

Impact of On-farm/Off-farm Diversification and Market Access on Household Food and Nutrition Security for Ethiopian Farmers

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Background & Problem statement

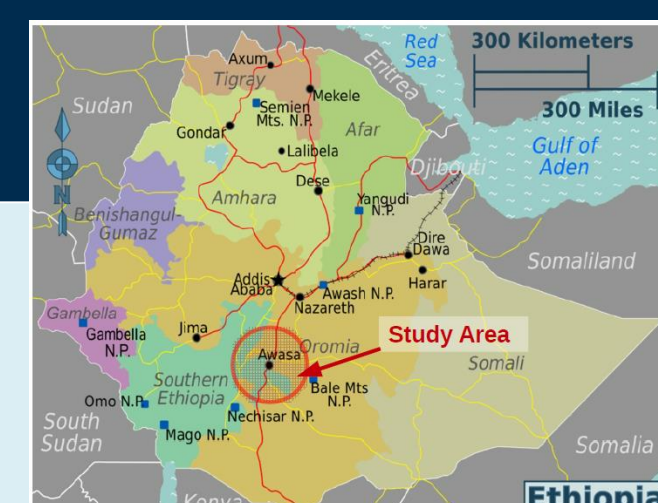
- Agriculture provides the main livelihood option for 70% of Ethiopia's working population (ILO, 2017)
- Despite economic development, people are still prone to food and nutrition insecurity (UNDP, 2016)
- Limited or controversial findings regarding the role of on-farm/off-farm diversification and market access regarding food and nutrition security

Objectives

- 1) Identify determining factors of household dietary diversity
- 2) Assess in detail the effects of :
 - on-farm diversity and off-farm diversity
 - market access and participation intensity

Data & Methods

- Survey of 400 households in 2016
- 200 km radius around Hawassa



- Generalized Poisson models estimating determinants of household dietary diversity while considering aggregated and disaggregated technology use (Harris et al., 2012):

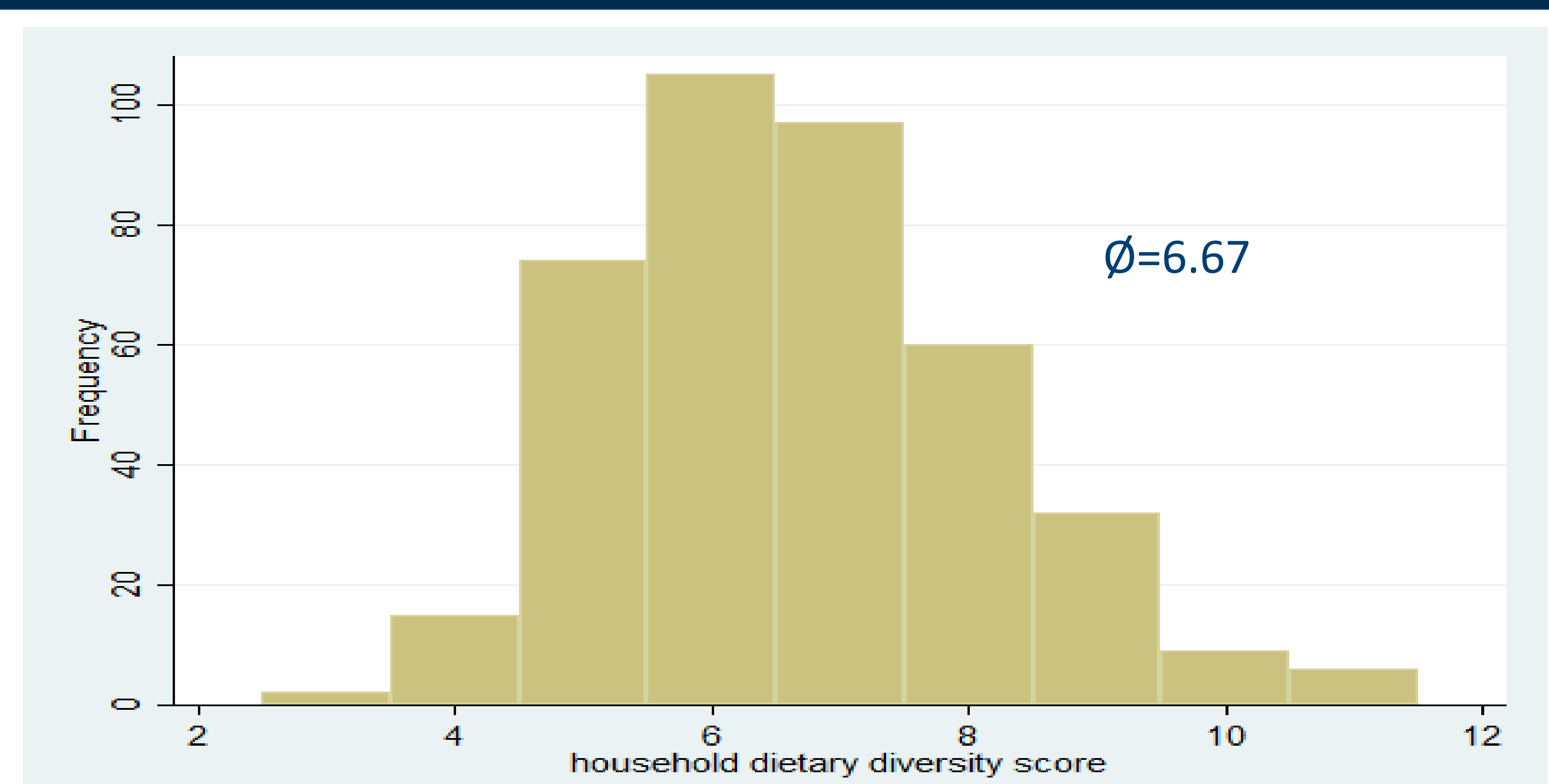
$$HDDS_i = \beta_0 + \beta_1 HPDS_i + \beta_2 HPDS_i^2 + \beta_3 MTM_i + \beta_4 SOT_i + \beta_5 SHS_i + \beta_6 mbt_i + \beta_7 ibt_i + \beta_8 se_i$$

