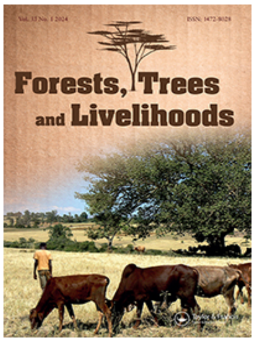

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Relationship, governance, and upgrading opportunities in the Shea value Chain: a descriptive analysis from Northern Ghana

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ABSTRACT

This study explores the relationships between value chain actors in the shea sector in Northern Ghana, the governance mechanism that prevails, and the upgrading opportunities for upstream actors. The value chain analysis (VCA) framework was the main analytical tool employed for this assessment. Participating actors in the shea global value chain were shea kernel producers, shea butter processors, aggregators, and industrial processors and exporters of shea products. The results showed that, although women shea upstream actors (especially shea kernel producers) interface directly with aggregators, the relationship is weak and restricted to spot buying, and arms-length market governance relationship. Although the upstream actors are enthusiastic to upgrade their products, they are constrained by inadequate access to requisite assets, resources, capabilities, and skills. The shea upstream actors were confined to low value-adding segments and activities of the shea-GVC. Industrial processors and exporters appear reluctant to directly support upstream women processors to upgrade through offering credits, technology transfer and skills enhancement. Lowering barriers to upgrading opportunities in the value chain calls for intervention of the government, and support from international development organizations (NGOs), and midstream and downstream actors. Government must create an enabling policy environment that incentivize downstream actors to build capacities of upstream actors.

KEYWORDS

Global value chain; upstream actors; governance; upgrading; shea kernels and shea butter

1. Introduction

The shea fruit (*Vitellaria paradoxa*) is one of the most important non-timber forest products (NTFPs) for the livelihoods of thousands of rural women in Northern Ghana. Described as 'women's gold' (Sieg 2009 in Pouliot 2012), shea fruits (hereafter simply called 'shea') serve as a food security crop, a major contributor to women's household income (Pouliot 2012), and is regarded as a high value commodity (USAID/WATH 2012). It is one of the few tree crops by which poor rural women in Northern Ghana are linked to the international market through the global value chain (GVC). Global value chain (GVC) refers to the interconnected processes that goods, commodities, and services undergo from conception and design through production, marketing and distribution up to final consumption at geographically distinct locations across the globe (Gereffi and Fernandez-Stark 2011; OECD 2012). The cocoa-GVC, fruits and vegetables – GVC (e.g. pineapple, peppers), and timber – GVC are three of the major agricultural commodity global value chains with

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high significance for the economy of Ghana. Northern Ghana historically has not benefited much from national growth, because of low participation of these regions in international trade (Al-Hassan and Diao 2007). The emergence of shea as an internationally traded high value commodity offers a potentially huge opportunity for smallholder women shea actors in rural Ghana to improve their living standards.

Three key factors are thought to have stimulated the transformation of the Ghana's shea GVC in the last two decades. First is the increased and growing demand for shea products by multinational companies (MNCs) in the food and cosmetic industry based in Europe and Asia (Addaquay 2004; Elias and Saussey 2013; Lovett 2015; Elias and Arora-Jonsson 2017). Second, is the proliferation of small scale Ghanaian-owned enterprises or businesses producing shea products (e.g. oils, cosmetics, beauty products, soaps) for both domestic and international markets on one hand, and of medium scale industrial processing firms and exporters of shea products, producing and exporting value-added shea products abroad. Thirdly, international development agencies such as the United States Agency for International Development (USAID), United Nations Development Programme (UNDP), and Stichting Nederlandse Vrijwilligers (SNV) have supported rural women involved in the collection and processing of shea fruit into kernels and butter at the household level, to improve their competitiveness. This support included providing women with skills training, facilities, and linkage to buyers (Addaquay 2004; Lovett 2004; SNV 2006).

In many parts of the rural and peri-urban communities of Northern Ghana, several thousands of rural women are now involved in processing shea nuts into kernels and crude butter destined for the international market. Rural women are therefore linked to the shea global value chain (shea-GVC) through aggregators, processors, and exporters. Shea thus serves as a food security and income generating product for rural households in parts of Northern Ghana, while it serves as a relatively high-value product in industrialized countries, where it is mainly used as a cocoa butter equivalent in the food and beverage industry (Alander 2004; Rogers and O'Lenick 2009). Globalization of the shea value chain has thus stimulated the emergence of a vibrant but still nascent domestic shea industry in peri-urban and rural Northern Ghana.

