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Handloom Value Chain Analysis the Case of Dorze Ethnic Group in Chencha, Gamo Gofa Zone, Ethiopia

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Abstract
This study was designed to conduct three specific objectives identify value adding activities and value added handmade cotton clothes of Dorze ethnic group, to analyze job creation capacity and conduct cost-benefit analysis of handloom weaving and to analyze women's role in raw cotton production to handloom weaving. Both primary and secondary data were used. A total of 123 producer households were selected from Arbaminch zuria district of Gamo Gofa zone and 9 small and micro enterprises, and one textile company were interviewed using semi structured questionnaire. Descriptive statistics data analysis techniques were used to analyze the data. The analysis result shows that on average handloom weaving small and micro enterprises create job opportunities for 1.56 female and 7.9 male. Descriptive statistics results show that the main cotton value chain actors in the study area are input supplier, producers, local collectors, wholesalers, ginners, cottage level weavers and retailers. Also interview with Dorze ethnic group weavers shows that weavers of study area were producing many value added cotton handloom clothes and clothing items today like; Kemis, Netala, gabi, Algalibis, scarf, cap, and bulliko. In cotton to handloom value chain women play key role at both field and value addition stage. In field stage women participate in weeding, planting and harvesting whereas at value addition women participate in ginning, spinning and marketing of finshed goods. Financial analysis result shows that farmers-retailers-local ginners-handloom cotton weavers chain integration farmers receive 0.56 birr return for every 1 birr investment on cotton, retailers receive 0.11 birr, local ginners receive 0.11 birr, and weavers receive 0.322 birr for every 1 birr investment in cotton value chain activity, citrus paribus.
Keywords: Value chain, Handloom, Weavers, Dorze and Value Addition

1. INTRODUCTION

1.1. Background and Justification

Ethiopia possesses various kinds of unique handicrafts because of its unique history, tradition and culture evolved by the various people of the country (Japan Embassy, 2008). Ethiopia has a strong tradition in producing handmade textiles and the country is undoubtedly the most important centre for production of handmade cloth in Eastern Africa, and has always held this position of pre-eminence. The textile tradition in Ethiopia has shown itself to be supremely resilient, dynamic and adaptable to change (Hudson & Spring, 1995). The ethnic and cultural diversity of Ethiopia has given rise to many unique and dynamic visual traditions. One of these traditions is the weaving from the Gamo Highland at Gamo Gofa zone; the Dorze weaving. Many Dorze weavers live in Addis Ababa, the capital of Ethiopia and at their home land Chencha District (Freeman & Pankhurst, 2003). Weavers from Gamo Highlands are known to be among the weaving pioneers of the country and held in high esteem for their superb skill and for producing exquisite textiles and garments of which the design, style, and structure varies from simple to complex and from place to place (Dubois, 2008; Kedir, 2016; Silverman, 1999). Dorze ethnic group handicraft tradition is taught from one generation to another. The production takes place in their homes, using simple looms, and the products are mainly sold within the country. It is dynamic and adaptable to change. Further, it is taught from one generation to another and it has a strong tradition and validity that is rooted in the knowledge functionality (Hofverberg, 2010). Handicrafts industry is basically a cottage industry and which is important to conserve the unique culture and maintain cultural identity because the products of weavers are used as input in museum for visitors and cloth produced by weaver is related to celebrations, rites, customs, popular and religious feasts and manifestations (Waktole, 2016), create job opportunities for women and contribute to poverty reduction because it plays an important role in income generation in the rural areas (Japan Embassy, 2008). On the other hand the production does not pollute environment or nature it does not release burnt air to environment(Waktole, 2016). This study has been conducted in Dorze ethnic group of Gamo Gofa zone because of There is long existing tradition of cotton farming, and Arbaminch zuria district was called the cotton belt in Ethiopia (Merima and Gezahegn, 2008) while finest cloth in Ethiopia is produced by two ethnic groups who live close to one another in the southern highlands of Ethiopia: The Dorze and Konso (Hudson & Spring, 1995). Therefore this study conducted to identify value adding activities and value added handmade cotton clothes of Dorze ethnic group and analyze job creation capacity and women role along the value chain.

