

Households' Purchasing Decision for Underutilised Leafy Vegetables in the Limpopo Province of South Africa: A Double-Hurdle Model Approach

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INTRODUCTION

- Underutilised leafy vegetables (ULVs) such as Brassica rapa and Brassica oleracea var. acephala are indigenised vegetables in the northern parts of South Africa (Tshikalange and Van Averbek 2006 and Mariga et al, 2012)
- Since underutilized crops are usually excluded from national inventories for production as well as consumption, there is limited knowledge about their role for consumption and rural livelihoods, other than anecdotal evidence.
- Diversification will be important as part of the progress towards the goal of achieving security of food production.
- This study is based on the following ULVs produced in the Limpopo Province of South Africa; mustard greens (Brassica Juncea), collard greens (Brassica oleracea var. acephala), cowpea leaves (Vigna unguiculata), and pumpkin leaves (Cucurbita pepo).

Objective

The purpose of this study is to analyse factors influencing households' purchasing decisions of underutilised leafy vegetables (ULVs) in the Limpopo Province of South Africa

STUDY LOCATION

- The study is undertaken in three districts, Limpopo province: Capricorn, Vhembe and Mopani.
- Choice of districts is based on importance of the districts in cultivating ULVs.



Figure 1: Map of the Limpopo province, Source: <http://www.marula.co.za/maplimpopo.htm>

METHODOLOGY

- The study is based on primary data collected from 300 households in urban & rural areas through a structured questionnaire in January 2012.
- To elicit the dummy response variable in this study, consumers were asked whether they purchase the two types of ULVs: Exotic ULVs and Local ULVs.
- A Double-Hurdle Model Approach by Cragg (1971) was used to analyse the data. The first hurdle corresponds to the decision whether or not the household purchases ULVs (the participation decision) and the second hurdle corresponds to how much (in bundles) of the ULVs are purchased per week per household (the consumption decision)
- Participation/Consumption = $\beta + \beta_1 HHLS + \beta_2 GEND + \beta_3 INCO + \beta_4 AWAR + \beta_5 DISM + \beta_6 PRIC + \beta_7 STRVE + \beta_8 DOR2 + \beta_9 FAMF + \beta_{10} RETA + \beta_{11} TAST + \beta_{12} SAFE + \beta_{13} AVAI + \beta_{14} LNUTR + \beta_{15} LOPR$

