

HOW DO WE REACH RURAL HOUSEHOLDS WITH THE  
RIGHT AGRICULTURAL AND SOCIAL PROTECTION  
INTERVENTIONS? INSIGHTS FROM THE QUANTITATIVE  
LIVELIHOOD PROFILING STUDY IN ZAMBIA

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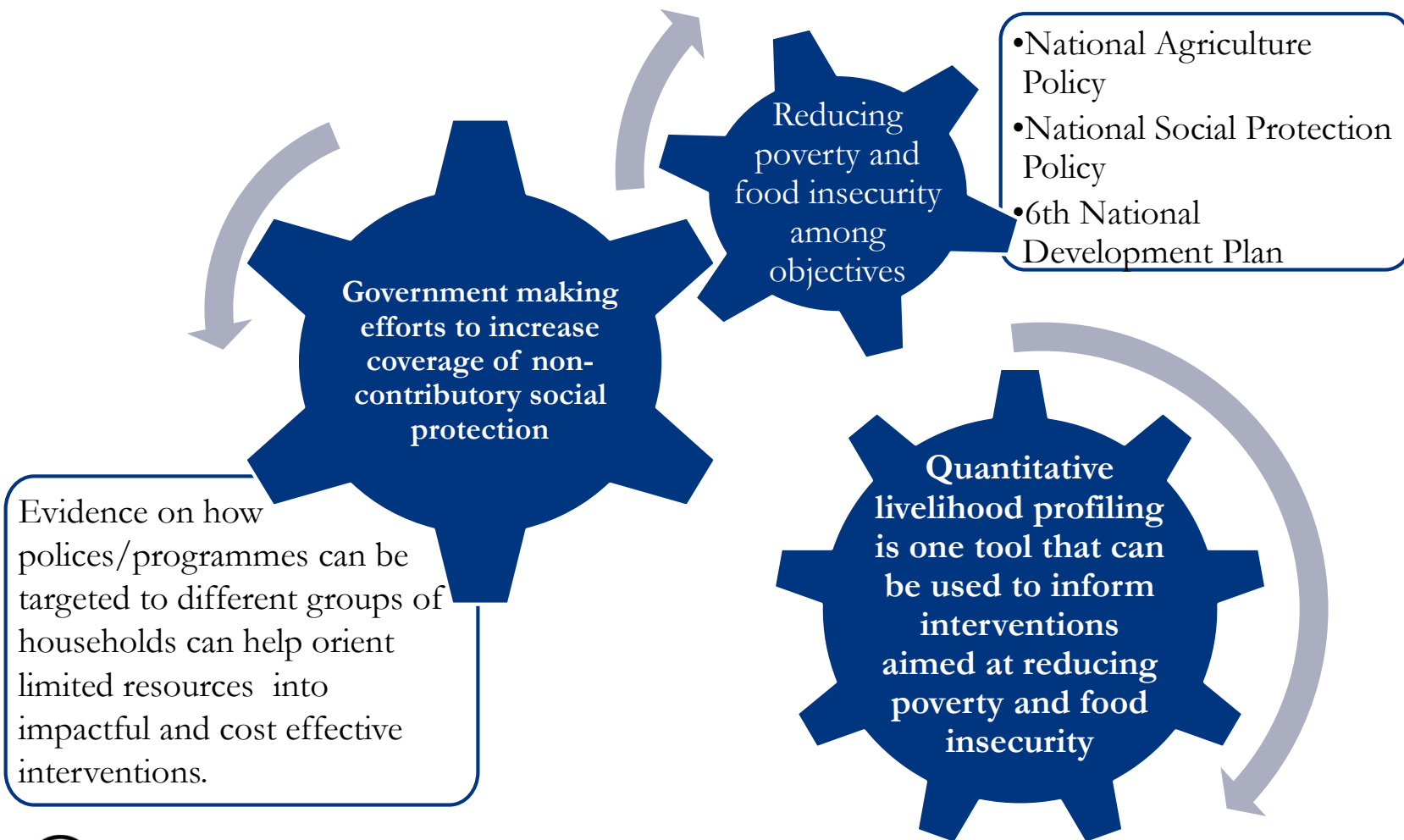
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# Rationale/problem

1



# About Livelihood Profiling

2

Livelihood profiling is the categorization of households based on their similarity with respect to a number of variables

It provides a more nuanced picture than simple classifications based on only **one or two dimensions** such as income or the size of land holdings.