Rural women in Northern Ghana are often resource-constrained and have limited livelihood options especially during off-season farming periods (WFP 2012). In the face of limited non-farm activities, limited wage labour opportunities and limited capital to trade, shea picking and processing constitute an important 'feminized subsidy from nature' (Elias and Carney 2007) and a complementary source of livelihoods and income for rural households. Indeed, a study by Tanzile et al. (2023) reported that shea processing benefits and contributes to higher household income. Participation in the shea-GVC may also serve as an opportunity for these resource-constrained women to acquire requisite skills and technologies so that they can deliver quality products, secure access to high-value export markets, and thereby receive better incomes to improve their living standard than if they were to sell in a typical local market.

Rural women in Northern Ghana who participate in the shea-GVC may be considered as micro-entrepreneurs who devote resources (inputs, equipment, time, energy, and money) to production activities that yield shea kernels and shea butter. Like most upstream actors in GVCs, female shea kernel producers and butter processors have various constraints. They lack the requisite production assets (land, shea trees, credit), are illiterate, and do not have the sophisticated equipment and technologies needed to produce high quality shea derivatives such as stearin and olein that is used by international confectionary and cosmetic firms. It is access to these assets and capabilities that facilitates ease of entry into the more remunerative high-end markets abroad. However, more often than not, lead firms either located overseas or as international subsidiaries based in Ghana, by virtue of the market power they wield (e.g. capabilities, core competencies, market information, innovations, economies of scale, access to funds), erect barriers (e.g. quality, certifications, and ethical standards), which are beyond the reach of upstream actors (Giuliani et al. 2005; Bakucs et al. 2007; Lee et al. 2012).

An assessment of the value chain dynamics including the relationships, governance forms and upgrading capacity of especially upstream actors within the shea-GVC is therefore necessary to get a better understanding of the constraints and opportunities for improved performance. This paper thus seeks to provide such a better understanding of the relationship between actors in the shea value chain, the governance mechanism that operates within the chain, and the opportunities for and constraints to upgrading, especially for upstream actors (women shea kernel producers and shea butter processors).

1.1. Theoretical framework: governance and upgrading in global value chains

Key elements of a typical value chain are the chain actors (at the micro-level), the value chain supporters and influencers (at the meso-level) and an enabling environment (macro-level) within which the chain operates. According to Bammann (2007) three levels of participation in a value chain are significant: the value chain actors, the value chain supporters, and the value chain influencers. Value chain actors are the economic agents who own and directly produce, handle, and add value to a commodity or product as it moves from one actor or segment of the chain to the other. Value chain actors may consist of upstream actors, midstream actors and downstream actors. The upstream actors are those who occupy the lower segments of the chain and begin the whole production process or perform activities close to the exploitation of natural resources and raw materials (Hernandez and Pedersen 2017). Midstream actors, refer to the actors who add some value to raw commodities by converting them to semi-finished or semi-processed products, or finished products. They usually link upstream actors to downstream actors, and may include aggregators, processors, manufacturers, and wholesalers. Downstream actors are economic agents such as firms, wholesalers, retailers, or supermarkets, that occupy the end segment of the value chain that links or interfaces closely with consumers. Value chain supporters include public or private sector agents that usually provide inputs (e.g. improved seeds, fertilizers, drugs, package materials) and deliver services (e.g. skills and technology, training, storage, warehousing, credit, extension) to actors across the value chain. Value chain influencers usually consist of government institutions, non-governmental organizations (domestic or international), international development agencies, and donors, whose main role is to shape policies that enhance development of the value chain and help improve or the value chain (Bammann 2007). In addition, value chain influencers contribute to chain development by providing infrastructural facilities or even facilitating capacity building for resource-constrained upstrem actors in the value chain.

The value chain framework serves as a useful tool to analyse the inclusion of smallholder producers in the GVC. Within the GVC framework, downstream actors (lead firms, multinational companies, supermarkets, etc.), and institutional arrangements are presumed to facilitate transfer of skills, technology, and knowledge needed to build capacity of resource-constrained upstream actors to upgrade their activities and products (Humphrey and Schmitz 2002; OECD 2014). Upgrading in value chains has been identified as one of the ways in which poor and marginalized producers, particularly women in developing countries, can better benefit from commodity chains (Nakazibwe and Pelupessy 2014). Upgrading is a concept used in value chain analysis to determine the capacity of smallholders to 'move up' the chain by performing more sophisticated functions, using more efficient and cost saving methods, and in the process, developing quality or more value-added products that generate higher incomes. Upgrading within the value chain is therefore largely viewed by development agencies, policy makers, researchers and governments as a pathway to enhance market participation and thereby improve the performance (e.g. increased value-added and high profits), and livelihoods of producers. How upstream actors in the value chain can upgrade is influenced by the governance mechanism in the chain (Schmitz 2004). Governance issues thus play an important role in shaping how upgrading may occur vis-à-vis regulations, rules, allocation of resources, distribution of task, barriers, and standards within the chain.

