Income and Food Security Status Among rural Women Indigenous Knowledge Based Crafters and Non-crafters: Evidence from Rural South Africa

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Abstract-Improving household income and achieving household food security for women in rural areas is a key item on the agenda of both international and national governments across the globe. This is against a background where most rural women face several gender based constraints in accessing basic livelihoods. Against this background the paper assessed the income and food security status among rural women IK based crafters and noncrafters. The study was conducted in Amathole district municipality of South Africa using a cross sectional survey targeting 82 crafters and 122 non-crafters conveniently selected based on their willingness to participate. Quantitative and qualitative research methods were employed to generate data relating to research objectives and questions. The results indicate that income from selling IK based crafts contributed 29 percent of the total household income. With reference to food security the two groups did not show any significant difference. The paper therefore concludes that IK based crafts may address rural household income for women but falls short of addressing their household food security.

Index Terms—indigenous knowledge, rural women, household income, food security

I. INTRODUCTION

Gender based constraints such as limited access to education and production resources restrict women's access to a number of income generating opportunities [1]. Such gender inequalities result in devastating effects on the welfare of women in rural communities [1]-[3]. Women face problems of inequality, lack of access to productive resources and dependency on men which consequently leads to suffering from long durations of poverty [3]. Such unfavorable circumstances keep women underprivileged and poor [3]. Literature however acknowledges several indigenous knowledge (IK) based initiatives by rural women towards diversifying their livelihoods portfolios. Thus far, a significant number of rural women engage in IK based crafts as a livelihood strategy in response to several gender based constraints generic in rural areas [2], [3]. The empirical relevance of these IK based crafts are unfortunately poorly understood though widely claimed to be positive [2]. This paper therefore assessed the income and food security status of rural women (both IK based crafters and non-crafters) for purposes of upraising the income and food security nexus of IK based crafts.

A. Problem Statement

Indigenous knowledge based crafts are normally generated from freely available natural resources also claimed to be abundant in rural areas [4]. Of interest to note is that IK based crafts are claimed to be "rural cash cows" for women in Africa [5] yet literature also claims that rural women are living in poverty [4], [6]. We therefore question the welfare implications of IK based crafts in rural areas. Also, there are limited empirical studies on the effectiveness of using IK based crafts as a source of income for rural women to alleviate poverty and sustain their livelihood. Thus far, the evidence base for this association still remains poor, missing, mixed, generalized and inconsistent, despite having a clear theoretical potential to improve rural household income and food security. More specifically the study asked the following question: Can IK based crafts improve household income and food security for rural women?

B. Objectives

1. To assess the share of IK based crafts on total rural household income.

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^{2.} To assess the association of IK based crafts, household dietary diversity and household food insecurity access status of crafters and non-crafters.

II. LITERATURE REVIEW

Over the years, scientists have sought ways of responding to global and local challenges that the human race encounters, however, in their attempt to do so they have increasingly distanced themselves from using IK [6]. This is despite IK being the single largest resource that people have depended on from generation to generation [7]. Historically IK was perceived as being mysterious, outdated, unfashionable and irrelevant particularly to the development of developing countries [7]. Consequently, this perception led to the marginalization of IK hence; African rural communities have been living in high levels of poverty as a result of food insecurity [8]-[10].

In Africa, being born a female not only negatively affects one's opportunities to create wealth and earn a reasonable income but it also dictates the kind of choices available to them in various spheres of life [1]. Gender inequality is still very prominent in many African communities [1] [11]. Till today gender inequality still affects patterns of control, participation, access, and use of resources [10]. Women in many African rural communities have very little or no access to productive resources which profoundly limits their ability to partake in or benefit from either economic or social development [1], [11]. As a result women in African rural communities are poorer than men [2].

In South Africa there are significant differences in the experiences of poverty between men and women in rural areas. The incidence of poverty in male-headed households increased from 31.7% in 2011 to 33.0% in 2015 while in female-headed households poverty increased form 47.8% in 2011 to 50% in 2015 [12].

Poverty is on the rise in South Africa with over 30 million people living in poverty with women being the most vulnerable to increased poverty [12]. The state of poverty in the country suggests that it is of paramount importance that women engage in sustainable income generating livelihood strategies such as IK based crafts to increase and improve their income and ultimately their household food security [12]. According to Poverty Report Statistics South Africa [12] the percentage of people living in poverty in rural areas was 77 % in 2011 and increased to 81.3% in 2015. This increase in poverty widened the gap between rural and urban communities from 35.6% to 40.7 %. This means that the experience of poverty in rural communities is direr when compared to urban areas. This amount of poverty puts pressure on people particularly women in rural areas to depend on natural resources and their IK to survive [12].

The big question of IK is how it can be used to generate more income and improve household food security [13]. Since the late eighties, the focus on food security has shifted from national and global level to household level [10]. At household level food security refers "to the ability of food providers to secure adequate food at all times to meet the dietary requirements and cultural preferences of their household members" [6]. Access to adequate food in any household is catalytic to the realization of all other rights such as education and good health [6]. Attaining household food security is therefore of fundamental importance. We therefore question the potential of IK based crafts to address rural household income and food security for women.