2. RESEARCH METHOD

2.1. Data Types, Source and Method of Data Collection

Both primary and secondary data were used. The primary data were collected using semi-structured questionnaires from sampled respondents. Secondary data were collected from different sources such as from district Agricultural Development Office reports, textile industry report, Gamo Gofa zone Agricultural Development department reports, Trade and Industry Offices, bulletins and websites. Quantitative and qualitative data were collected from respective sources and were used to achieve the proposed objectives.

2.3. Sampling Techniques and Sample Size Determination

To draw representative sample respondents from those cotton value chain actors included in the study; the following sampling method was employed.

2.3.1 Cottage industry (weavers) sampling

At cottage industry level weavers Dorze ethnic group who were located on Chencha district nearly 30 kilometers to north of Arbaminch town(capital of Gamo Gofa zone) and small and micro enterprises those organized at Arbaminch town were addressed. Six small and micro enterprises from Chencha district (home land for Dorze) and three small and micro enterprises Arbaminch town were selected and two (1 male and 1 female) representative members was interviewed from each selected small and microenterprises.

2.3.2. Traders Sampling

Trader survey was held at Kola shelle market places during pick cotton harvesting period. Because market held on weekly basis once every Saturday and farmers supply cotton to only Kola shelle market. All local collectors, wholesaler and retailers were interviewed because they were few in number.

2.4. Method of Data Analysis

Data was analyzed using descriptive data analysis method. Descriptive data analysis refers to the use of charts, ratios, percentages, means, variances and standard deviations in the process of examining and describing socio-economic and demographic characteristics of value chain actors, value adding activities, gender roles and traders' characteristics. To conduct value chain analysis both financial and Functional analysis was done to identify connections between actors and tracing a product flow.

3. RESULT AND DISCUSSION

3.1. Demographic Characteristics of Sampled Respondents

Survey result presented in the (Table 1) shows that mean age of sampled traders was 38.26 years and 53.8% of the sample traders were male and 46.2% were female. Among total surveyed traders 73.1% were retailers, 23.1% were local collectors and only 3.8% were wholesalers.

Table 1: Demographic characteristics of sampled traders

Variables	Indicators	Frequency	Percent
Sex of traders	Male	14	53.8
	Female	12	46.2
	Total	26	100
Types of trading	Wholesaler	1	3.8
	Retailers	19	73.1
	Local collectors	6	23.1
	Total	26	100

Source: own computation, 2016

3.2. Demographic and Socio-Economic Characteristics of Weaver

Demographic and socio economic characteristics include sex distribution, type of technology used and financial assets holding such as initial capital, source and current working capital of small and micro enterprises who are engaged in weaving. As depicted in (Table 2) below surveyed cottage level weaving industry female Participation rages from 1 to 3 with mean of 1.56 and also male membership ranges from 2 to 24 with mean of 7.9 male per enterprises. This indicates that female participation on weaving enterprise was lower than that of male participant

Table 2: Demographic characteristics and enterprises capital

Variables	Indicators	Minimum	Maximum	Mean	Std. Dev
Sex distribution among SME	Female	1	3	1.56	0.73
	Male	2	24	7.9	6.5
	Total	3	25	9.5	6.35
Enterprise initial capital	9	500	5000	2555.55	1666.66
Enterprise working capital	9	8000	150000	58666.67	46954.76

Source: Own Computation, 2016.

As presented in (Table 2) above total cottage level weaving industry members range from 3 to 25 individuals with mean of 9.5 individuals per enterprises. This implies that weaving industry can create job opportunity for both male and female. Also the weaving enterprises initial capital ranges from 500 to 5000 birr with mean of 2555.55 birr and the working capital of weaving enterprises during the survey (2016) ranges from 8,000 to 150,000 birr with average of 58,666.67 birr.

Table 3: Types of technology used and initial capital

Variables	Indicators	Frequency	Percentage
Technology used for weaving	Traditional wooden	2	22.2
	Improved metal	3	33.3
	Both	4	44.4
	Total	9	100
Source of initial capital	Own saving	5	55.6
	Both own saving and Omo Microfinance	4	44.4
	Total	9	100

Source: Own Computation, 2016.