# Roadmap

3



# Data and methods

4

- The study uses the Rural Agricultural Livelihoods Survey (RALs) data of 2015 to generate livelihood clusters
- Interviews with key stakeholders were done to ensure that study responded to information needs

Chapoto and Zulu-Mbata 2015

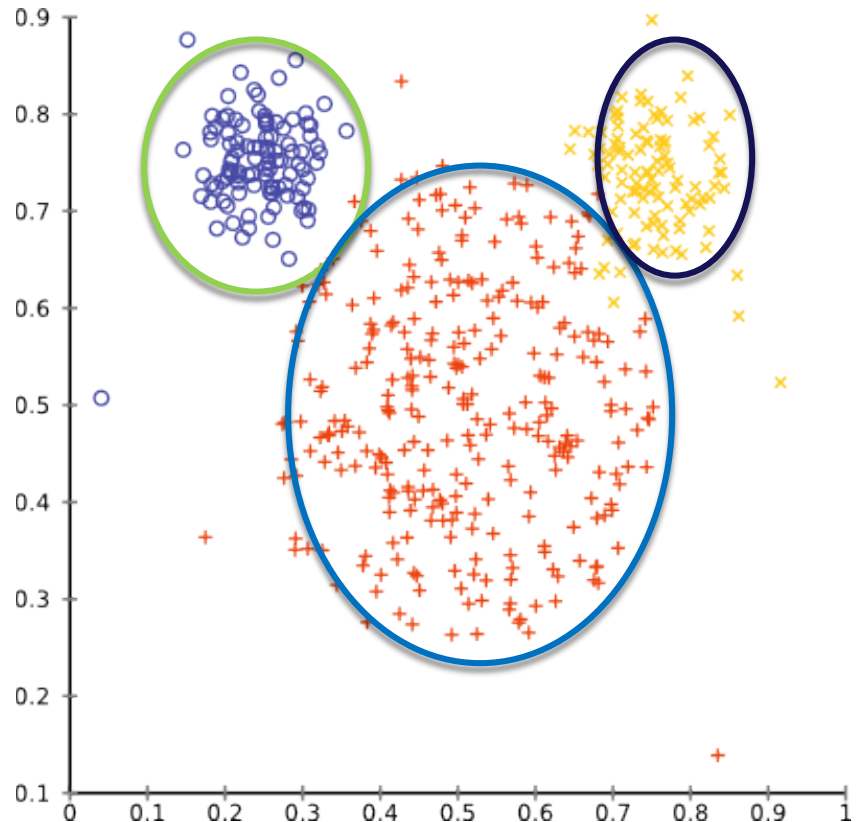


# Data and methods.....

5

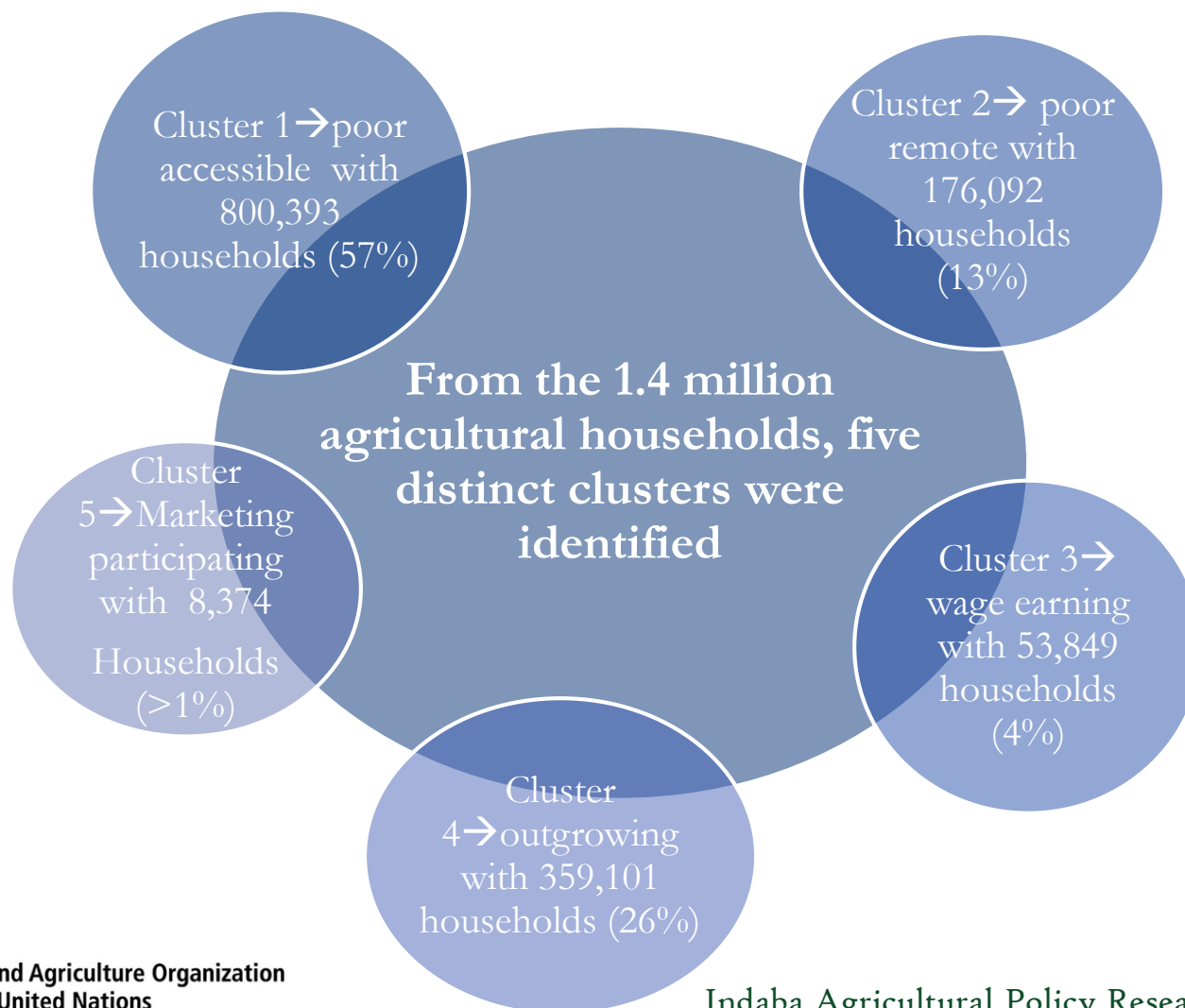
This study uses Principal Component Analysis (PCA) and cluster analysis on:

- (i) selected livelihood asset variables adopted from the Sustainable Livelihood Framework;
- (ii) variables used to target households for different agricultural and social protection programmes in rural Zambia that were collected in the RALS 2015.



# Key Findings

6



# Key cluster characteristics

7

Characteristic	Household type				
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5
Number of Households	800,393	176,092	53,849	359,101	8,374
Percent in low income group	60.7	58.5	3.1	30.1	0.5
Percent female headed	30.8	23.3	14.2	11.5	19.8
Average age of household head	47.4	43.6	44.9	46.6	53.4
Average household dependency ratio	39.4	40.4	28.8	37.5	31.9
Maximum years of education	7.3	7.1	14	8.7	10.9
Percent school age children attending school	62	59	86.5	66.6	78.7
Percent with group membership	40.5	41.8	63.4	77.1	75.8
Percent migrant households	8.7	7.8	42.6	8.6	12.6
Average cultivated land (ha)	1.5	2.3	1.9	3.3	7.9
Percent with good quality housing	10.1	6.4	89.1	30.1	73.2
Average disposable income	4,945	6,483	62,341	14,265	58,652
Percent employed in public sector	0.3	0.4	76.3	0.7	1.9
Percent obtaining credit	4.3	16.2	11	41.8	13.7
HCI	20.1	34.4	37.3	53.4	65.7
Kilometres to the nearest Boma	34.1	100.3	23.5	37.1	36.9
Hours to the nearest urban centre	14	22	11	11	9
% below the poverty line (\$1.25/day)	86.1	85.2	10.5	69.7	18.9



# Participation in the different Agricultural and social protection programmes by cluster

8

Type of participation	Percentage by household type				Market Participating
	Poor Accessible	Poor Remote	Wage Earning	Outgrowing	
%Participation in SCT	2.50	0.82	0.45	0.68	0.00
%Participation in FISP	27.78	31.33	51.89	58.72	51.33
%Participation in FSP	0.54	0.37	0.12	0.62	1.10

Source: CSO/MAL/IAPRI I2015

# Household source of fertilizer by cluster

9

## Total amount acquired by household type

Source	Poor Accessible	Poor Remote	Wage Earning	Outgrowing	Market Participating
Subsidies (kg'000)	47,779	13,562	7,763	61,943	1,634
Cash purchases (kg'000)	34,237	12,489	15,549	95,682	9,868
Loans (kg'000)	1,048	1,611	1,268	14,005	150
Other sources (kg'000)	1,549	347	542	2,627	73
<b>Total</b>	<b>84,613</b>	<b>28,009</b>	<b>25,122</b>	<b>174,258</b>	<b>11,725</b>