In the GVC theory, the value chain analysis (VCA) framework (Gereffi 1994; Kaplinsky and Morris 2001; Humphrey and Schmitz 2002) serves as a basis for assessing the relationships, functions, behaviour, performance and outcomes of actors in the chain. The VCA framework thus serves both as a descriptive model and as an analytical tool that can be applied not only to industrial firms but also to diverse sectors including micro-level agribusiness operators.

Apart from the input-output relationship and spatial analysis in the GVC theory, 'governance' and 'upgrading' constitute the centrality of value chain studies (Kaplinsky and Morris 2001). These two elements of the value chain analysis interact and directly influence the capacity of upstream actors to benefit from access to remunerative markets through higher profits.

1.1.1. Governance of value chains

Governance relates to the coordination, regulations, laws and rules of engagement that define the allocation and distribution of functions, roles, capital and products amongst value chain actors. Governance of a value chain, refers to the structure of relationships and coordination mechanisms that exist between economic agents in that value chain. Governance is defined as 'authority and power relationships that determines how financial, material, and human resources are allocated and flow within a chain' (Gereffi and Korzeniewicz 1994, p. 97). Jaffee et al. (2011) view governance, as 'the process of defining, communicating, and imposing compliance with process and product parameters along the value chains'. Lead firms' governance strategies may both enable and constrain upgrading prospects of especially resource-constrained producers (Humphrey and Schmitz 2000, 2002). According to Trienekens (2011), value chains are governed when production, processing, and logistic parameters are set and determined by a lead firm, usually by virtue of their capabilities, competencies and market power.

The global value chain framework distinguishes between five broad types of governance structures: market, modular, relational, captive, and hierarchical (Gereffi, Humphrey, and Sturgeon 2005; Gereffi and Fernandez-Stark 2011). These five types are briefly described below:

'Market governance' is a governance mechanism involving relatively simple transactions. Information on product specifications is easily transmitted, and suppliers can make products with minimal input from buyers. Rarely are resources and skills transferred to upstream actors, and interactions between actors are low. These arms-length exchanges require little or no formal cooperation between actors; there is very little or no transfer of knowledge and skills, and the cost of switching to new partners is low for both producers and buyers. The central governance mechanism is price rather than a powerful lead firm.

'Modular governance' occurs when complex transactions are relatively easy to codify. Typically, suppliers in modular chains make products to a customer's specifications and take full responsibility for process technology using, for example, generic machinery that spreads investments across a wide customer base. Linkages (or relationships) are more substantial than in simple market governance because of the high volume of information flowing across the inter-firm link. Information technology and standards for exchanging information are both key to the functioning of modular governance.

'Relational governance' is when buyers and sellers rely on complex information that is not easily transmitted or learned. This results in frequent interactions and knowledge sharing between parties. Such linkages require trust and generate mutual reliance, which is regulated through reputation, social and spatial proximity, family and ethnic ties, and the like. Despite mutual dependence, lead firms specify what is needed, and thus have the ability to exert some level of control over suppliers. Producers in relational chains are more likely to supply differentiated products based on quality, geographic origin or other unique characteristics.

'Captive governance' is when small suppliers are dependent on one or a few buyers that often wield high market power. Such networks require a high degree of monitoring and control by the lead firm. The asymmetry of power in captive relationships forces suppliers to link to their buyer under conditions set by, and often specific to, that particular buyer, leading to close ties and high switching costs for both parties. Since the core competence of the lead firms tends to be in areas outside of production, helping their suppliers upgrade their production capabilities does not impinge on this core competency, but benefits the lead firm by increasing the efficiency of its supply chain.

'Hierarchical governance' is when chains are characterized by vertical integration and managerial control from lead firms that develop and manufacture products in-house. This usually occurs when product specifications cannot be codified, products are complex, or highly competent suppliers cannot be found.

1.1.2. Upgrading in value chains

Upgrading is an integral part of the value chain analysis and generally conceived as *economic* upgrading especially for developing-country value chains and for upstream actors who seek to derive and maximize benefits from the chain. As conceptualized in the VCA framework, upgrading refers to the possibility of producers (usually small firms or smallholders in developing) to 'move up the value chain' either by shifting to more rewarding functional positions or by offering products with more added-value (Bolwig et al. 2011).

