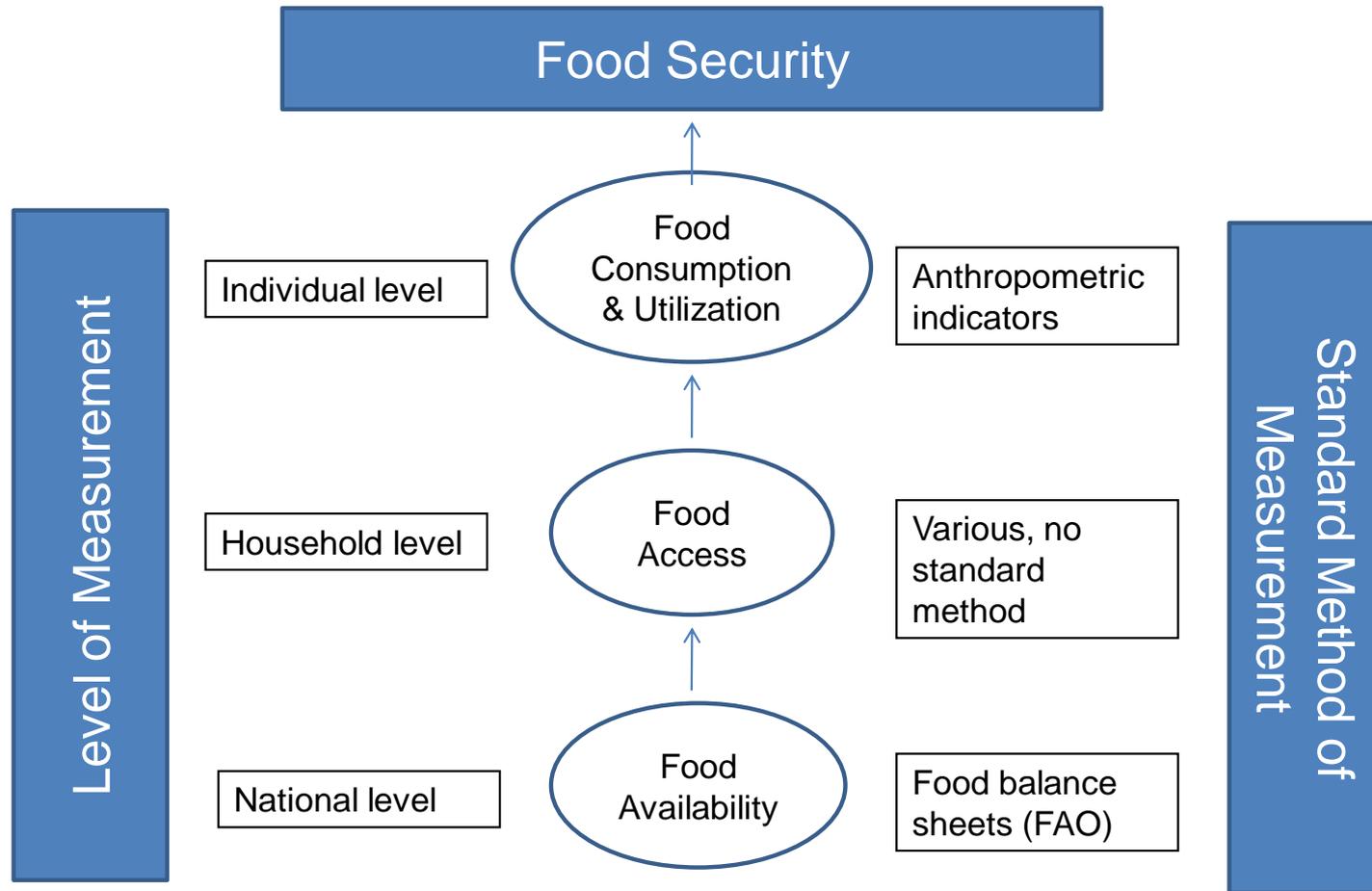
What is Food Security?

“When all people at all times have physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life.” (USAID 1992)

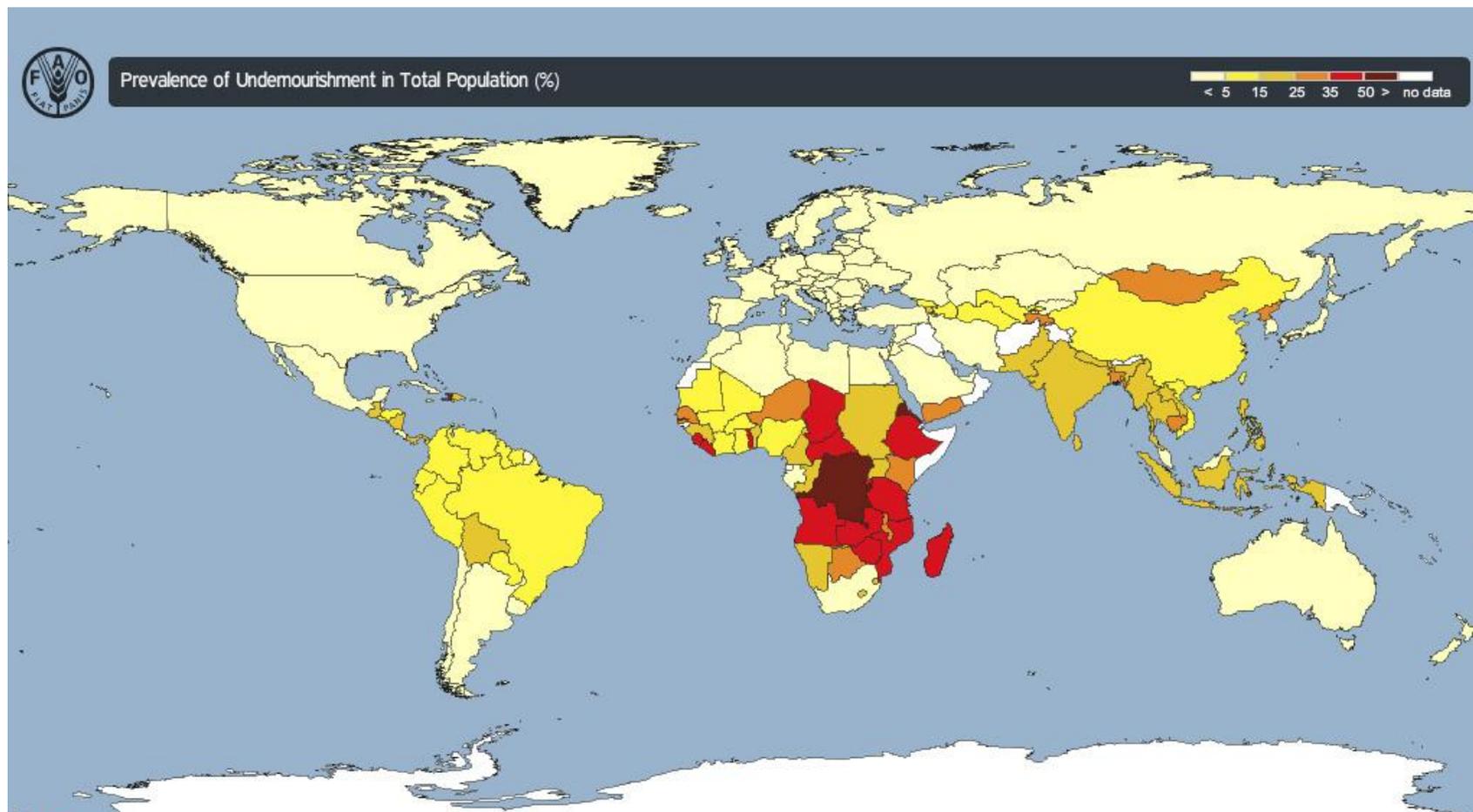
This definition is founded on 3 elements:

1. Food availability
2. Food access
3. Food utilization/consumption

Defining and Measuring Food Security



Prevalence of “undernourishment” by country, FAOSTAT 2009



Why do we need information on household food access?

- To understand who is affected by food insecurity
- To understand to what extent households are affected by food insecurity
- To understand how households are affected by food insecurity

Useful measurement criteria for an indicator of household food access

- Simple, internally, externally valid measure
- Provides timely information
- Possibility to obtain disaggregated data by region, urban/rural communities
- Comparable, cross-culturally valid measure

Motivation for a comparable measure of household food access for cross-cultural use

- **Decision making**: Facilitates prioritization of geographic regions for intervention
- **Monitoring and evaluation**: Enables multi-regional and cross-country evaluation of programs
- **Policy advocacy**: Increased attention to food deprivation with availability of comparable data for resource-poor areas

Process to identify a comparable measure of household food access for cross-cultural use

Phase 1. Development of Initial Scale

- Background concept paper
- Multi-year field validation studies
- Literature review

Phase 2. Validation and Revision of Scale

- Identify partners and datasets for validation study
- Assess internal, external and cross-cultural validity
- Revision of scale according to validation results

Phase 1: Development of initial scale

9 scale items (I) defined:

1. Worry that the household would not have enough food
2. Not able to eat the kinds of food preferred
3. Eat a limited variety of foods
4. Eat some foods that you really did not want to eat
5. Eat a smaller meal than you felt you needed
6. Eat fewer meals in a day
7. No food to eat of any kind in your household
8. Go to sleep at night hungry
9. Go a whole day and night without eating

4 frequencies (F) defined:

Never, Rarely, Sometimes, Often

Phase 2: Validation and revision of scale

Data sets for validation study:

Mozambique Round 1 (Moz R1) 2006 n=591 rural; 4 districts

Mozambique Round 2 (Moz R2) 2007 n=299 rural; 2 districts

Malawi (Mal) 2007 n=1161; 3 districts

Kenya 2006 n=152 urban; HIV/AIDS affected hhs; (purposive sampling)

Zimbabwe (Zim) 2007 n=176; HIV/AIDS affected hhs in 3 districts

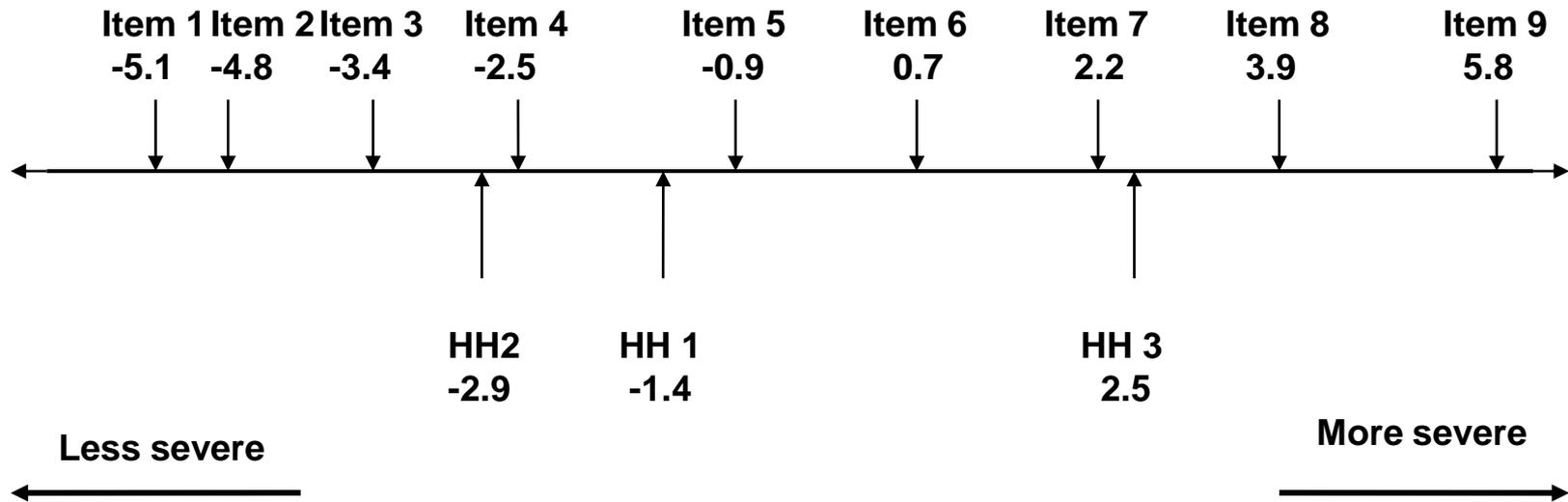
South Africa (S Africa) 2006 n=491; 1 district municipality

West Bank Gaza Strip (WBGS) 2006 n=1973; nationally representative

Primary validation analysis method:

Rasch modeling using CML for polytomous and dichotomous data

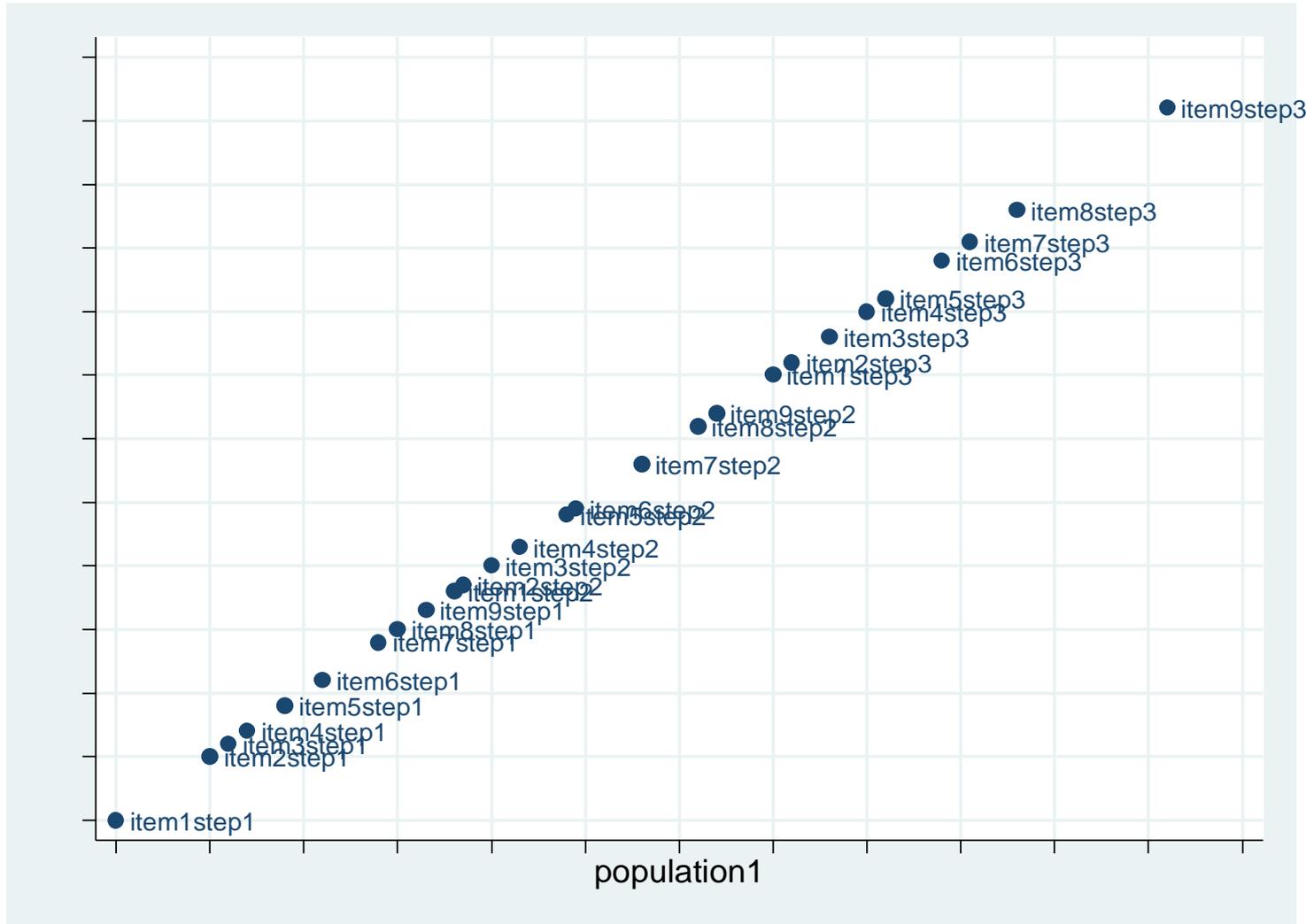
Example of Rasch analysis: Scale items and households on a logit continuum



Scale measurement criteria and method for evaluation

- **Internal validity**: Infit and outfit statistics
- **External validity**: Direction and strength of association with related indicators
- **Cross-cultural validity**: Cross-cultural comparison plots of standardized item and household calibrations

Example of Rasch analysis: Perfect cross-cultural equivalence



Two of the alternative [shorter] scales tested

5 Item 3 Frequency (5I 3F) Scale:

5. Eat a smaller meal than you felt you needed
6. Eat fewer meals in a day
7. No food to eat of any kind in your household
8. Go to sleep at night hungry
9. Go a whole day and night without eating

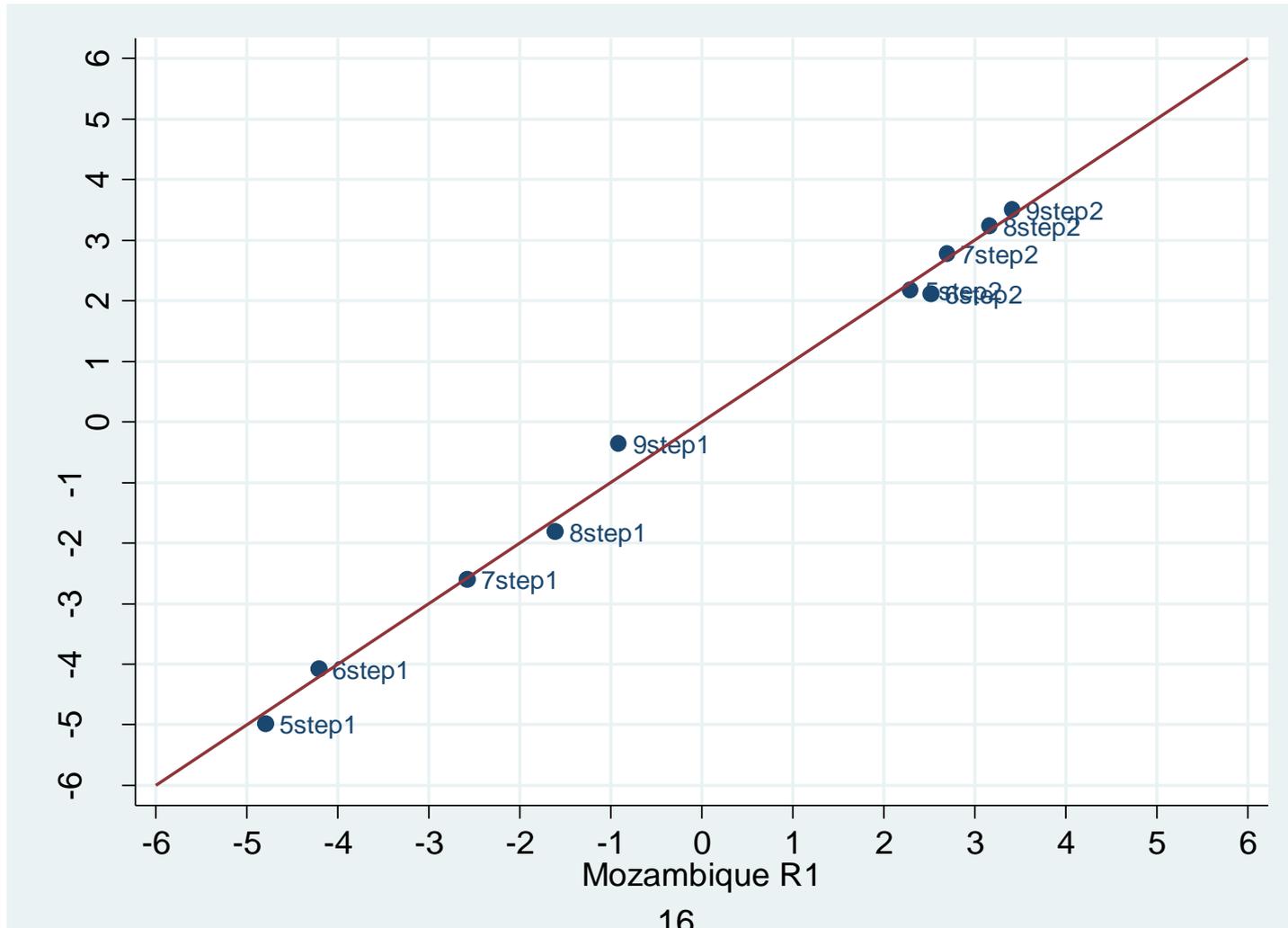
3 Item 3 Frequency (3I 3F) Scale:

7. No food to eat of any kind in your household
8. Go to sleep at night hungry
9. Go a whole day and night without eating

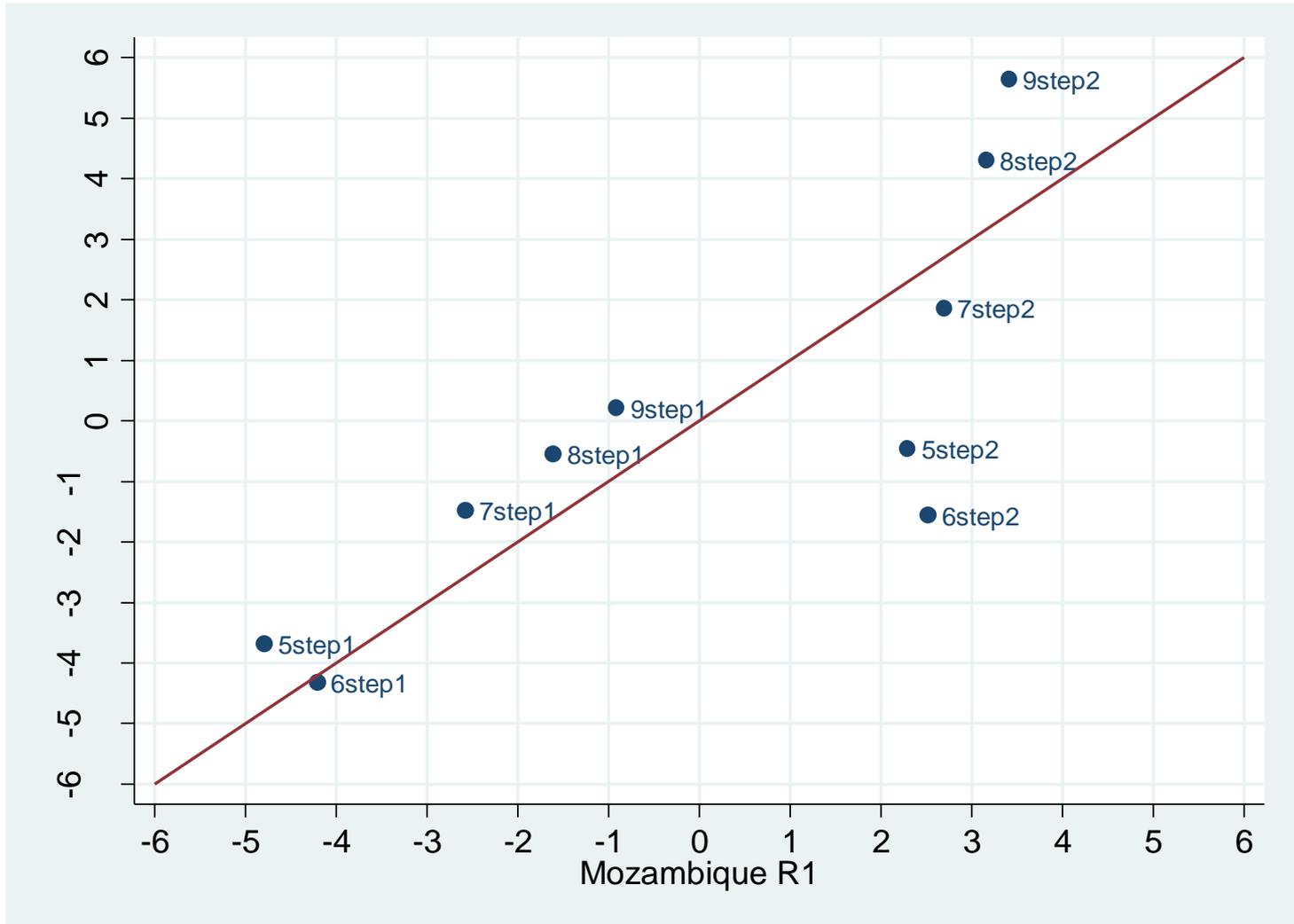
Internal validation results: Assessing equal discrimination of items and item steps

Infit Range	% of Items and Items Steps Outside of Infit Range						
	Moz R1	Moz R2	Mal	WBGS	Kenya	Zim	S Africa
5I 3F							
0.7-1.3	33.3%	26.7%	0.0%	0.0%	0.0%	40.0%	6.7%
0.6-1.4	6.7%	20.0%	0.0%	0.0%	0.0%	6.7%	6.7%
0.5-1.5	0.0%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%
3I 3F							
0.7-1.3	11.1%	22.2%	0.0%	33.3%	0.0%	33.3%	55.6%
0.6-1.4	0.0%	0.0%	0.0%	0.0%	0.0%	22.2%	22.2%
0.5-1.5	0.0%	0.0%	0.0%	0.0%	0.0%	22.2%	0.0%

