

Household participation in food markets and dietary diversity: Evidence from rural Malawi

Mirriam Matita and Helen Walls

14 January 2021

Improving health worldwide

www.lshtm.ac.uk



**LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE**



- Matita M, Chirwa EW, Johnston D, Mazalale J, Smith R, Walls H. Does household participation in food markets increase dietary diversity? Evidence from rural Malawi. *Global Food Security*. 2021.

We dedicate this study to the memory of our colleague and co-author Professor Ephraim Wadonda Chirwa.



Source: Future Agricultures. In Memory of Professor Ephraim Wadonda Chirwa. <https://www.future-agricultures.org/news/in-memory-of-professor-ephraim-wadonda-chirwa/>. 2019.

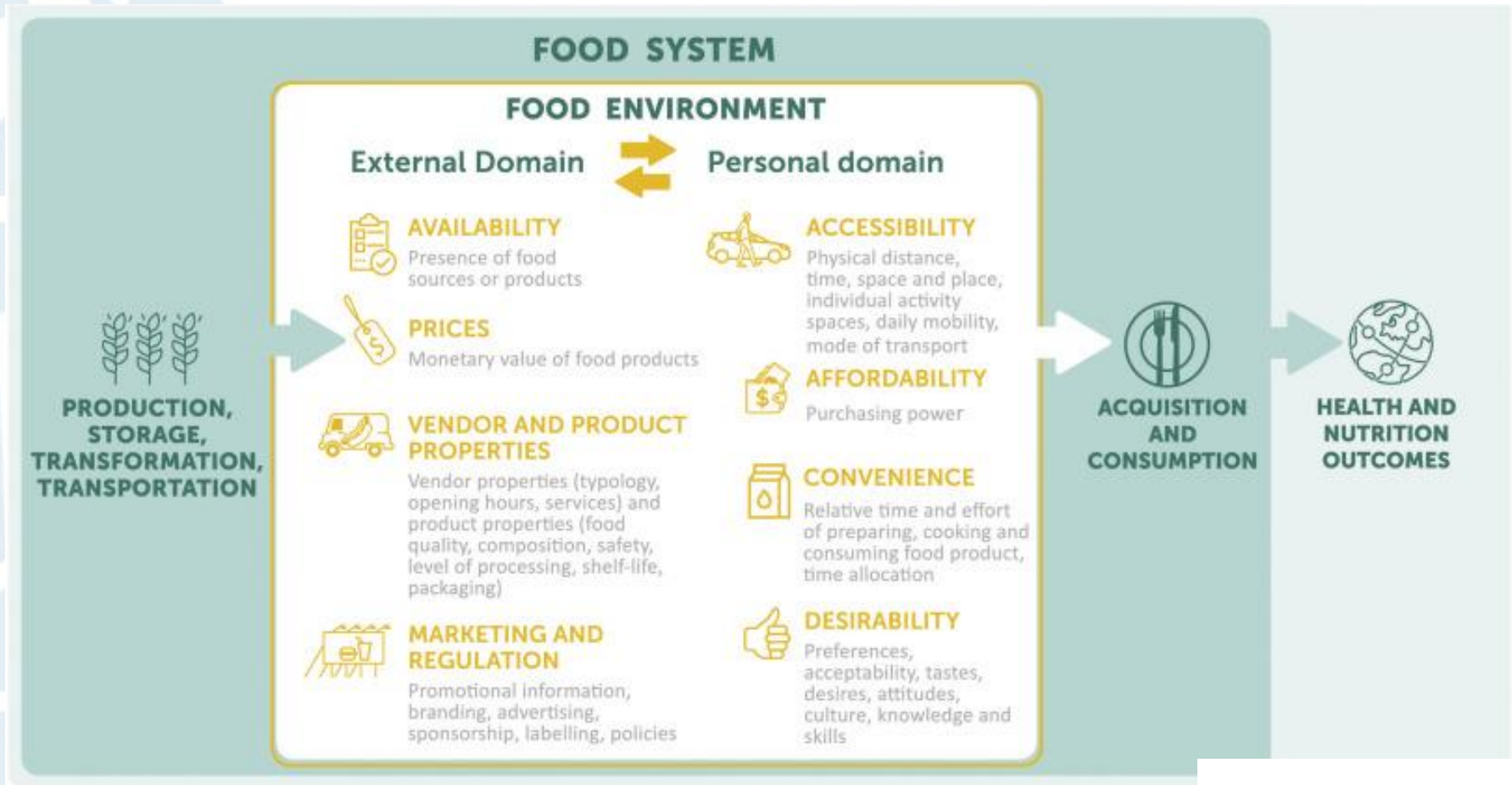
Introduction – dietary diversity, shaped by food environments

