

The Nexus of Indigenous Knowledge (IK) Based Crafts and Rural Women's Welfare at Household Level: Evidence from Rural South Africa

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Abstract—Indigenous Knowledge (IK) based crafts are viewed as potential non-farm livelihoods sources for rural women. This is premised on the assumption that rural women are custodians of IK that can be used to produce crafts from abundantly available natural resources. Whilst there is consensus on the claimed nexus, gaps still exist on the direction and magnitude of the association. Using cross-sectional survey data (n=204) from Amathole District Municipality of South Africa, we estimated the direction and magnitude of the association between participation of rural women in IK based crafts and household welfare. Results revealed a weak positive association between IK based crafts and household income and dietary diversity. With reference to household food insecurity a negative insignificant association was revealed. The papers therefore calls for extreme caution and location specific recommendations when reporting the broader welfare impact of IK based crafts as a livelihood strategy for rural women.

Index Terms—Indigenous Knowledge (IK), crafts and rural women

I. INTRODUCTION

Crafts in any country are unique and attractive. The production and showcasing of crafts promotes uniqueness and diversity of a country [1]. In South Africa, crafts are usually classified according to a particular ethnic background such as Ndebele, Zulu and Xhosa. Each ethnic group has its own way of distinguishing its self through its original artwork, craft and dress design patterns [2]. Crafts are recognized as a symbol of cultural behavior used to conserve artistic diversity and distinctiveness within a culture while being transferred from one generation to another [3], [4]. Consequently, South Africa has a vibrant and diverse craft sector. For example, beadwork from Kwa-Zulu Natal is different from the one produced in the Eastern Cape, North West and Limpopo Province.

A huge body of literature claims that IK based crafts positively contributes to rural household welfare [1], [3], [5]-[7]. This is mainly because of the abundance of IK in rural areas as well as freely available natural resources, critical inputs in the production on most crafts. According to Ghosh [6] traditional craft sales in 2010 were estimated to be US\$25 million worldwide and in 2013 the world-wide figure increased to an estimate of US\$ 2-billion-dollars in market value. This growth has led to governments, intergovernmental organizations, and Non-governmental Organizations (NGOs) to recognize the potential of the craft sector as a way of creating jobs and reducing poverty [6]. Likewise, the South African government recognizes the potential in producing and selling of crafts to alleviate poverty and increase rural household income [8].

Despite receiving huge indorsement, the actual contribution of IK based crafts at household level is poorly understood. Where efforts have been made to substantiate the association, no empirical evidence has been provided. The claimed benefits are therefore highly generalized and inconsistent. Against this backdrop, this paper estimated the association between participating in IK based crafts and household welfare (income, dietary diversity and food insecurity). The objective was to provide empirical evidence on the claimed nexus, for purposes of enhancing evidence based programming.

A. Problem Statement

Literature claims that IK based crafts have various significances and functions to those who produce them including food security, household income and job creation opportunities [1], [3], [5]-[7]. Thus far, IK based crafts are claimed to be lucrative livelihoods for women in Africa [9] normally produced by combining freely available IK and natural resources in rural areas. However, very little has been accorded to the effectiveness of using IK based crafts as an effective source of income for rural women to alleviate poverty and sustain their livelihoods. Women are still cited as the most vulnerable group in most rural areas of South Africa

[3], [10] yet they are claimed to be the custodian of IK in rural areas where natural resources, critical ingredients for crafts, are freely available. The paper therefore questions the association between IK based crafts, income and food security among rural women. This is because the evidence base for this association still remains poor and generalized. More specifically we ask the following question: What's the direction and magnitude of the association between IK based crafts and rural women welfare?

B. Objectives

To evaluate the association between participating in IK based crafts and household welfare (income, dietary diversity and food insecurity).

II. METHODOLOGY

Using cross-sectional survey data (n=204) from Amathole District Municipality of South Africa, women from the district were selected as the sample frame. The sample was stratified into two groups as follows: stratum "A": rural women participating in IK based crafts, n = 82 and stratum "B": rural women not participating in any IK based craft, n = 122. From the stratification independent samples were conveniently selected from each stratum. This kind of sampling was used because the interviews and group discussions were done with individuals who were available and willing to participate. Using a total of 204 women respondents "in-person interviews" and focused group discussions were used to interact with the respondents.