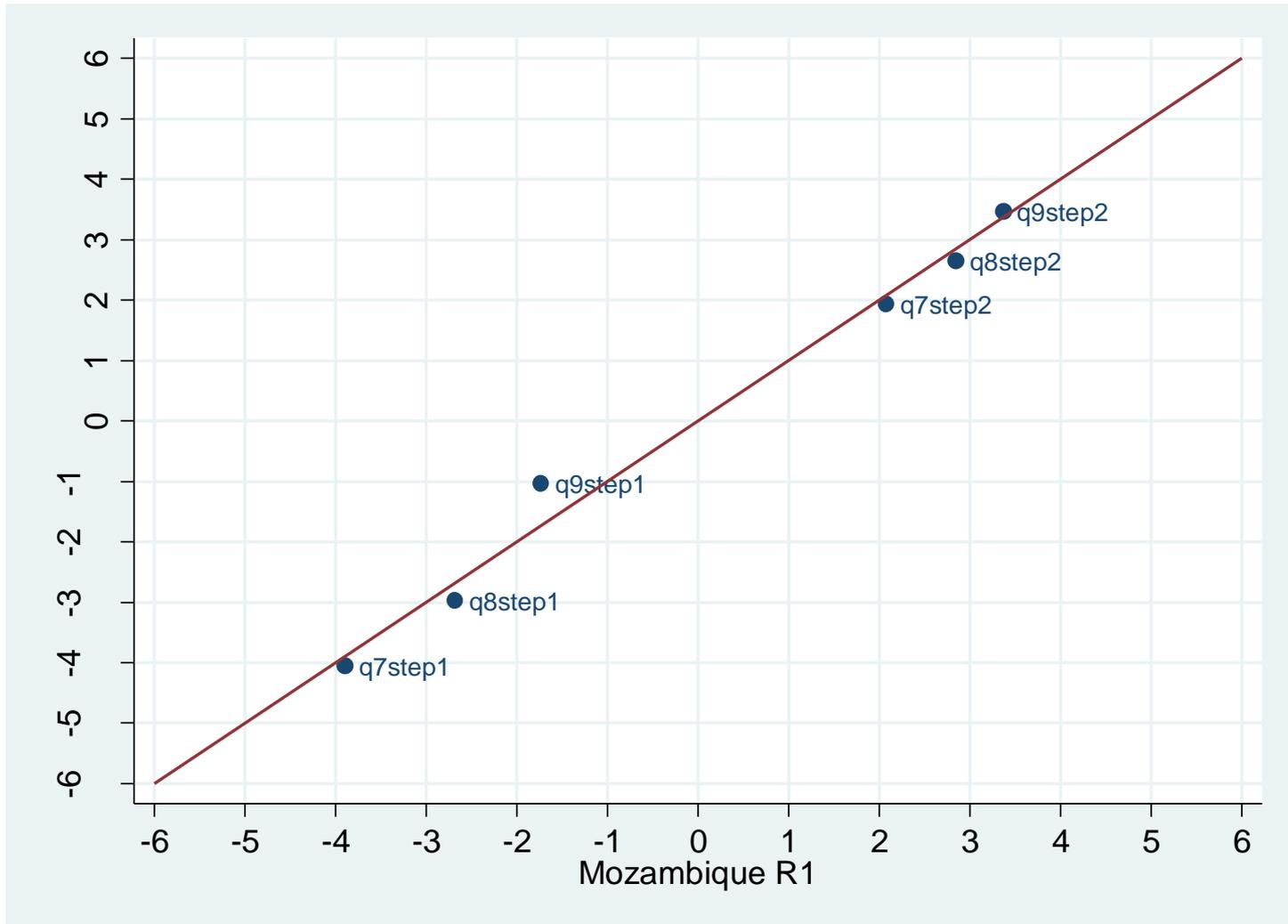
Cross-cultural validation results for item steps: 5I 3F, Moz R2 and Moz R1



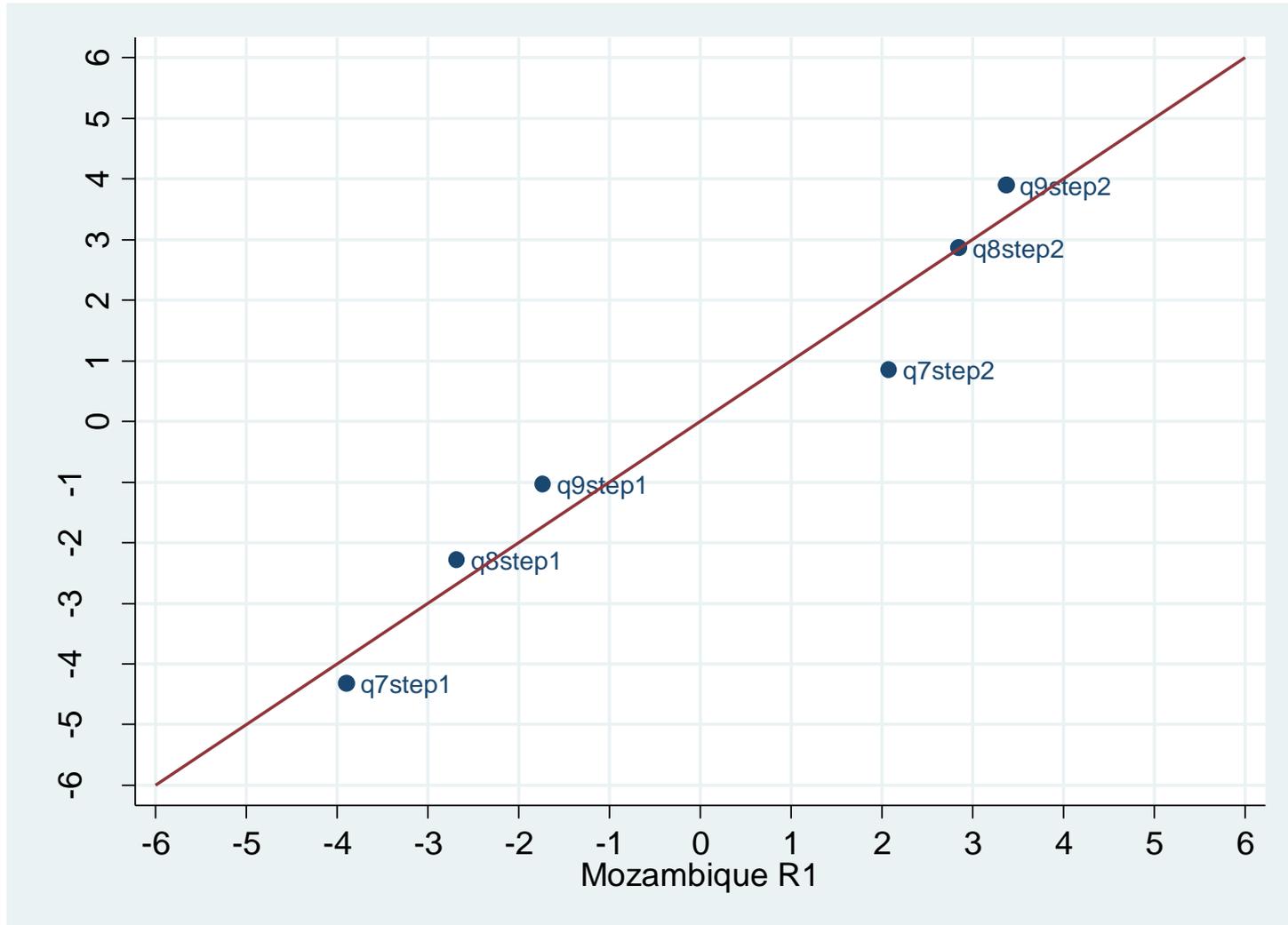
Cross-cultural validation results for item steps: 5I 3F, Zim and Moz R1