- Addressing malnutrition – increasing (healthy) dietary diversity + addressing hunger through increasing calories consumed.
- Household dietary diversity score (HDDS) an indicator of dietary diversity and nutritional quality.
- People's food choices, and diets shaped by their food environments (and factors shaping food environments).



Source: Walls H. 2017.

Introduction - food environments



Source: Turner C, Aggarwal A, Walls H et al. Concepts and critical perspective for food environment research: A global framework with implications for action in low- and middle-income countries. *Global Food Security*. 2018;18:93-101.

Introduction

agriculture/nutrition in Malawi

- Significant burden of malnutrition and associated poor health.
- Maize dominates diets – >50% of household calorie intake, and grown by ~90% of households with access to land.
- A single rainy season shapes ag production, food prices & diets.
- Government strategy focuses on fertilizer & seed subsidies, mostly for maize – e.g. Farm Input Subsidy Programme (FISP).
- Most households do not produce enough food to last from one season to the next – and rely on markets to access food.
- Production for own consumption less diverse than crops grown by farming households, suggesting own-farm production a weak driver of dietary diversity – & suggesting a role for **food markets**



Source: Walls H. 2017.



Source: Walls H. 2018.



Introduction

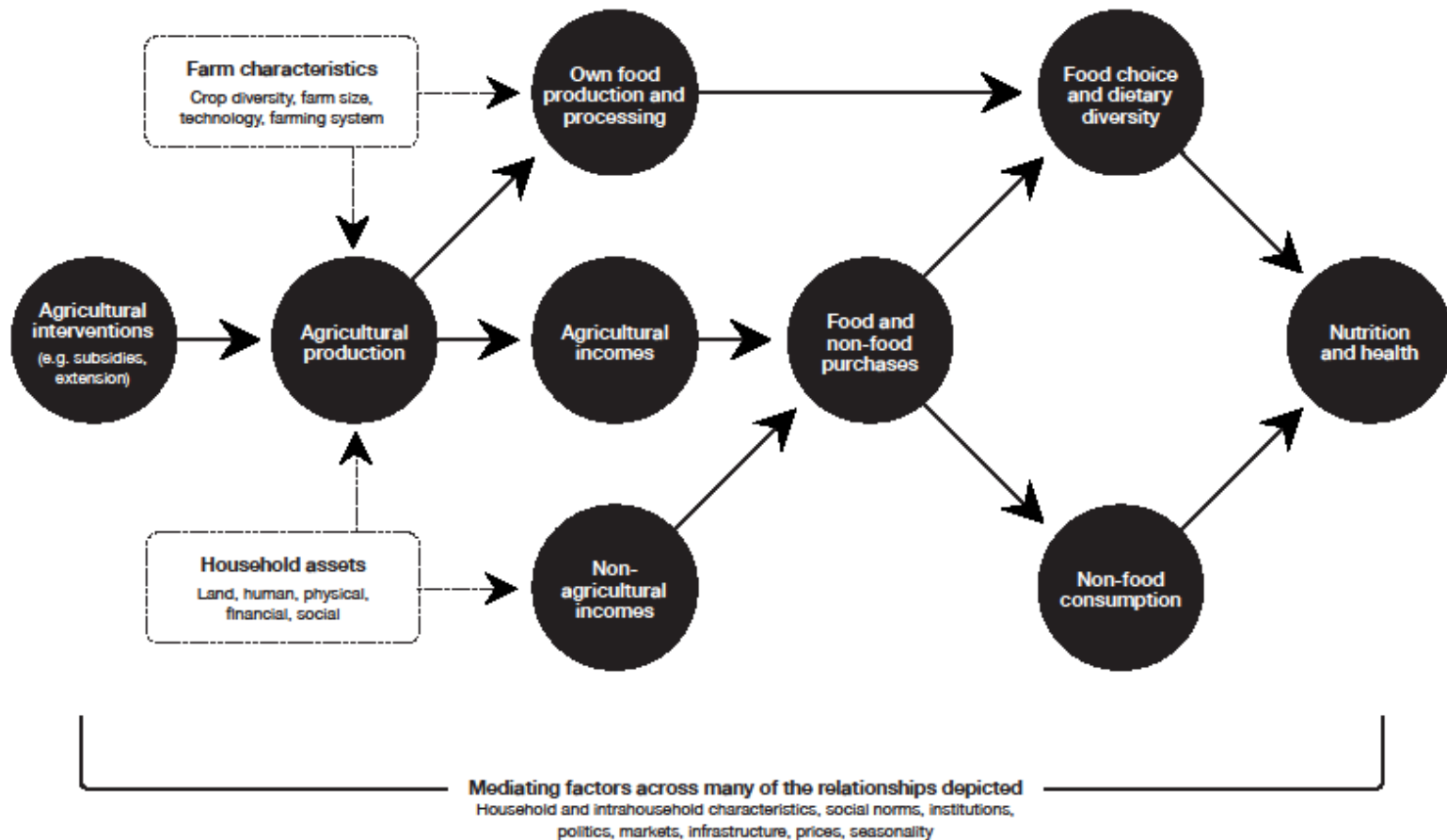
agriculture/nutrition in Malawi

- Significant burden of malnutrition and associated poor health.
- Maize dominates diets – >50% of household calorie intake, and grown by ~90% of households with access to land.
- A single rainy season shapes ag production, food prices & diets.
- Government strategy focuses on fertilizer & seed subsidies, mostly for maize – e.g. Farm Input Subsidy Programme (FISP).
- Most households do not produce enough food to last from one season to the next – and rely on markets to access food.
- Production for own consumption less diverse than crops grown by farming households, suggesting own-farm production a weak driver of dietary diversity – & suggesting a role for **food markets**

