Livelihood Strategies and the Role of Baobab (*Adansonia digitata* L.) Fruit in Poverty Alleviation in the Dry lands of Sudan

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Background

- Rural households in developing countries are heterogeneous: their socio-economic characteristics and asset endowments differ as do their allocation of assets to income-generating activities.
- The problem of rural poverty cannot be solved with a uniform package of policy measures.
- Policy makers need to consider sub-groups of the rural poor population in formulating policy aimed at poverty reduction and rural development.

Objectives of the Study

1. to assess the contribution of baobab income to rural income and poverty alleviation;
2. to analyse livelihood strategies pursued by rural households;
3. to identify factors that influence households' choice livelihood strategies in rural Sudan.

Results

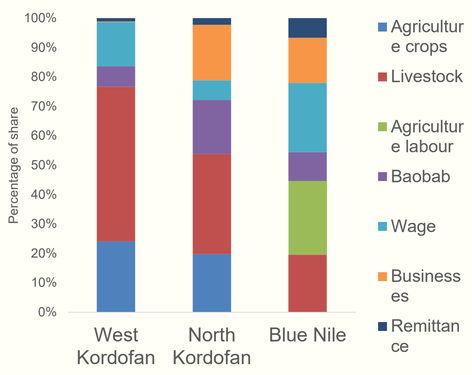

Fig 4. Incomes sources by states

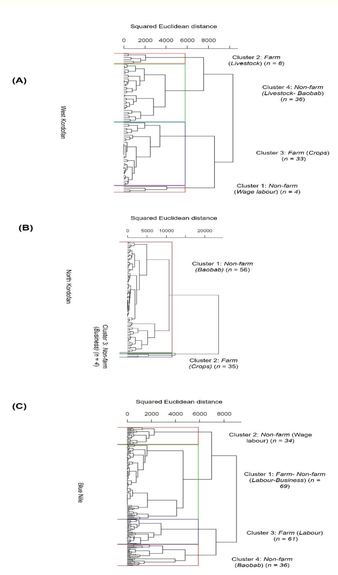

Fig 5. cluster analysis based on livelihood activities data from West Kordofan, North Kordofan, and Blue Nile Sudan (2017 and 2018).

Conclusion

- Baobab contributes to 7% and18% of total annual income in the study areas.
- The additional income from baobab contributed in reduction of poverty headcount index and income inequality in the three study sites.
- Four , four and three livelihood strategies were identify by clustering analysis in West , Blue Nile and North Kordofan respectively.
- These clusters are non-farm (wage), farm (livestock), farm (crops), off-farm (labour), non-farm (baobab), farm-non-farm (livestock–baobab), farm-non-farm (labour-business), and non-farm (business) strategies pursued by rural households in Sudan.
- Household head's characteristics to household characteristics, household access to livelihood capital, and condition factor (distance to market) influenced a household's choice of livelihood strategies

Table 1. Poverty incidence income inequality with and without baobab income

Case study	Poverty headcount index without baobab income	Poverty headcount index with baobab income	Gini coefficient without baobab income	Gini coefficient with baobab income
West Kordofan	26.6	22.8	0.62	0.56
North Kordofan	43.2	26.3	0.48	0.31
Blue Nile	19	17	0.35	0.21

Table 2. Determinants of livelihood strategy by multinomial logit estimation (reference category farm-non-farm and Non-farm (Baobab) in WK and NK, respectively)

	West Kordofan			North Kordofan		Blue Nile		
	Non-farm (wage)	Farm (livestock)	Farm (crop)	Farm (crop)	Non-farm (businesses)	Farm-non-farm (labour-business)	Non-farm (wage labour)	Off-Farm (labour)
	Cluster 1	Cluster 2	Cluster 3	Cluster 2	Cluster 3	Cluster 1	Cluster 2	Cluster 3
Age of household head	-0.026***	0.018	0.001	-0.031	-0.296**	0.0248	-0.002	0.003
	(0.051)	(0.041)	(0.023	(0.019)	(0.139)	(0.0160)	(0.019)	(0.017)
Male-headed household	20.566***	14.247***	-1.818	-0.026	0.055***	-0.6118	-1.290	-0.386
	(3.590)	(1.454)	(1.008)	(0.116)	(0.174)	(0.7265)	(0.778)	(0.781)
High school	-23.258***	-15.780***	-16.648***	-0.234	2.494***	0.1178	-0.646	-0.826
	(8.183)	(1.736)	(1.328)	(0.880)	(1.405)	(1.1437)	(1.150)	(1.058)
Household size (Number)	-0.637	-0.147	-0.003	0.327	11.746	-0.0367	-0.023	-0.121
	(0.631)	(0.162)	(0.111)	(1.254)	(2.956)	(0.0943)	(0.109)	(0.091)
Savings	1.507	0.557	-0.261	-2.249	-18.305	0.5820	-0.161	0.302
	(4.226)	(1.482)	(0.724)	(1.255)	(1.052)	(0.6774)	(0.887)	(0.677)
Membership of local association	-15.174	-15.953***	-1.387	-17.820	4.781***	-2.4758	-18.488***	-18.278***
	(3.002)	(0.831)	(1.264)	(0.000)	(3.592)	(2.0798)	(2.260)	(2.533)
Ownership of house	0.000	0.000	0.000	-18.897	-17.435	-0.4603	1.446	2.267***
	(omitted)	(omitted)	(omitted)	(0.981)	(2.163)	(0.6339)	(0.854)	(0.841)
Tractor	0.000	0.000	0.000	0.240***	16.226***	16.2929***	1.282	15.563***
	(omitted)	(omitted)	(omitted)	(0.782)	(1.392)	(1.1573)	(0.965)	(1.289)
Phone	-3.019	-0.338	-0.474	-1.186	-0.138***	-0.5229	-0.607	-0.527
	(1.762)	(1.677)	(1.322)	(0.553)	(0.919)	(0.5371)	(0.600)	(0.506)
TV	3.624	-14.362***	-0.479	-1.439**	-0.103	15.6675***	15.862***	16.688***
	(3.292)	(1.028)	(0.929)	(0.542)	(1.892)	(1.0304)	(1.333)	(1.314)
Radio	0.205	-1.553	-0.487	0.001***	-0.030	-1.7641***	-0.890	-0.808
	(3.064)	(0.909)	(0.635)	(0.012)	(0.019)	(0.5860)	(0.571)	(0.492)
Land size	-0.029	-0.005	0.002	0.984	-19.093	-0.0657	0.369***	0.266***
	(0.028)	(0.010)	(0.006)	(1.120)	(1.337)	(0.1211)	(0.103)	(0.096)
TLU	-5.446	-0.790	-0.394	-0.860	2.023**	7.6094**	6.274*	4.456
	(2.016)	(1.036)	(0.686)	(0.587)	(1.023)	(3.1778)	(3.231)	(3.246)
Distance to market (Km)	0.370***	0.087	-10.386***	0.050	-0.056	-0.0672	-0.092**	-0.117***
	(0.605)	(0.795)	(0.541)	(0.040)	(0.076)	(0.0424)	(0.046)	(0.042)
Cons	-13.355***	-14.604***	2.760	20.385)***	-25.178	0.3828	-0.189	0.434
	(4.659)	(4.387)	(2.559)	(1.810)	(5.752)	(1.4790)	(1.645)	(1.629)
No.	79			95		199		
Log likelihood	-174.2877			-81.247		-436.91223		
Pseudo R^2	0.2529			0.3619		0.2681		
Prob > chi2	0.0000			-		0.0000		