RESULTS AND DISCUSSIONS

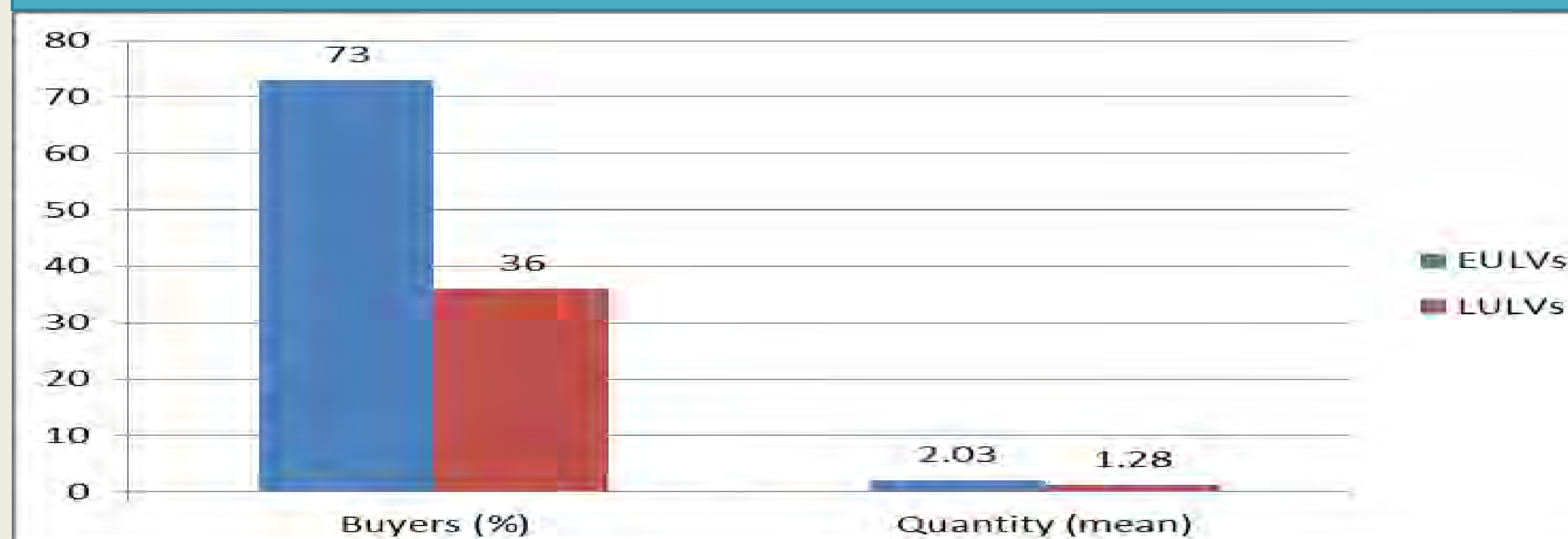


Figure 1: ULVs buyers and the quantity of ULVs purchased, Limpopo Province, 2012

73% of households purchase EULVs while 36% purchase LULVs. For those who purchase EULVs, on average, households purchase two bundles per week, while those who purchase LULVs purchase one bundle per week.

Table 1: Households' demographic and economic characteristics, Limpopo Province, 2012

	N	Min	Max	Mean	Std. Dev
HHLS (Household size)	299	1	8	4.29	1.539
GEND (Male)	299	0	1	0.42	0.494
INCO (less than R2000/month)	299	0	1	0.33	0.473
AWAR (Awareness)	298	0	1	0.96	0.197
DISM (Distance to market)	210	0	60	6.79	8.834
PRIC (Price of ULVs/bundle)	206	4	15	6.87	2.285

Source: Survey 2012

On average, a household consists of 4 people. Forty-two percent of the respondents were male. Thirty-three percent of the respondents receive an income of less than R2000 per month. Most of the households are aware of ULVs.