Introduction – food markets

- A recent review (Jones, 2017) found a positive relationship between market access & dietary diversity.
 - Yet, the studies used diff measures, and metrics of food market access are crude.
- In Malawi specifically, several studies have found small positive effects of farm production diversity on dietary diversity, but market participation a more important determinant of dietary diversity.
 - The Malawi studies examined market participation in terms of existence of local markets and distance to district market, not actual market purchases.
- A need for more evidence and improved methods of data collection and analysis to understand the relationship between market participation, food choices and dietary diversity in different contexts.

Conceptual framework linking agriculture, food purchases and dietary diversity



Aim, & where our study fits

- We examined the relationship between engagement with food markets ('food market participation') and dietary diversity in rural Malawi – in the context of wider agricultural factors including seasonality and the FISP.
- To do this, we also developed a new measure of food market participation, the 'food purchases diversity score' (FPDS).

Methods

- Household survey data from 400 rural households in 2 districts of rural Malawi – in post-harvest (May '17) & lean season (Feb/Mar '18).
 - Qs about: demographic & household characteristics, incl. participation in FISP, and household assets based on Demographic and Health Surveys; agricultural activities undertaken; food and non-food purchases (over past 7 and 30 days); food obtained from non-purchased sources; and a dietary assessment.
- Data from 4 rural enumeration areas (EA), in 1 traditional authority in each of Lilongwe and Phalombe Districts.
 - Lilongwe District – farming dominated by maize cultivation
 - Phalombe District – a more mixed farming system.
- In each EA, we selected 50 households using a random-walk system.
- Analytical approach drew on unbalanced panel data and involved Poisson regression.