A. Analysis

A correlation analysis was used for the purpose of estimating the association between participating in IK based crafts and: household income, dietary diversity and household food insecurity access among rural women. Daniel [11] noted that, Pearson correlation is unduly influenced by outliers, unequal variances, non-normality, and nonlinearity. To overcome that, the Spearman's rank correlation coefficient can be used. Pearson correlation measures the strength of the linear relationship between X and Y. In the case of nonlinear, but monotonic relationships, a useful measure is Spearman's rank correlation coefficient, Rho, which is a Pearson's type correlation coefficient, computed on the ranks of X and Y values as detailed in (1) [11].

$$\rho = \frac{[1 - 6 \sum (di)^2]}{[n(n^2 - 1)]} \quad (1)$$

where;

- di is the difference between the ranks of Xi and Yi.
- n = the number of (X, Y) observation (ranks).
- rs = +1, if there is a perfect agreement between the two sets of ranks.
- rs = - 1, if there is a complete disagreement between the two sets of ranks.

Literature warns of the use of correlation models to infer causality based on possibilities of spurious and wrong-way causation [11], [12]. Thus far, the observed association from this study was treated as a systematic relationship.

III. RESULTS AND DISCUSSION

This section presents results for the share of IK based crafts on total household income as illustrated in Fig. 1. The major income sources as emerging from the results were; IK based craft sales (29%), followed by old age pension (23%), social welfare grants (18%), livestock sales (10%), remittances (9%) and salaries and wages (8%).

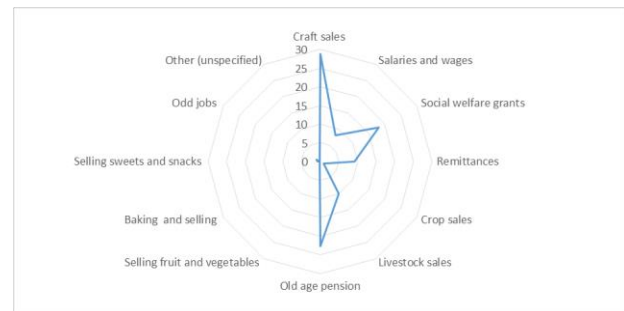


Figure 1. Share of different income sources to household income

These findings presented above, portray a positive picture of IK based crafts on household income worth assessing its statistical significance in the next sections. Previous work by Adam and Shackleton [13] reported similar findings stating that, craft sales are an important source of income that play a crucial role in sustaining livelihoods in rural communities. They are perceived as the main source of income that adds to economic feasibility for families in rural communities [14]. Recently, Adam and Shackleton [13] reported that crafts in the Port St. Johns area in the Eastern Cape province of South Africa were a significant source of income contributing a total of 35% to total household income.

A. Association between IK Based Crafts and Household Dietary Diversity Score (HDDS)

In this section the study paired IK based crafters with non-crafters in terms of their HDDS. Table I presents a summary of the calculated HDDS for both crafters and the non-crafters. The results indicated that, on average IK based crafters had a slightly higher HDDS compared to their non-crafter counterparts.

TABLE I. OBSERVED HOUSEHOLD DIETARY DIVERSITY SCORE (HDDS) BY IK BASED CRAFTS PARTICIPATION STATUS OF RESPONDENTS

Dietary Diversity Score (DDS)	Low DDS	Medium DDS	High DDS
	0 - 4	5 - 8	9 - 12
IK based crafters		6	
No-crafters		5	
Food Security Proxy	Insecure	Moderately secure	Secure

Findings of the study showed that both the IK based crafters and the non-crafters were classified in the moderately food secure category. These findings suggest that, participating in IK based crafts may not necessarily enhance participants' dietary diversity.

B. Association between IK Based Crafts and Household Food Insecurity Access Scale (HFIAS)

In this section the study presents results regarding the estimated association between IK based crafts and household food insecurity access. Table II presents the observed HFIAS by participation status of respondents.

TABLE II. OBSERVED HOUSEHOLD FOOD INSECURITY ACCESS SCORE (HFIAS) BY IK BASED CRAFTS PARTICIPATION STATUS OF RESPONDENTS

Household Food Insecurity Access Scale (HFIAS)	Low	Medium	High
	0 - 9	10 - 18	19 - 27
IK based crafters		8	
No-crafters		8	
Food Security Proxy	Less food insecure	Moderate	More food insecure

The emerging results indicated that HFIAS for the IK based crafters was (8), while that of the non-crafters was also (8). These results suggest that, by classification both groups can be classified as moderately food insecure. These descriptive results suggest that, there may be no difference in the food insecurity status of crafters and non-crafters from the study area. In the next section the study also tested the significance of the "no difference hypothesis" as suggested above.