As presented in (Table 3) above weaving enterprises used two types of weaving technology namely: traditional wooden and improved metal weaving machine. As indicated in the table above 44.4% of surveyed weaving enterprises used both, 33.3% used improved metal and 22.2% used traditional wooden weaving machine. Also weaving enterprises use different sources for their initial capital. As indicated below 55.6% used their own saving capital and 44.4% used loan from Omo Micro finance institution.

(a)wooden weaving machine

(b) Improved metal weaving machine

3.3. Value Addition and Financial Analysis of Cotton Value Chain

An economic agent can calculate the value added as a difference between the full value of the output and the value of the purchased inputs (McCormick and Schmitz, 2001). Based on the aforementioned value added concept and method of value adding calculation, each actors value adding along cotton value chain was calculated and displayed below.

1. Input supply to raw cotton production: average production cost per 100kg was 637.69 birr and gross profit per 100kg was 362.31 birr. Average cotton production cost per hectare was 6870 birr and gross profit per hectare was 3926 birr.
2. Cotton farm production to traders: Traders of cotton value chain of Arbaminch zuria district can be classified into three. Namely; local collectors, wholesalers and retailers. On average local collectors add or cost 1096 birr per 100 kg and selling price was 1150 birr and they capture 54 birr gross profit from 100 kg of cotton.
3. Raw cotton to handloom: For this study small and micro enterprises (SME), which were found in Chencha district Dorze area and weaver enterprises which were found in Arbaminch city administration were considered.

Table 5: Items produced and production cost

Items produced:	Indicators	Frequency	%	Mean production cost	cotton used in kg	Mean cotton price/kg	Average selling price	Total production cost	Gross profit
Netela	Yes	8	88.9	73.9	0.5	18	119.44	82.9	36.54
	No	1	11.1						
Kemis	Yes	6	66.7	228.9	2	18	397.78	264.9	132.9
	No	3	33.3						
Bulliko	Ye	2	22.2	400	4	18	522.22	472	50.22
	No	7	77.8						
Algalibis	Yes	3	33.3	170.	1	18	216.11	188	28.11
	No	6	66.7						
Gabi	Yes	9	100	198.9	2.5	18	396.67	243.9	152.8
Scarf	Yes	2	22.2	15	0.5	18	27.78	24	3.78
	No	7	77.8						
Dinguza	Yes	9	100	78.33	1	18	136.11	96.33	39.78
	No								
Cap	Yes	3	33.3	17	0.5	18	32.27	26	6.27
	No	6	66.7						
Total				1182.03	12		1848.38	1393.53	450.4

Source: Own Computation, 2016

As results presented in (Table 5) above shows 100% surveyed weavers enterprises produce *dinguza*, which traditional clothes worn by the five ethnic groups of Gamo Gofa zone. Also 100% sampled enterprises produce *gabi*, which is a cloth worn by both women and men in bed or in cold weather and for different ceremonies and during grief. Also 88.9% of sampled enterprises produce *netela*, which is mostly worn by women and 66.7% of sampled enterprises produce *kemis*, women's dresses which were usually worn together with a *netela* in both Urban and Rural areas. Only 22.2% of surveyed enterprises produced *bulliko* is thicker and relatively larger cloth used as a blanket in bed and it is praiseworthy gift, which is given in different ceremonies and celebrations. Except for the decorative borders the material used in these clothes is cotton. On average weavers add 9850 birr per 100 kg of cotton and make 3753.33 birr gross profit per 100 kg of items they produced.

(a) Dinguza (b) scarves with different color (c) caps with different size (d) *netela*

3.4. Summary of value addition and percentage profit share

This summary of value addition and percentage profit share describes chain actors production cost, added values, percentage added cost, percentage of profit share and rate of return of each chain actors has been displayed below in (Table 6)

Table 6: Value addition summary of raw cotton to handloom

	Cost per 100 kg			**Profits per 100 kg**			
Chain actors	**Unit total cost**	**Add cost**	**% added cost**	**Unit price**	**Gross profit**	**%gross profit**	**Rate of return**
Farmers	637.69	637.69	5.7	1000	362.31	8.11	0.56
Retailers	1350	350	3.14	1500	150	3.37	
Local ginners.	1800	300	2.69	2000	200	4.48	0.11
Weavers	11650	9850	88.47	15403.16	3753.167	84.04	0.11
Total		11137.69	100		4465.477	100	0.32

Source: Own computation, 2016.