Methods – our new measure

- **Food purchases diversity score (FPDS)**, constructed as a count of number of food groups purchased by the household in the past 7 days.
- Other studies like Jones et al., 2014, Koppmair et al., 2017 examine market participation in terms of existence of local markets and distance to the district market.
- Unlike these, the FPDS measure captures incidence of purchases using same food groups as for measurement of food consumption.



Source: Walls H. 2017.

Study design...
data collection...
and analysis.



Source: Walls H. 2017.

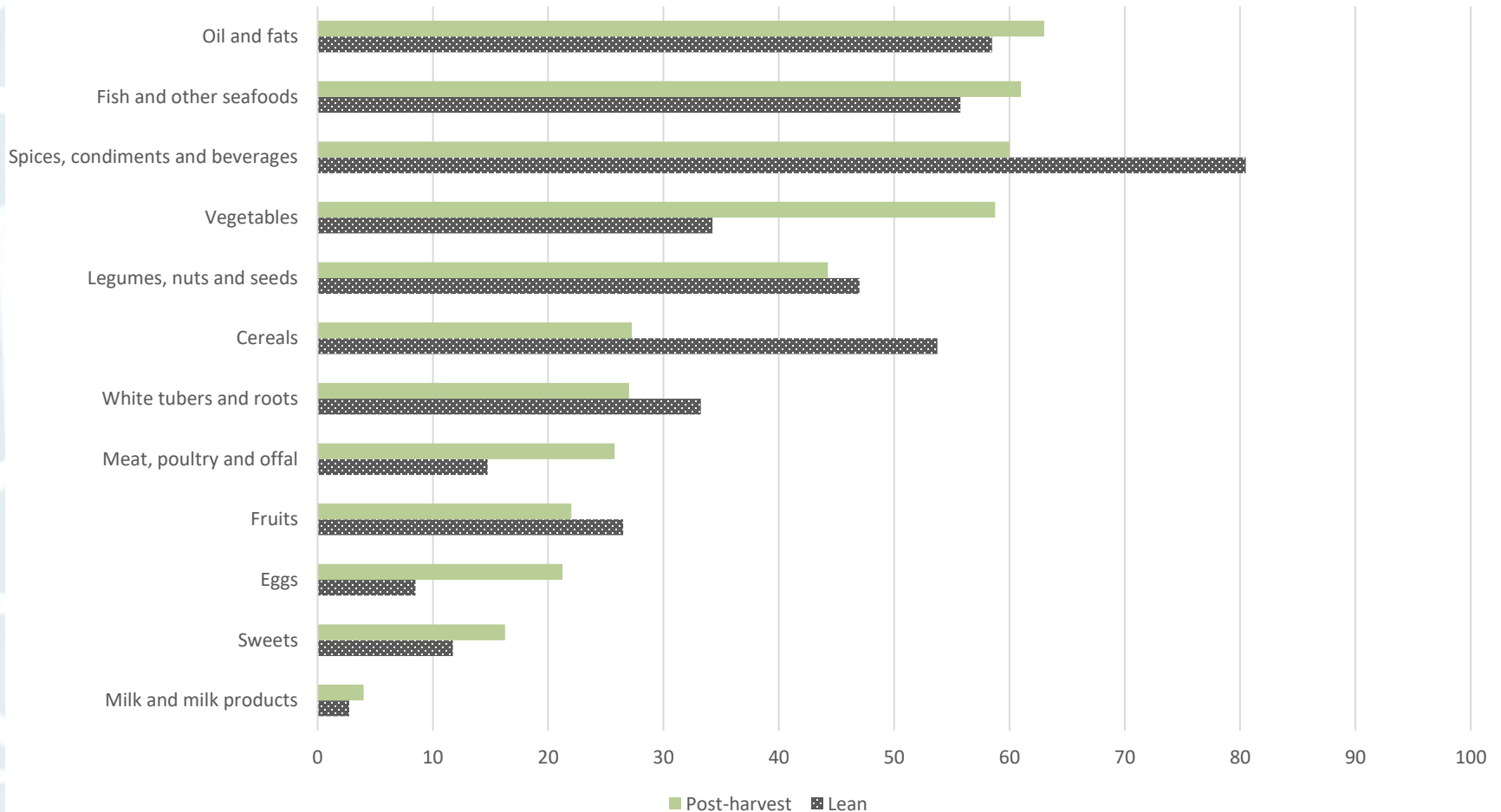


Source: Walls H. 2019.