III. METHODOLOGY

The study used a cross-sectional survey approach to draw an understanding of how IK based crafts participation contributes to rural household income generation and food security for rural women in Amathole District Municipality. The area was purposefully selected because according to Hamann and Tuinder [14] agricultural activities in the area are not fully developed beyond subsistence farming this presents an opportunity for women in the study area to take up nonfarm activities such as producing IK based crafts.

TABLE I: DIETARY DIVERSITY QUESTIONNAIRE

Food groups	Points
1. Any bread, rice, or any other foods made from millet, sorghum, maize, wheat or any other locally available grain	1/0
2. Any potatoes, yams, cassava or any other foods made from roots or tubers	1/0
3. Any vegetables	1/0
4. Any fruits	1/0
5. Any beef, pork, lamb, rabbit, chicken, duck, other birds and organ meats	1/0
6. Any eggs	1/0
7. Any fresh or dried fish, or shellfish	1/0
8. Any foods made from beans, peas and lentils	1/0
9. Any yoghurt, milk or milk products	1/0
10. Any food made with oil, fat or butter	1/0
11. Any sugar	1/0
12. Any food such as coffee or tea	1/0
Total	12/0

Key: if the answer is yes award 1 point and if the answer is no award 0 points

Quantitative and qualitative research methods were employed to generate data relating to research objectives and questions. For example through targeting the respondent's dietary history, a 24-hour dietary recall was conducted to obtain food groups information from respondents' food intake [15]. The respondents were asked to recall all foods eaten and beverages taken in the previous twenty-four hours prior to the interview. The respondents were asked to recall all foods eaten and beverages taken in over the twenty-four hours preceding the interview.

A scale of twelve food groups was used in assessing the dietary diversity of the respondents, as summarized in Table I below, following an approach taken by FAO [15]. A single point was awarded to each of the food groups consumed over the reference period giving a maximum sum total dietary diversity score of 12 points for each individual in the event that his/her responses are positive to all food groups. A value of zero would therefore mean a low Dietary Diversity Score (HDDS) and the closer the score is to 12, the higher the dietary diversity of the respondent.

Number	Response options:
	0= Never
	1= Rarely (once or twice in the past 30 days)
	2= Sometimes (three to ten times in the past 30 days)
	3= Often (more than ten times in the past 30 days).
1	In the past four weeks, did you worry that your household would not have enough food?
2	In the past four weeks, were you or any household
	member not able to eat the kinds of foods you preferred because of a lack of resources?
3	In the past four weeks, did you or any household member have to eat a limited variety of foods due to a lack of resources?
4	In the past four weeks, did you or any household
	member have to eat some foods that you really did not
	want to eat because of a lack of resources to obtain
	other types of food
5	In the past four weeks, did you or any household
	member have to eat a smaller meal than you felt you needed because there was not enough food?
6	In the past four weeks, did you or any household
	member have to eat fewer meals in a day because there
	was not enough food?
7	In the past four weeks, was there ever no food to eat of
	any kind in your household because of lack of
	resources to get food?
8	In the past four weeks, did you or any household
	member go to sleep at night hungry because there was
	not enough food?
9	In the past four weeks, did you or any household
	member go a whole day and night without eating
	anything because there was not enough food?

TABLE II: THE HOUSEHOLD FOOD INSECURITY ACCESS SCALE (HFIAS) GENERIC QUESTIONS.

This was complemented by the Household Food Insecurity Access Scale (HFIAS), assessing whether households have experienced problems with food access during the last 30 days [15]. The instrument consists of nine occurrence questions and nine frequency questions; these questions ask about the changes households made in their diet or food consumption patterns as a result of limited resources to acquire food. Thus, HFIAS measures the level of food insecurity during the past 30 days as self-reported by the household. The measured results are then assigned a categorical designations (food secure, moderately or severely food insecure) or given a numerical value (0-27), with higher numbers representing a greater level of food insecurity [15]. Table II summarizes the generic HFIAS questions used in this study.

For each of the above questions, a respondent considered what happened in the past 30 days. The respondent also indicated how often this happened, rarely (once or twice), sometimes (3-10 times), or often (more than 10 times) in the past 30 days [15].

A HFIAS score variable is calculated for each household by totalling the codes for each frequency of occurrence question. The maximum score for a household is 27 (if the household response to all 9 questions was "often", coded with a response code of 3); the minimum score is 0 [15]. The higher the score, the more food insecurity (access) the household experienced. The lower the score, the less food insecurity (access) a household experienced [15].

IV. RESULTS AND DISCUSSION

Table III presents the socio-economic characteristics of all the sampled households. The results display a mean household size of 4, with a minimum of 1 and a maximum of 14. The average age for crafters was 56, with a minimum of 27 and a maximum of 87. While that of non-crafters was 55 with a minimum of 21 and a maximum of 87. The results indicate a high level of education with an average of 2 for both the crafter and non-crafters with the most obtained level of education being post-secondary education.