C. Correlation Estimates between IK Based Crafts and Household Income, Dietary Diversity and Food Security

The study sought to determine the association between participation in IK based crafts, household income, dietary diversity and food insecurity status of rural women. Using a non-parametric correlation model (Spearman's rho) the magnitude of association between IK based crafts and household income, dietary diversity and food insecurity access was investigated. Table III presents the correlation estimates for the association between IK based crafts and household income, dietary diversity and food security.

Household income: The results of the study indicate a weak positive correlation between participation in IK based crafts and household income. Although, participation in IK based crafts and household income highlighted a significant positive linear relationship as supported by the Spearman's rho p-value of (0.000), the coefficient's (0.248) absolute value was not large enough to give a convincing clue of the observed association. These findings confirm the observed slightly higher share of craft sales (29%) to total household income. Comparable previous studies report the positive

contribution of IK based crafts on household income (Adam and Shackleton, 2016).

Household dietary diversity: A weak positive correlation between participating in IK based crafts and household dietary diversity was also confirmed (coefficient = 0.236: p-value = 0.001). These results showed that, as participation in IK based crafts increase, households' dietary diversity slightly improved as was suggested by the descriptive results indicating a slight variation between the HDDS for crafters (6) and non-crafters (5). Comparable previous studies report that participating in IK based crafts improves a household's diet [1], [3], [15].

Household food insecurity access score: Results reveal a statistically insignificant (p-value: 0.876) weak negative correlation (coefficient = -0.011) between participation in IK based crafts and household food insecurity access score. These findings suggests that, as participation in IK based crafts increase there is a slight decrease in households' food insecurity access score, unfortunately this association is not statistically significant, implying the observed negative association may be as a result of chance. Previous descriptive statistics also confirm a "no difference hypothesis" for crafters' HFIAS (8) and non-crafters (8) with regards to their household food insecurity access score.

TABLE III. CORRELATION ESTIMATES BETWEEN IK BASED CRAFTS AND HOUSEHOLD INCOME, DIETARY DIVERSITY AND FOOD SECURITY

Correlations						
			Participation status in IK based crafts	HDDS	HFIAS	Income
Spearman's rho	Do you participate in IK based crafts	Correlation Coefficient	1.000	.236**	-.011	.248**
		Sig. (2-tailed)		.001	.876	.000
		N	204	204	204	204
	HDDS	Correlation Coefficient	.236**	1.000	.190**	.204**
		Sig. (2-tailed)	.001	.	.006	.003
		N	204	204	204	204
	HFIAS	Correlation Coefficient	-.011	-.190	1.000	-.149
		Sig. (2-tailed)	.876	.006	.	.033
		N	204	204	204	204
	Income	Correlation Coefficient	.248	.204	-.149	1.000
		Sig. (2-tailed)	.000	.003	.033	.
		N	204	204	204	204

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

A number of conclusions can be drawn from the above results as summarized below:

Indigenous Knowledge based crafts generate income for rural women (estimated to be 29% share of total household income). Therefore, participating in IK based crafts will therefore, have a positive association with

rural household income. Unfortunately, the association is weak suggesting that, the income potential might not be large enough and highly variable.

The additional household income from sale of IK based crafts is more likely to improve households' disposable income. The confirmed positive correlation between participation in IK based crafts and household dietary diversity suggest that, the additional disposable income from IK based craft sales is more likely to be used to purchase different food groups. This may slightly improve the food diversity of crafters.

Unfortunately, the improved disposable household income from IK based craft sales falls short of reducing household food insecurity possibly explained by the broadness of food security components. Thus, participating in IK based crafts may improve rural households' income and slightly improve their dietary diversity without necessarily addressing their food insecurity.

IV. CONCLUSION

The study concludes that rural women's participation in IK based crafts may positively address their household income and dietary diversity. However the contribution though positive is very weak and may be variable across different geo-political spaces. The paper further concludes that there was no statistical evidence to suggest that participating in IK based crafts address household food insecurity. The papers calls for extreme caution and location specific recommendations when reporting the broader welfare impact of IK based crafts as a livelihood strategy for rural women.

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