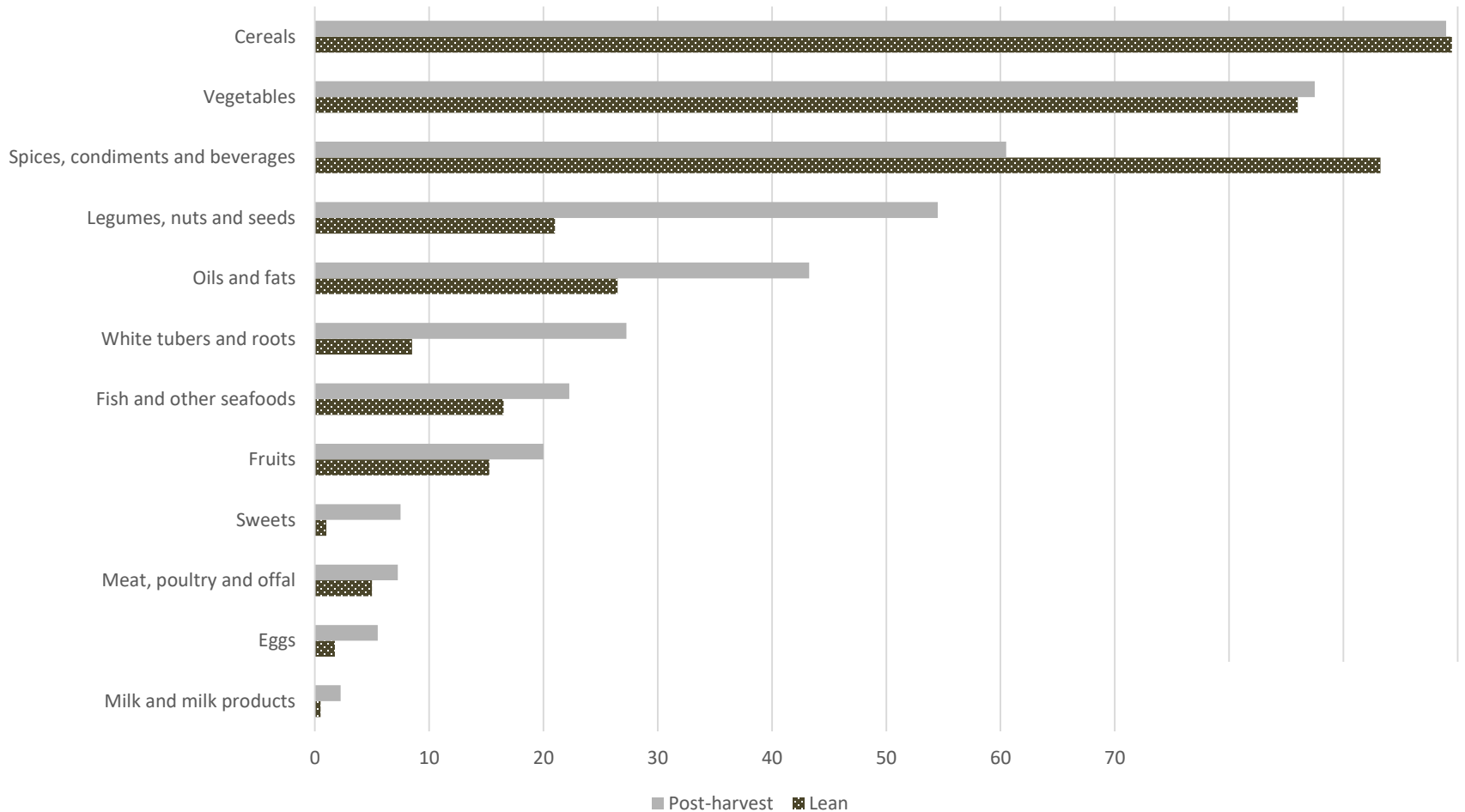
Results – descriptive statistics

- Average HDDS 4.1 (4 food groups out of 12 possible groups).
- Dietary diversity lower in lean season than in post-harvest season.
- Slightly higher diversity in purchased food groups (5.5 food groups) than in consumed food groups as measured by the HDDS
- FISP in 2016/17 agricultural seasons received by 39% of study sample. Since the programme