Upgrading is defined broadly by Riisgaard et al. (2010) as 'a desirable change in chain participation that increases rewards and/or reduces exposure to risk – where rewards and risks are understood both in financial terms and with regard to outcomes related to poverty, gender, labor and the environment' (P. 196). From a development study perspective, economic upgrading occurs when enhanced access to skills, competencies, capabilities, and assets drive actors (usually upstream actors) to improve their performance in order to generate more value-added and increased remuneration. For upstream actors like shea kernel producers and shea butter processors, upgrading in the GVC means gaining the capabilities required to produce higher quality products in higher quantities more efficiently, or/and to access more lucrative markets and ultimately derive better economic benefits. The classic forms of upgrading trajectories that firms adopt include four trajectories, conceptualized and classified by Gereffi (1994), Humphrey and Schmitz (2002), Meyer-Stamer et al. (2004) and Humphrey and Navas-Alemán (2010). These are: (1) 'Process upgrading', which involves reducing externalities or achieving a more efficient transformation of inputs into outputs through the reorganization of productive activities, use of improved technology, or/and better management practices, in order to reduce cost or increase volumes, and increase productive efficiency; (2) 'Functional upgrading' involves increasing the skills content of activities to perform downstream activities associated with higher value-added, for example, grading, distributing, processing, through the acquisition of new functions or the abandonment of old ones; (3) 'Product upgrading' involves moving into producing more sophisticated products with increased unit value, through complying with buyer needs through attributes such as physical quality, package, certification;

(4) 'Inter-chain upgrading' – applying competences acquired in one function of a chain and using them in a different sector/chain where incomes and profits are higher.

Though conceptualized as having the capacity to improve the livelihoods of producers and suppliers, upgrading experiences for many developing countries has been restricted to product and process upgrading (OECD 2014) and these are associated with marginal increases in value (Humphrey and Schmitz 2002). Smallholder producers in GVCs are often confined to low-value adding activities and marginal rent capture. Overcoming this status-quo remains a daunting task for policy makers and development practitioners.

2. Methodology

2.1. Study area

The study was conducted in the shea producing regions of Northern Ghana (Northern, Upper East and Upper West). The traditional Northern Region is now split into three (Northern, Savannah, and North East Regions). These regions together produce close to 90% of all the shea in Ghana. The regions experience a unimodal rainfall pattern and this means there is only limited window of opportunity (mostly between June-November) for active rain-fed farming activities, since irrigation farming is virtually non-existent. Rural women in Northern Ghana do not customarily own land or control income from crops grown on household lands, which compels them to engage in other non-farm economic livelihood activities such as petty trading, food processing, brewing pito (an alcoholic beverage), weaving, and shea processing. The shea tree grows in the wild and on farmlands, and women in rural northern Ghana depend on shea nut collection and processing to, not only complement consumption, but also for cash income.

2.2. Study design and data collection methods

Both quantitative and qualitative approaches were used in this study. Quantitative data on the socio-economic characteristics and production assets of upstream actors was gathered using a structured questionnaire. Qualitative data was gathered using a semi-structured instrument to obtain in-depth information on the activities, operations, linkages, relationships, functions, and opinions on upgrading, of the actors in the shea value chain. Qualitative data provides a means to adequately understand the relationships between actors who interface directly, and the related governance issues. Data gathered here include market outlets, capacity of upstream actors to upgrade (functional, process, and product upgrading); and constraints to upgrading by upstream actors in the chain.

A multistage sampling technique was used to select 820 shea upstream actors from 24 communities and 8 districts from the three regions of Northern Ghana. Four districts in the Northern Region and two districts each in the Upper East and Upper West Regions were purposively selected. From each of these districts, three communities were purposively selected. Finally, from each of the chosen communities, 60 shea fruit collectors were selected, at least 15 who did butter processing exclusively were selected, while between 7–10 women who did both kernel production and butter processing were selected. Selection of these upstream actors at the community level was done by systematic random sampling. The purposive selection of districts and communities was done with the guidance and support of Global Shea Alliance (GSA) and Shea Network Ghana (SNG) based in Tamale, that provided list of upstream actors who are linked to industrial processors and exporters of shea products and its derivatives. In all, the number of sampled upstream actors were: shea kernel producers only ($n = 480$), shea kernel producers and butter processors ($n = 71$), shea butter processors only (269).