where:

HDDS = household dietary diversity score
 HPDS = household production diversity score
 MTM = minutes to nearest periodic market
 SOT = share of off-farm income of total income
 SHS = share of harvest sold
 mbt = management-based technologies used (dummy)
 ibt = input-based technologies used (dummy)
 cr = crop rotation (dummy in disaggregated model)
 is = improved seeds (dummy in disaggregated model)
 se = vector of socio-economics (e.g. sex, education)

- Control for multicollinearity with variance inflation factor test
- Include cluster corrected standard errors for Kebeles

Results



Independent variables	Descriptives	Aggregated model	Disaggregated model
	Mean	Coefficients	Coefficients
HPDS	2.48	0.241 ***	0.246 ***
HPDS ²		-0.036 ***	-0.037 ***
MTM	47.59	-0.001 ***	-0.001 ***
SHS	0.56	0.096 ***	0.089 ***
SOT	0.13	0.099 **	0.092 *
mbt	0.69	0.035 *	
ibt	0.60	0.033	
cr	0.62		0.035 *
is	0.42		0.038
Wald-Chi ²		132.7 ***	139.7 ***
HPDS turning point		3.35	3.32

*, **, *** indicate significance at $\alpha=0.10$; $\alpha=0.05$ and $\alpha=0.01$

- Household dietary diversity positively affected by
 - Higher production diversity and off-farm income
 - Easier market access and stronger market orientation

Conclusion

Crop and livestock production diversity:

- Significant positive influence on dietary diversity with decreasing marginal utility

Off-farm income:

- Rather tool of risk reduction & compensation of small farm sizes than for income generation
- No compromise for agricultural productivity; land policies might decrease potentials

Improved market access and participation:

- Significant positive influence on dietary diversity
- HHs with higher production diversity levels could profit most from greater market participation
- Production diversity and increased market participation not mutually exclusive



References

- Harris, T., Yang, Z., & Hardin, J. W. (2012). Modeling underdispersed count data with generalized Poisson regression. *The Stata Journal*, 12(4), 736-748.
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