started (2005/06), at least 72% of the study sample had ever participated in the programme.
- Maize (local or improved varieties) the dominant crop cultivated. Combining varieties, 97% households cultivated maize.
- 76% of households cultivated at least one type of pulse (most commonly, groundnuts and beans).

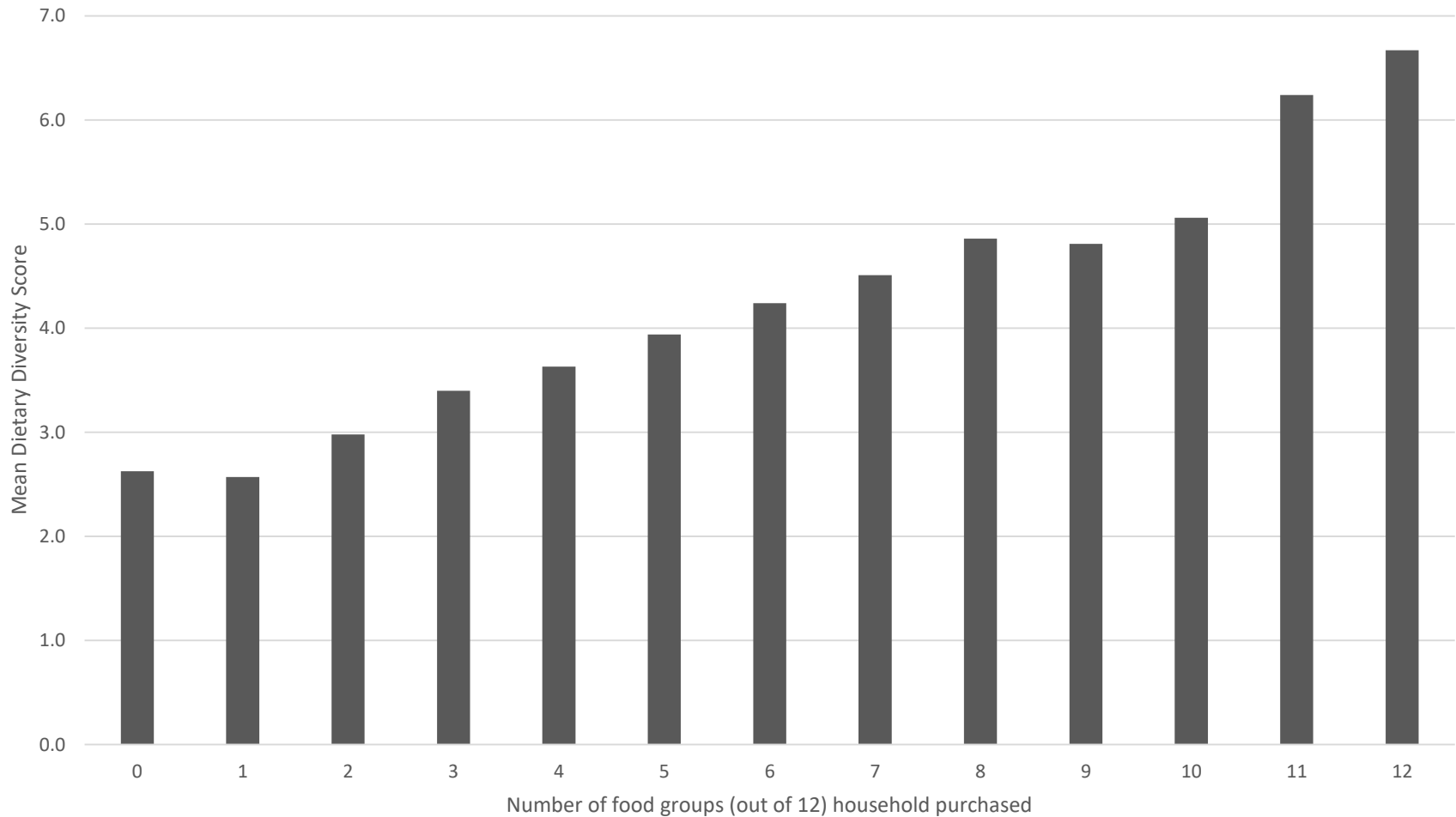
Foods purchased by households over past 7 days, by season (%)