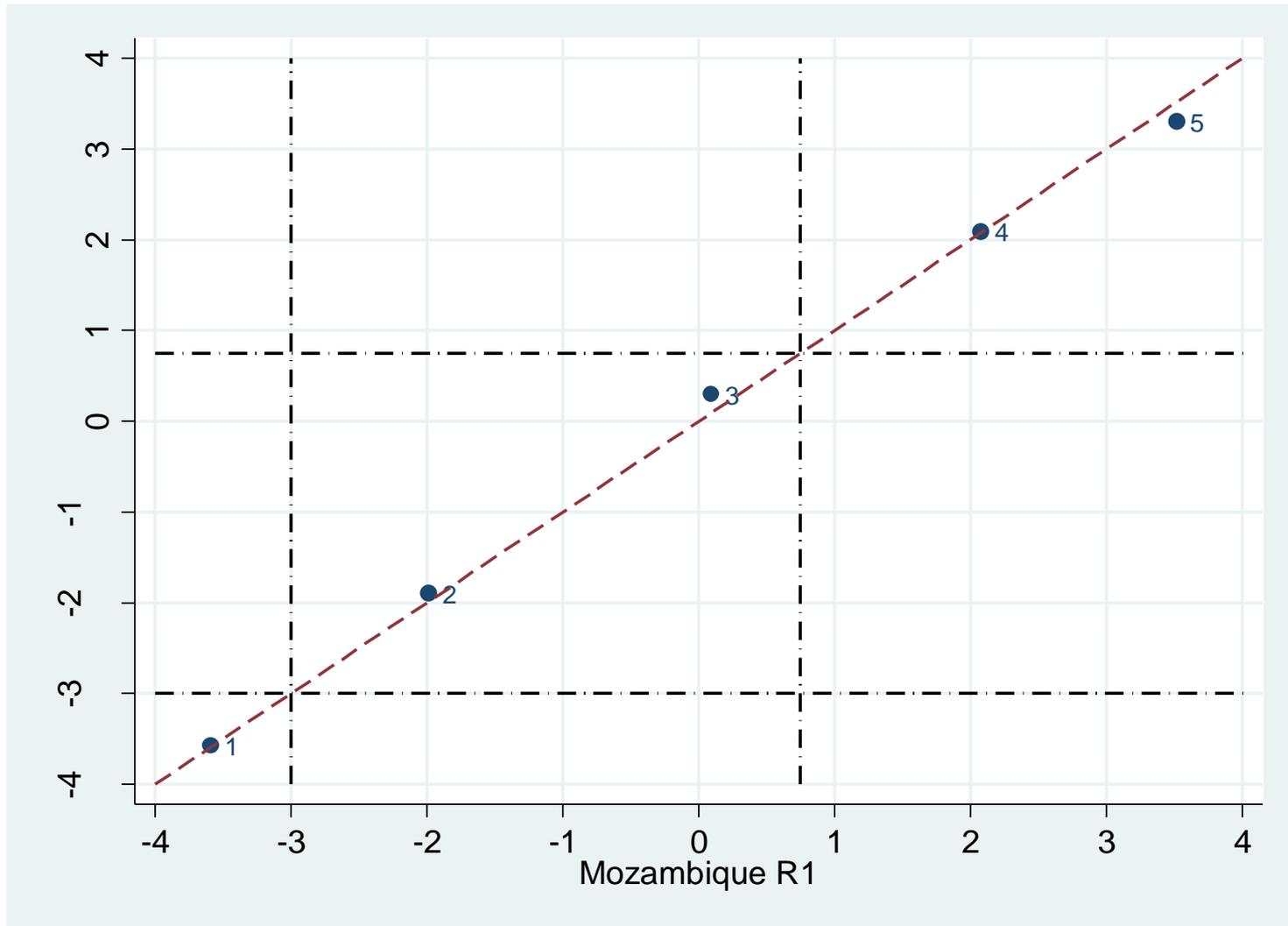
Cross-cultural validation results for item steps: 3I 3F, Moz R2 and Moz R1



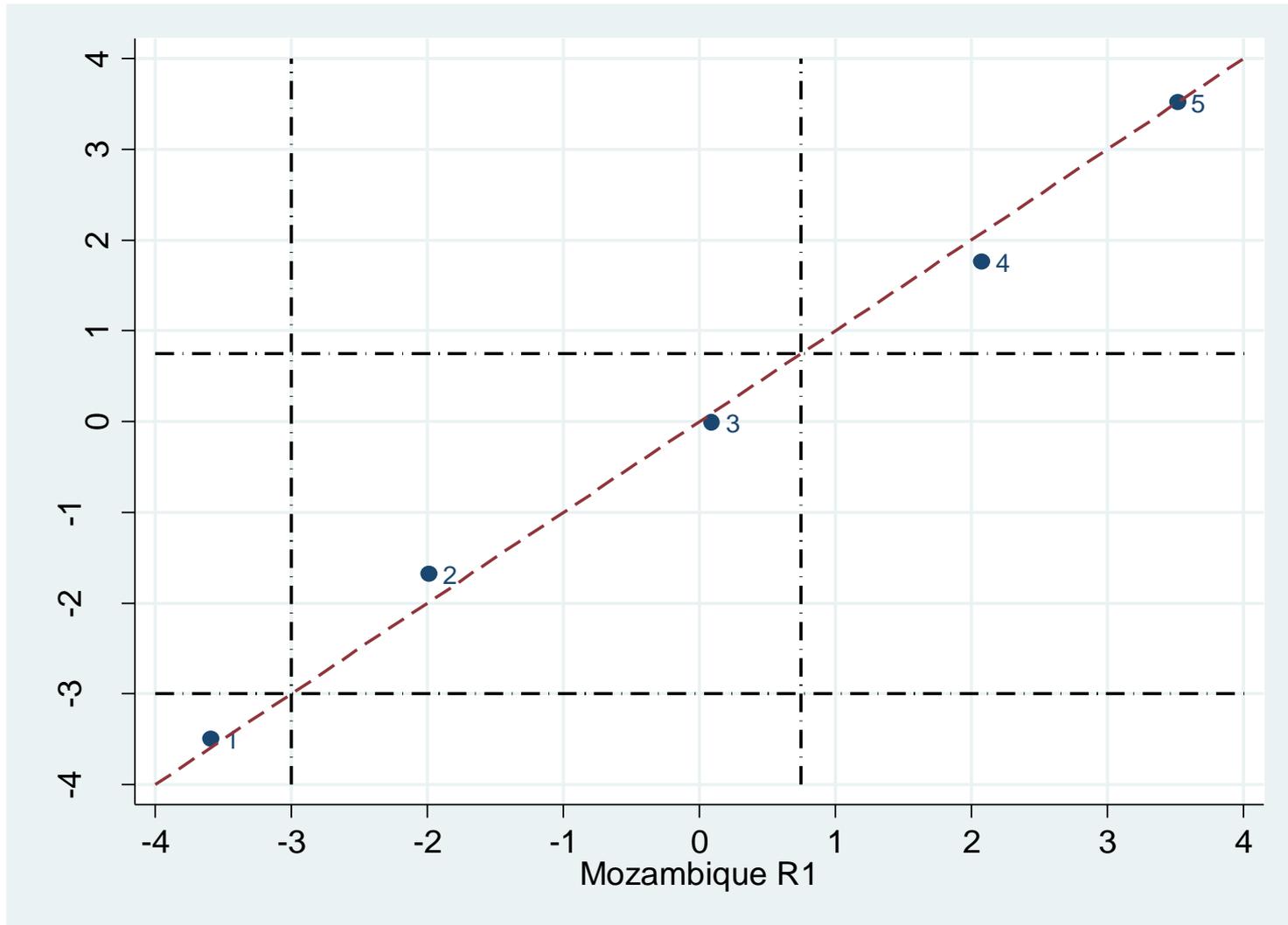
Cross cultural validation results for item steps: 3I 3F, Zim and Moz R1