Source: CSO/MAL/IAPRI 2015

# Household source of fertilizer by cluster...

10

Average amount acquired by household type

Source	Poor Accessible	Poor Remote	Wage Earning	Outgrowing	Market Participating
Subsidies (kg)	60	77	144	172	195
Cash purchases (kg)	43	71	289	266	1,179
Loans (kg)	1	9	24	39	18
Other sources (kg)	2	2	10	7	9
Total	106	159	467	485	1,400

Source: CSO/MAL/IAPRI 2015

# Poverty incidence, gap and severity

11

Poverty Measure	Household type				
	Poor Accessible	Poor Remote	Wage Earning	Outgrowing	Market Participating
Percentage below income poverty line*	86	85	10	70	19
Percent poor (incidence)					
Poverty gap index	57	57	5	37	6
Poverty severity index	43	43	3	23	2

Note: \*=1; 2005 PPP exchange rate. Poverty line=\$1.25/day

Source: CSO/MAL/IAPRI 2015



# Household food security outcomes by livelihood cluster

12

Food security measure	Average value by household type				
	Poor Accessible	Poor Remote	Wage Earning	Outgrowing	Market Participating
Percent food secure households	44.66	50.14	87.51	71.59	81.45
Months without adequate food	2.14	1.93	0.44	0.86	0.58
Household Dietary Diversity Score	5.19	4.88	8.05	6.51	7.87

Source: CSO/MAL/IAPRI 2015

# Conclusions

13

Our findings show that substantial amount of agricultural subsidies and social protection resources end up benefiting households that should not benefit from them

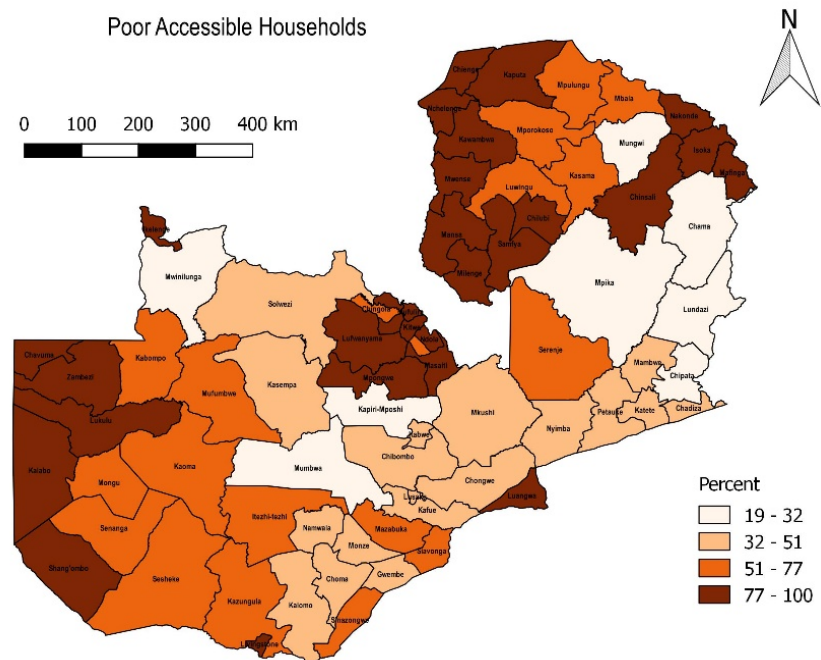
- This suggests deficiencies in current targeting mechanisms
- Our study shows that livelihood profiling could add value to the currently used targeting mechanisms as it gives a nuanced picture of household vulnerability compared to the other targeting mechanisms that are based on one or two dimensions



# Mapping of household clusters

14

For example, cluster 1, the ‘poor accessible households’ is mostly concentrated in Luapula, Copperbelt and Western provinces and in the north-eastern districts of Muchinga province.



Source: CSO/MAL/IAPRI 2015

# Thank you

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<http://www.iapri.org.zm/>

<http://www.fao.org/home/en/>



# Bonus Slides

16

This study uses Principal Component Analysis (PCA) and cluster analysis to generate the clusters and followed the method in Ansoms and Mckay (2010) paper.

Due to multi-collinearity and the advantage of using fewer variables for cluster analysis, PCA is used which generates principle component scores which are used as input variables in cluster analysis.

Hierarchical cluster analysis was then used. This is used to determine the number of livelihood groups/clusters to use in Non-hierarchical cluster analysis.

Hierarchical cluster analysis has a weakness of possible misclassification of households (Jenson et al., 2006). To this effect, non-hierarchical cluster analysis was used to correct for this using k-means non-hierarchical cluster analysis.

# Potential uses of livelihood profiling

17