Primary data was collected through multiple means, including key informant interviews, in depth interviews with downstream actors, focus-group discussion (FGDs) with upstream actors, and a survey involving upstream actors. Data were collected between February 2018 and April 2019.

Relevant key informants included: two (2) officials from the Ministry of Food and Agriculture in Tamale; two (1) officials of the Shea Division of Ghana Cocoa Board, Accra; one (1) Senior Researcher – University of Development Studies Wa campus, two (2) Project Officers – Presbyterian Agricultural Services, Tamale, and one (1) Project Officer at Shea Network Ghana (SNG), Tamale.

In-depth interviews were held using interview guide. These involved, eighteen (18) aggregators from the Northern, Upper East and Upper West Regions, and four (4) officials of shea processing and exporting firms based in Buipe, Techiman, Tamale and Tema. From the aggregators, information on procurement activities, contract with their buyers, value-adding activities, constraints, and prospects of the industry, was gathered. Officials of four processing firms and exporters based in Tamale, Techiman, Buipe, and Tema, gave insights on operational activities such as their relation with aggregators in procuring shea kernels; contracts with aggregators; relationship with upstream actors; processing activities; quality issues and price setting; final products derived; constraints; and outlook of the shea industry in Ghana.

Six FGDs involving 8–10 upstream actors (shea kernel producers and butter processors) per session were held in six communities of the Northern Region. Using checklists as a guide, respondents were asked to give information related to production activities; access to production assets and resources; access to public goods and infrastructure; perceived relationship with aggregators (volumes and quality of supplies, price, credit support, training, payments terms, frequency of buying etc.); support of NGOs; operational constraints; opinions on upgrading capacity; and constraints to upgrading.

2.3. Analytical framework

The value chain analysis (VCA) framework (Gereffi 1994; Kaplinsky and Morris 2001) was employed to assess the relationships, governance mechanism, and upgrading capacity of upstream shea actors. Governance and upgrading capacities of upstream actors were analysed based on the five types and four trajectories presented in the above theoretical framework. Descriptive statistics were used to describe the perceived relationships or assess the opinion of upstream actors on production and market related relationships, as well as upgrading capabilities based on their asset endowment. Qualitative data gathered were transcribed verbatim from local dialect into English language and presented in conversational formats.

The main actors sampled for this study participated in the shea GVC, as they were directly involved in the production, processing, distribution, adding value and marketing of shea products destined for the international markets. Shea products exported from Ghana include raw shea kernels, shea grits, shea butter, stearin, and olein.

3. Results and discussion

3.1. Socio-economic characteristics of upstream actors in the shea value chain

Table 1 provides a summary of the socio-economic characteristics of the surveyed upstream actors, all of whom were women. Their overall mean age was 43 years old. Most respondents had no formal education (83%) and were illiterate. The overall high rate of illiteracy (84%), which is consistent with empirical studies by Awo and Anaman (2015), and Laube et al. (2017), can adversely affect the capacity of upstream actors to upgrade. The overall mean household size was 9, which is typical of the study area (Awo and Anaman 2015) but above the national average of 6.5 (Ghana Statistical Service GSS 2014). Household size is important, especially if there are many females, because shea activities are labour-intensive. Our respondents had an overall mean of 17.50 years of experience working in the shea business. Years of experience in the shea business is important because it has implications for access to resources, and affects output and overall performance in terms of incomes. Group membership is also an important social asset and a major component of the shea value chain activity. Seventy-two percent of the upstream actors belong to shea groups and this conforms to similar findings by Al-Hassan (2012). Apart from the benefits of socialization and solidarity, working in groups enables the women utilize resources in common, for economic gains.

Table 1. Summary of socio-economic characteristics of upstream actors.

Variable	Shea kernel producers	Shea kernel producers & processors	Butter processors only	Overall	F-test
Number of actors	480	71	269	820	
Age (years)	42.06	47.81	44.25	43.28	0.000
Formal Education (%):					
Yes	17.29	14.08	15.99	16.59	
No	82.71	85.92	84.01	83.41	0.754
Years of Experience in shea business	18.85	14.92	15.76	17.50	0.000
Literacy rate (%)					
Yes	15.21	15.75	16.73	15.97	
No	84.79	80.43	83.27	84.03	0.036
Access to credit (%):					
Yes	28.13	23.94	28.62	27.93	
No	71.86	76.06	71.38	72.07	0.728
Shea Group Membership (%):					
Yes	68.75	77.46	78.44	72.68	
No	31.25	22.54	21.56	27.32	0.011