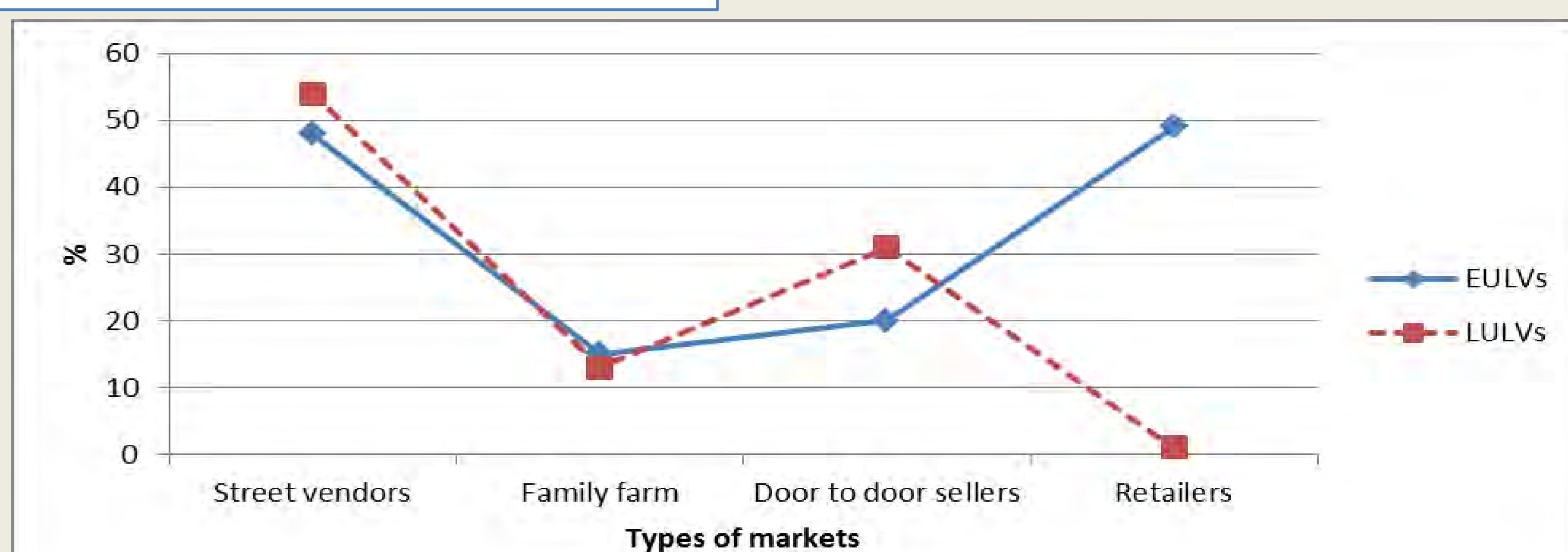


Figure 2: Type of markets used by households to purchase ULVs, Limpopo Province, 2012

- Street vendors are a common market where households purchase both EULVs and LULVs.
- Most households purchase EULVs from retailers.
- Retailers hardly sell LULVs.



Figure 3: Mean attribute perception scores on a 5-point semantic differential scale for EULVs and LULVs, (1 = Totally disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Totally agree)

- Respondents hold stronger beliefs that EULVs are low priced, with better quality, are nutritious, healthy, and attractive as compared to their beliefs expressed for LULVs.
- With regard to the attributes safety and taste, the perception scores for EULVs and LULVs were at the same level.

Table 2: Maximum likelihood estimates of the double-hurdle model: Households' demand for ULVs

	Participation			Consumption		
	Coef.	Std. Err.	t	Coef.	Std. Err.	t
HHLS	-0.023	0.036	-0.62	0.091*	0.049	1.85
GEND	-0.076*	0.111	-0.69	-0.1	0.116	-0.86
INCO	-0.487***	0.125	-3.89	0.067	0.139	0.48
AWAR	0.664***	0.16	4.16	-0.18	0.177	-1.02
DISM	-0.028	0.063	-0.43	0.139*	0.076	1.82
PRIC	-0.065	0.07	-0.93	-0.011	0.069	-0.17
STRVE	0.119*	0.064	1.86	-0.166*	0.099	-1.68
FAMF	-0.075	0.069	-1.08	0.07	0.067	1.05
RETA	0.082**	0.03	2.75	-0.011	0.031	-0.35
TAST	0.195***	0.05	3.86	0.039	0.061	0.65
SAFE	0.093*	0.055	1.71	-0.185**	0.074	-2.5
AVAI	-0.135**	0.053	-2.56	0.025	0.057	0.44
LNUTR	-0.114*	0.06	-1.9	-0.023	0.048	-0.49
LOPR	0.008	0.053	0.14	0.012	0.049	0.25
cons	-0.332	0.197	-1.68	-0.193	0.231	-0.84

Notes: ***, ** and * denote significance at the 10, 5 and 1 percent levels, respectively

- The significant but opposite effects of STRVE and SAFE on participation and consumption are particularly noteworthy.
- AWAR, RETA, and TAST significantly affect household participation positively but not the level of consumption. This implies that households' awareness of ULVs increases the chances of purchasing.
- However, GEND, INCO, the perception that ULVs are available throughout the year and the perception that LULVs are nutritious also affect the households' participation negatively but not the consumption level.
- The opposite is true for HHLS and DISM. These variables are positively significant in the consumption equation but not in the participation equation.

CONCLUSION

- Both ULVs (exotic and local) are purchased and consumed together. This is to say that if households purchase exotic vegetables at the street vendors, they also purchase local leafy vegetables there.
- Households believe that ULVs (both exotic and local) are tasty, safe to consume, not available all year round, and are of low price. As exotic leafy vegetables (such as cabbages) are available all year round, it will be beneficial for consumers to have access to ULVs which are as good as the exotic ones nutritionally but cheaper.
- Results are useful for marketers in planning and developing marketing strategies, because they allow differentiating between variables explaining if ULVs are consumed and the variables determining how much is consumed.

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