Cross cultural validation results for HH measure: 3I 3F, Moz R2 and Moz R1



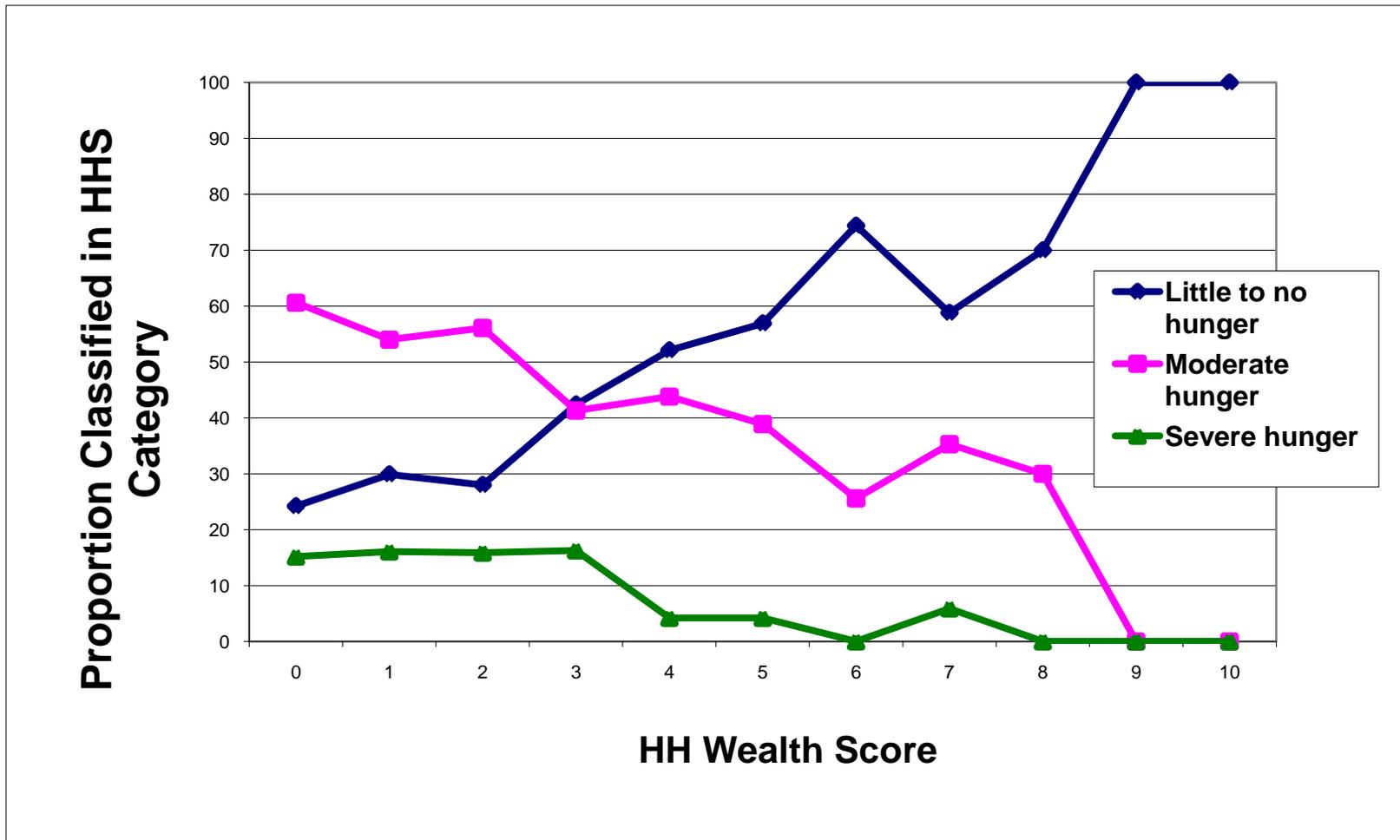
Cross-cultural validation results for HH measure: 3I 3F, Zim and Moz R1