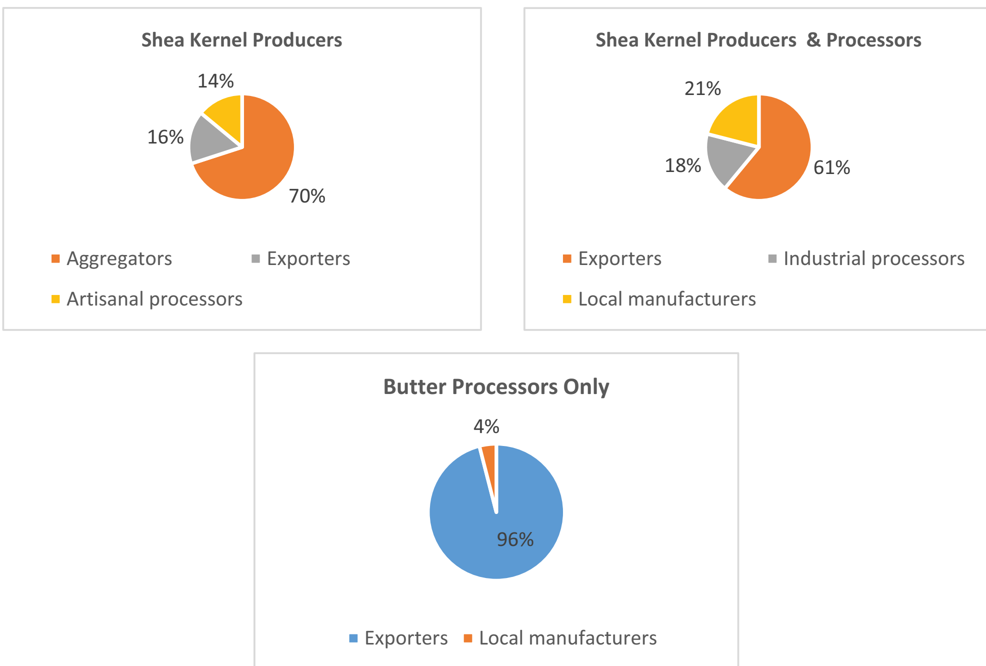

Figure 1. Market outlets for the three categories of upstream actors.

Shea kernels and butter produced by upstream actors were sold to aggregators, industrial processors, exporters and domestic manufacturers of shea products. Shea kernel producers sold a large proportion of kernels (70%) to aggregators while crude shea butter processors sold their product mainly to exporters (Figure 1).

4. What is the relationship and governance mechanism in the shea GVC?

A dual governance mechanism of spot market and modular markets exist side by side in the shea GVC in Ghana.

Governance mechanism in the shea value chain was determined by examining the relationship between the various actors in the shea value chain. First the three sub-categories of upstream actors were asked to indicate their experience with their direct buyers on a given set of relationship constructs. Specifically, the upstream actors were asked to state their experiences with respect to some key operational and marketing activities as they interacted with aggregators. Overall, it was shown that upstream actors have varying but still weak operational experience with aggregators. Relationship between aggregators and upstream actors is casual, highly informal and typically characterized by spot market governance.

Figure 2 shows the percentage of upstream actors saying 'Yes' to various operational relationship constructs. Results show that the producers of shea kernel, followed by producers of shea kernel and shea butter, have low perception of the value of their relationship with their respective buyers. The shea kernel producers in particular have a very negative perception of their relationships with their buyers on all the constructs. The major challenges of operational-relationship that kernel producers have with aggregators included, 'cheating' (kernel producers feel price offered by aggregator was inadequate and considered this as unfair or cheating), lack of transparency (how much was offered by exporters and industrial processors), inability to negotiate with buyers (poor bargaining power), and poor feedback (Figure 2). This suggests that these upstream actors (especially kernel producers) have a generally poor operational relationship with