TABLE III: DESCRIPTIVE STATISTICS OF SAMPLED HOUSEHOLDS

Variable	Crafters				Non-crafters				С	Combined			
	n		%	1	n			%	n	n		%	
Education level													
No	8		9.76		13		1	0.66	21		2	0.42	
education													
Primary	24	4	29.27		38 3		3	1.15	62	62		60.42	
Secondary	44	4	53.66		61 50.		0.00	105		103.66			
Post-	1		1.22	.22 7			5.74		8		(5.96	
secondary													
Tertiary	5		6.10		3 2.		2.64	8		8.56			
Employment	Employment status												
Unemployed	15		18.28		16 1		3.11	31	31		31.39		
Employed	67	5	81.71		106 80		6.89	173		168.6			
Level of par	Level of participation												
Fulltime	65		79.27										
Part time	12		14.63										
Seasonal	2		2.44										
Hobby	3		3.66										
Variable		Crafters			Non-crafters				Combined				
	Min	Max	Ave	Μ	lin	Max	ĸ	Ave	Min	Max	۲.	Ave	
Age	27	87	57	2	1	8	7	56	25	87	7	57	
Household	1	10	4	1	1	1	1	5	1	11	1	4	
size													

A. Average Monthly Household Income from Major Income Source

Results indicate several (12) household income sources pursued by rural women from the study area. Of the 12 reported income sources only 6 sources were significant (those generating monthly income above R200) as illustrated in Table IV. Crafts sales, old age pension and social welfare grants were the major monthly household income sources, suggesting that participating in IK based crafts may improve rural women's household income.

TABLE IV: AVERAGE MONTHLY HOUSEHOLD INCOME FROM MAJOR INCOME SOURCE

Income source	Monthly average (R)			
1 Craft sales	812			
2 Salaries and wages	227			
3 Remittances	261			
4 Crop sales	32			
5 Livestock sales	282			
6 Social welfare grants	510			
7 Old age pension	639			
8 Selling sweets and snacks	17			
9 Selling fruit and vegetables	4			
10 Backing and selling	5			
11 Odd jobs	30			
12 Other (unspecified)	2			
Total monthly average	2821			

B. Share of Different Income Sources to Household Income

Fig. 1 presents results for the share of IK based crafts on total household income. Results indicate that with reference to the major income sources; craft sales contribute 29% of rural household income, 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 portray a positive picture of IK based crafts on household income. Several previous studies [4] [16] 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 [16]. Recently, Adam and Shackleton [4] 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.

C. Household Dietary Diversity Score (HDDS)

In this section the study paired crafters to non-crafters in terms of their HDDS. The results revealed that on average crafters had a higher HDDS (6) compared to noncrafters (5) as detailed in Table V.

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

Household	Low dietary	Medium dietary	High dietary
Dietary	diversity	diversity	diversity
diversity	0 - 4	5 - 8	9 - 12
score (DDS)			
IK based crafters		6	
Non- Crafters		5	
Food security Proxy	Insecure	Moderately secure	Secure

Study results indicate that both the IK based crafters and the non-crafters were classified in the moderately food secure category. These findings suggest that both the IK based crafters and the non-crafters had a medium dietary diversity score. Although, IK based crafters and the non-crafters were classified in the same category (medium dietary diversity), the results further reveal that the IK based crafters had a slightly higher HDDS (6) compared to the HDDS of non-crafters (5).

D. Household Food Insecurity Access Scale (HFIAS)

This section provides results on the calculated household food insecurity access of both the crafters and non- crafters. The higher the HFIAS, the more food insecurity a household experienced and the lower the HFIAS, the less food security the household experienced. Table VI presents the observed household food insecurity access scale of crafters and non-crafters.

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

Household food	Low	Medium	High		
insecurity access	0 - 9	10-18	19-27		
scale (HFIAS)					
IK based crafters		8			
Non- Crafters		8			
Food security	Less food	Moderate	More food		
Proxy	insecure		insecure		

The results indicate 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 further suggest that there may be no difference in the food insecurity status of crafters and non-crafters from the study area.

V. CONCLUSION

The study concludes that IK based crafts generate income for rural women (estimated to be 29% share of total household income). Participating in IK based crafts will therefore have a positive association with rural household income.

The additional household income from sale of IK based crafts is more likely to improve households' disposable income. The positive association 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 slightly improving 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 far, participating in IK based crafts may improve rural households' income and slightly improve their dietary diversity without necessarily addressing their food insecurity.

The paper therefore argues that IK based crafts presents an opportunity for rural women to generate household income worth promoting. To boost income from IK based crafts for rural women, attention should be given to mechanisms to reduce high operational costs during production (bought-in material and labour costs) and formal market access that offer premium prices.

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