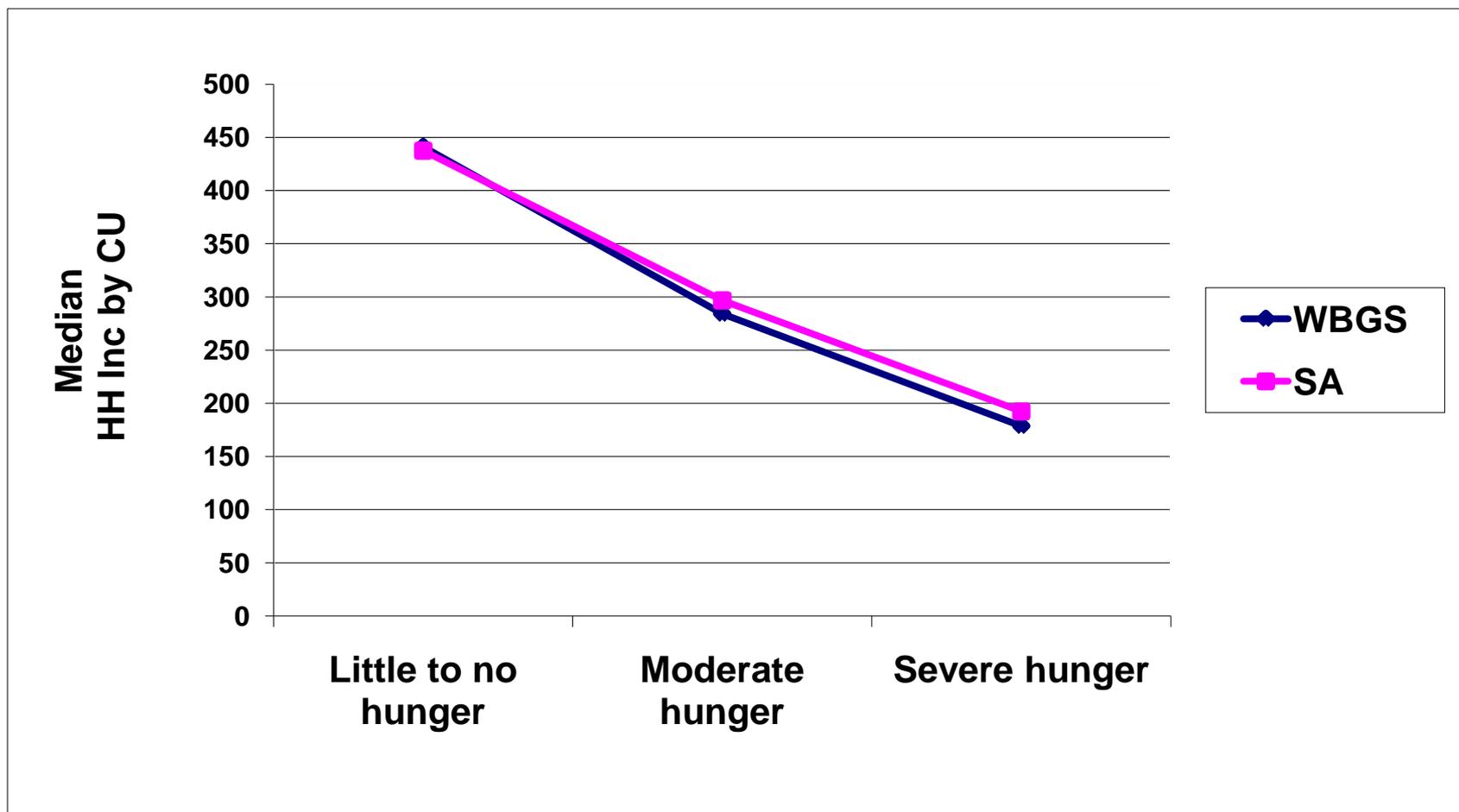
Results for Household Hunger Scale (HHS) by data set

	Little to no Household Hunger	Moderate Household Hunger	Severe Household Hunger
Mozambique R1	42.8	46.4	10.8
Mozambique R2	43.1	48.8	8.0
Malawi	51.9	37.2	10.9
West Bank Gaza Strip	74.9	18.7	6.5
Zimbabwe	51.4	33.7	14.9
South Africa	31.2	46.4	22.4

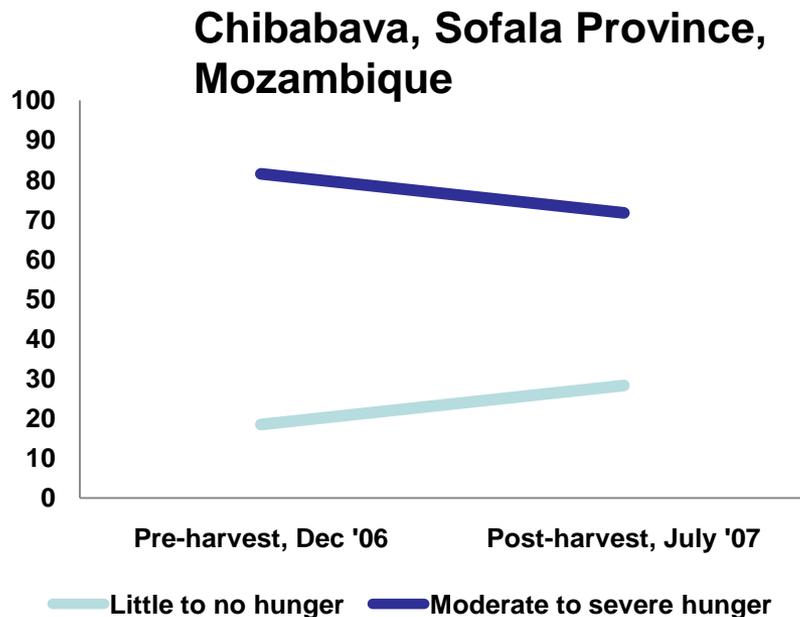
External validation results: Proportion of households classified in each HHS category by household wealth score, Moz R1



External validation results: Median monthly HH income by consumption unit for each HHS category, WBGS and S Africa



External validation results: Is the HHS sensitive to detecting change? Trends from 2 districts in Mozambique



Household hunger remains relatively constant over time. Series of climactic shocks: Droughts, Floods in early 2007, and Cyclone Favio just before harvest.



Household hunger improves significantly over time. Gondala harvest less affected by climactic shocks.

Limitations of Study

- Data sets used in validation study were mostly limited to Southern and Eastern Africa
- Sample size limitations for the Kenya and Zim data sets
- Adaptation work not undertaken for the WBGS and SA data sets
- Rasch assumption of conditional item independence was not assessed
- External validation was limited by the variables available in data sets
- The data used for validation of the 3I 3F scale (and other scales tested) were collected as part of a longer, 9I 4F scale

Next steps

- Publish a HHS operational guide, to provide instruction for data collection and tabulation
- Continue internal and cross-cultural validation of HHS, as data are collected in more contexts
- More external validation analyses, with more robust measures of food deprivation
- Potential study to evaluate if the HHS collected with a 3I3F questionnaire performs differently than a HHS collected with a 9I4F questionnaire

Conclusions

- There are trade-offs between identifying a measure appropriate for use within one culture and identifying a measure appropriate for use across cultures
- 3I 3F scale shows reasonable equal item discrimination for most data sets and expected associations with 'external' variables. Appears to provide a measure for cross-cultural comparison.
- Use of the 3I 3F scale should not preclude the concurrent use of a culturally specific measure of food insecurity, when available (e.g. ELCSA in LAC region).
- Other longer scales should be explored if a measure of food insecurity (rather than food deprivation) is desired for any one context.
- In the absence of cross-cultural validation, the resultant measure should not be assumed to be appropriate for cross-cultural comparative purposes.

Acknowledgments

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Mozambique: FAO Representation

Malawi: Dept. of HIV/AIDS and Nutrition, UNICEF

West Bank Gaza Strip: FAO Jerusalem office

Kenya: Samwel Mbugua and Human Nutrition, Egerton University

Zimbabwe: Center for Applied Social Science, University of Zimbabwe

South Africa: South African Human Sciences Research Council



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Food and Nutrition Technical Assistance II Project (FANTA-2)

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