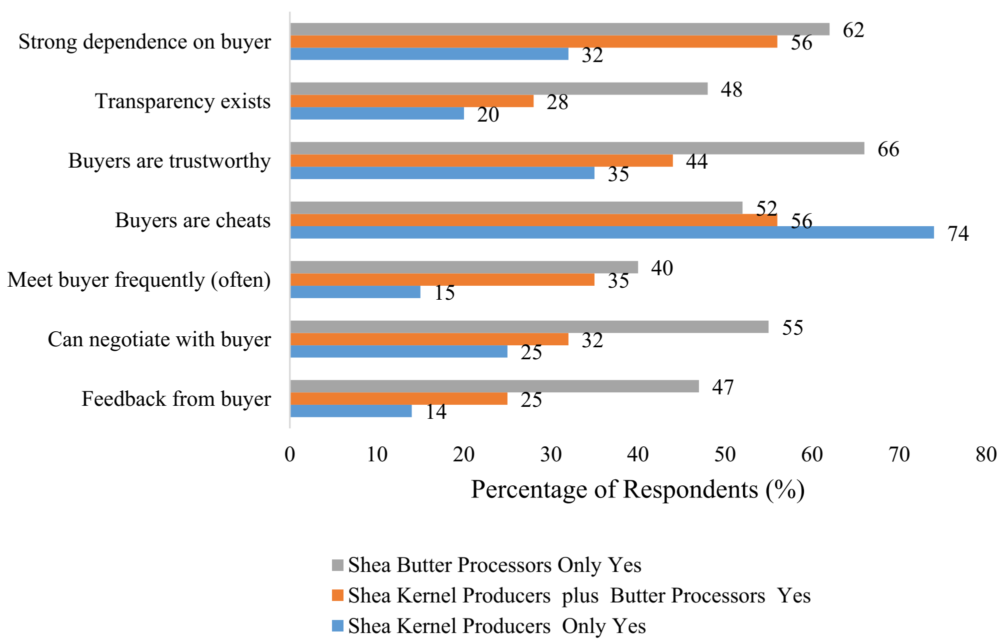

Figure 2. Summary of operational relationship constructs between upstream actors and aggregators. Source: Authors Computation from survey data, 2019.

their buyers, which signals a weak value chain. In contrast, the shea butter processors had relatively better relations with their buyers, probably because of the much closer or frequent interactions through contacts. For example, butter producers tend to have relatively better price for products and therefore most did not feel 'cheated' unlike the kernel producers.

5. Market relationship between aggregators and upstream actors

Shea butter processors have better market relationship with aggregators than do kernel producers.

Figure 3 shows a summary of respondents saying 'yes' to market-relationship construct. The results show that the shea kernel producers, and those who do both kernel production and butter processing have unfavourable experience with buyers in the market-related relationship constructs, compared to their counterparts who process shea butter only. Apart from receiving prompt payment from their buyers (aggregators), the kernel producers in particular, expressed negative responses on all the other market-related constructs (Figure 3). The major challenges include virtual absence of contracts, no reward for quality in terms of premium price, lack of quality market information on price and product demand, and very limited level of credit support offered to upstream actors.

6. Relationship between aggregators and downstream actors (industrial processors and exporters)

Aggregators have better working relationship with industrial processors and exporters, who govern the value chain through modular governance mechanism.

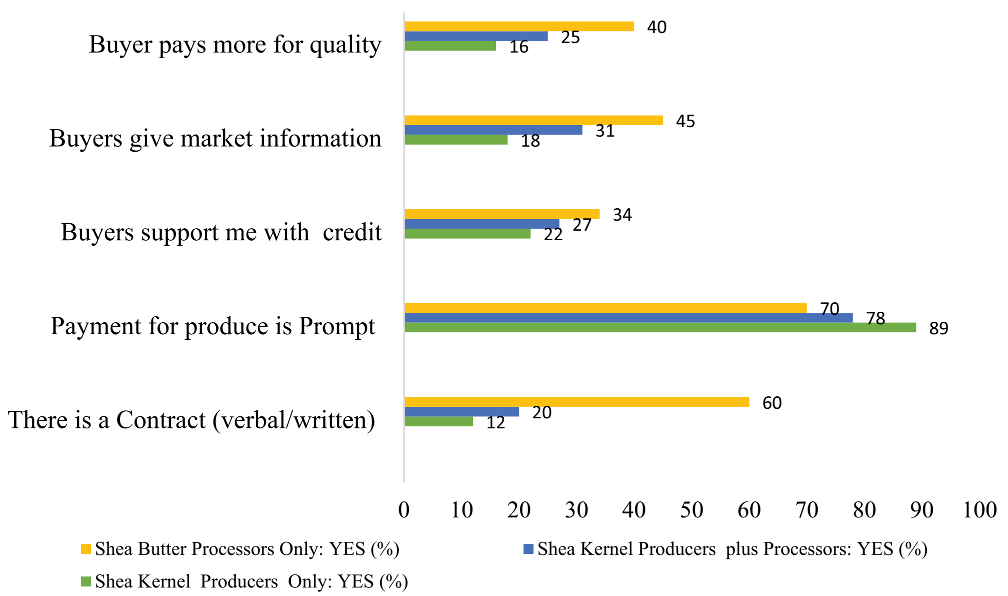

Figure 3. Summary of market relationship constructs between upstream actors and aggregators. Source: Authors Computation from survey data, 2019.