As depicted in (Table 6) above in the case of farmers=>retailers=>local ginners=>handloom weavers' chain integration farmers receive 0.56 birr return for every 1 birr investment on cotton, retailers receive 0.11 birr, local ginners receive 0.11 birr, and weavers receive 0.322 birr for every 1 birr investment in cotton value chain activity, *citrus paribus.*

3.5. Women's role in cotton to handloom value chain

In the cottage industry of processing cotton to transform to different manmade clothes and clothing items women play significant role. Women role in cotton to handloom value chain analysis can be categorized as at field level at processing (value adding) level.

At field level: weeding; which is lengthy, activities were mostly done by women. In the case of Gamo Gofa

zone cotton weeding activities by manually by hand sorting of weeds from cotton farm. Weeding activities start at the middle of May and continued to the end of September, and on average it was done four times until the harvest of cotton bolls. Also most cotton harvesting activities was done by women. Harvesting activities starts from early November to half of December when bolls become ready to harvest. Harvesting is done traditionally with handpicked in three rounds, which were high labor demanding activities in cotton farming. Planting and transporting raw cotton from farm land (field) to storage places and market was done by jointly with men and sometimes all working aged family members participate in transporting harvested cotton.

At value addition stages: during processing cotton to transform in clothes and clothing items women role starts from buying quality seed cotton from market and continue to ginning cotton into seed and lint by traditionally by hand. At cottage level 100% cotton ginning was done by women. After ginning raw cotton women starts hand-spinning cotton using spindle as shown in fig (a) below and now a day's some micro and small scale enterprise members were using modern improved spinning machine as shown in fig (b) below.

(a) traditional bamboo spindle

(b) modern improved spinning machine

In sampled weaving small and micro enterprises women members play great role of arranging finished products, leveling products and marketing handmade clothes in addition to aforementioned roles. Both men and women response shows that weaving are more appropriate for men, because it demands physical strength, high workload and technical issues.

4. CONCLUSION AND RECOMMENDATION

4.1. Conclusion

Sampled cottage level weavers produces *netela*, *kemis*, *bulliko*, *algalibis*, *gabi*, scarf, *dinguza* and cap from cotton. On average weavers add 9850 birr per 100 kg of cotton and make gross profit of 3753.33 birr per 100 kg of items they produced. The mean productivity of cotton was 1083.6 kg per hectare Average production cost per 100kg was 637.69 birr and gross profit per 100 kg was 362.31 birr. Among sampled respondents only 33.3% used improved metal weaving machine. Female participation rages from 1 to 3 with mean of 1.56 and also male membership ranges from 2 to 24 with mean of 7.9 male per. female participation on weaving enterprise was lower than that of male participation. Cottage level weaving industry members range from 3 to 25 individuals with mean of 9.5 individuals per enterprises. In the case of farmers=>retailers=>local ginners=>handloom weavers chain integration farmers receive 0.56 birr return for every 1 birr investment on cotton, *citrus paribus.*

4.2. Recommendation

- Reducing women's workloads through introducing labor saving technologies such as interview with handloom value chain participant women indicates that cottage level ginneries use hand to gin cotton and it time consuming activity. Therefore to enable women to manage efficiently their roles and responsibilities. However the technologies need to be tested to ensure applicability within the context.
- Farmers should be capacitated: cotton producer farmers produce using traditional method production is only hand to mouse and there is no surplus production therefore they do not supply cotton to market. Value chain should be developed to help sorghum price fluctuation.
- Improving weavers' technological utilization: research result indicates that only 33.3% used improved metal weaving machine. Therefore improving weavers' technological application from old to modern time, cost, labor and energy saving technology which can facilitate and improve product quality and productivity of weavers.
- Improve women participation in handloom product marketing: women participation in handloom production enterprise was less than that male part. Therefore awareness should be created on women capacity to hand every work. Gender specific marketing and value chain training should be given for women enterprise members.

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