Note: ***, ** and * is 1%, 5% and 10% respectively.

Concepts and methods

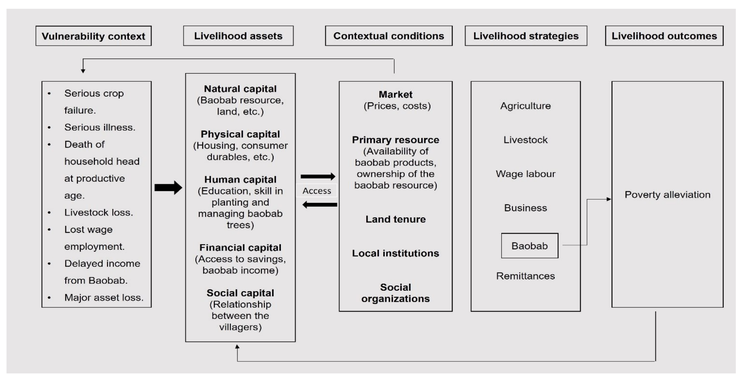

Fig 1. Conceptual framework: The livelihood approach

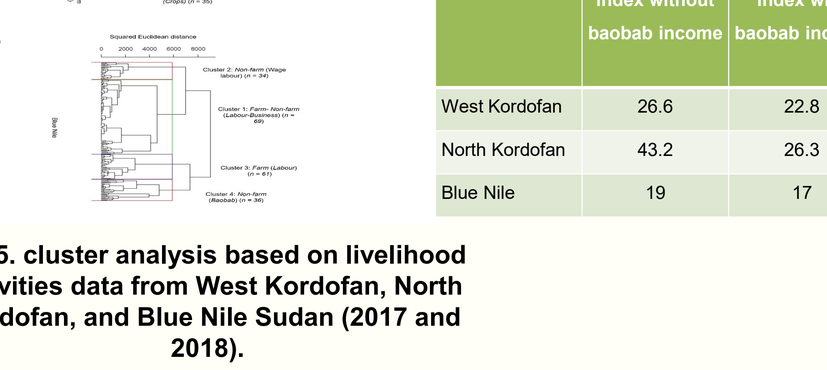

Figure 2. Author, assistants and village leader

- Random multi stage sampling of 95, 79 and 200 household heads from North Kordofan, West Kordofan and Blue Nile States, respectively.

Surveys using structured questionnaires, key informant interviews and direct observation

Descriptive statistics, Cluster analysis and multinomial logistic regression were applied.

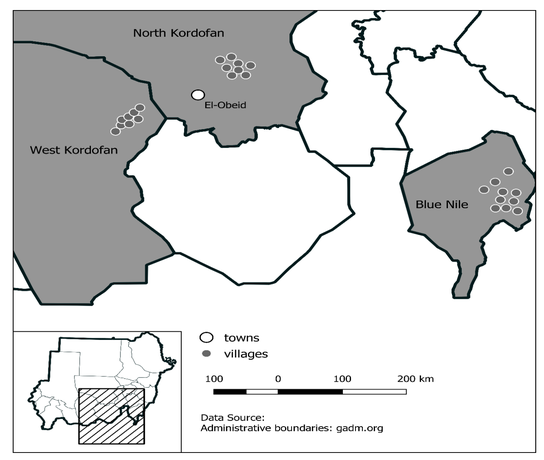

Fig 3. Study area

- Mixed farming system with crop and livestock
- Rotation cropping with gum and baobab production

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