Foods consumed by households over past 24 hours, by season (%)



Household dietary diversity by number of food categories purchased (%)



Regression results: Determinants of HDDS (selected coefficients & std errors)

Variable	Panel Poisson regression	Panel poisson regression by season	
		Lean	Post harvest
Food purchase diversity score (past 7 days)	0.019* (0.012)	0.040*** (1.012)	0.051 *** (0.011)
Lean season	-0.156*** (0.038)	-	-
FISP beneficiary (2016/17)	-0.015 (0.052)	0.008 (0.054)	-0.025 (0.050)
Control variables	yes	yes	yes

Discussion

- Using a novel, more rigorous approach than previous studies, we found a clear association between food market participation and household dietary diversity in rural Malawi.
- Households in rural Malawi that engaged more with food markets were more likely to have more diversified diets.
- Dietary diversity was lower in the lean season, when households face food shortages from own production and reduced household income, and higher prices of maize.
- No evidence of associations between legume cultivation with dietary diversity.
 - This differs from some studies – however cultivation of legumes is just one measure of farm production diversity, and effects of farm production diversity on dietary diversity have often been small.

Discussion

- FISP does not appear to have affected food choices and dietary diversity in any significant way, although was intended to promote nutrition-sensitive ag by providing legume seeds in addition to improved maize seed and fertiliser
- In keeping with our study, Koppmair et al. (2017) found that access to food markets was more important for dietary diversity than diverse farm production.
- Limitation
 - HDDS and FPDS do not reflect quantity purchased, quantity and type/diversity within a food category, level of processing of foods purchased by households. Did not distinguish between purchases for home consumption, resale, or a combination.
 - Localised study; need to validate measure with nationally representative data in different contexts

Conclusion

- We used a new metric of food purchase diversity, the food purchase diversity score (FPDS) to measure food market participation.
- Households with higher food market participation had higher dietary diversity. The association of farm production diversity with dietary diversity was less clear.
- Food market participation supported food security during the lean season.
 - Increased cereal purchase in lean season signifies dietary importance of maize for food security.
- Highlights importance of household incomes to increase food market participation.

Acknowledgements

- This research has been funded by the Drivers of Food Choice Competitive Grants Programs, funded by the UK Government's Foreign, Commonwealth and Development Office and the Bill & Melinda Gates Foundation, and managed by the University of South Carolina, Arnold School of Public Health, USA.
- We wish to thank our data collection team for their support with the fieldwork and of course the study participants.



@miry58n

mirriammatita@gmail.com



@helenwalls

helen.walls@lshtm.ac.uk



LONDON
SCHOOL of
HYGIENE
& TROPICAL
MEDICINE