The relationship between aggregators (midstream actors) and their buyers (mainly industrial processors and exporters) was also assessed. A descriptive analysis of business relationship with buyers show that the aggregators have fairly strong working relations with their buyers. All the 18 aggregators indicated they had short-term written contracts with their buyers, who are mainly industrial processors and exporters. The contract specifications were clear and detailed from the aggregators' perspective; these included quality attributes of kernels (moisture content, weight, percentage of debris or inert material), volumes or quantity of shea to be supplied, payment terms, clauses on contract default and penalties (Table 2). In addition, the aggregators indicated they are able to negotiate and discuss with their buyers on terms of contract, which was subject to renewal every buying season. Aggregators self-financed the procurement, assembling, storage, re-bagging, and transportation of the aggregated shea delivered to processors and exporters. Aggregators had different delivery arrangements with their buyers. For example, aggregators supplying to an industrial processor in Techiman in the Brong-Ahafo Region, indicated that the cost of transporting commodities was incorporated in the final price paid by the firm at the factory site. By this, the industrial processing companies seek to transfer risk and reduce transaction or monitoring cost associated to procuring and transporting shea kernels. Aggregators however indicate, that industrial processors appear to have a final say, especially on the quality parameters of shea kernels to be supplied, thus confirming the power asymmetry between upstream actors and their buyers (especially downstream actors and lead firms) in GVCs. In any case, the aggregators did not express any worries about conflicts in contract specifications with buyers, since it rarely occurred. The relationship between the aggregators and their buyers can be described as a modular governance relationship. Aggregators interact frequently with buyers and supply commodities to meet specifications of the industrial processors and exporters. In addition, quality market information was forthcoming and mutually beneficial, therefore, information asymmetry is absent or minimal. None of the aggregators complained of mistrust, cheating, conflict, or abrogation of contracts with their buyers.

In summary, the results show that the shea-GVC is characterized by a dual governance relationship: a modular governance arrangement between aggregators and industrial buyers, and a market governance between aggregators and upstream actors.

Table 2. Summary of contract terms relationship between aggregators and downstream actors in Ghana.

Item construct	Percentage (%)
Contract Type:	
Verbal	0
Written	100
Confirmation of terms:	
Short term (one-buying season or annual)	90
Medium term (two-three buying seasons)	10
Long term (more three buying seasons)	0
Payment terms	100
Clauses on default	100
Clauses on conflict resolution	60
Price negotiation	100
Pre-finance or credit support	10

Source: Authors computation from survey data, 2019.

Our survey data, backed by qualitative responses from key informants and upstream actors, show that aggregators' relationship with shea kernel producers is characterized by loose, arms-length, and short-term trading arrangements. Trade in shea kernels is driven mainly by volume and not quality, there is a high level of information asymmetry, and no provision of technical support, or credit support for upstream actor. A plausible reason for the casual and apparently loose relationship could be that shea kernel trade is highly informal, unorganized, seasonal, and devoid of contracts. On the other side, the atomistic nature of shea kernel production and disperse production locations entail a high transaction cost for industrial buyers, hence their dependence on aggregators. These findings are contrary to conventional commodity value chains such as cocoa and coffee value chains where governance is shifting towards increasing vertical coordination by lead firms (Swinnen and Maertens 2007; Deans et al. 2018). Holland, Kjeldsen, and Kendrup (2016) argue that closer value chain relationships enable firms to establish traceability, stability of supplies and assurance of quality in coffee. This assurance of quality may not be constraint for the shea industry. This study garnered the important information from key informants and industrial experts that industrial shea butter processors now have the capability to refine shea kernels of any grade into quality products, hence their apparent disregard to incentivize quality kernels by paying premiums. This situation may be a disincentive for upstream actors and likely frustrate their efforts to upgrade. These issues reflect the generally nascent and still emerging status of the shea-GVC in Ghana.

Analysis of Upgrading Opportunities for Shea Kernel Producers and Shea Butter Processors The capacity of smallholders in value chains to upgrade is an important component in the application of value chains analysis as a pro-poor development tool. This study thus sheds some light on the upgrading capabilities or capacities of shea kernel producers and shea butter processors. The upstream actors were asked to indicate their capacity to upgrade, given the assets, skills, experiences, and capabilities at their disposal. They were assessed based on a selected list of construct related to upgrading.

Shea kernel producers exhibit capacities to process-upgrade in the shea GVC, but they may be constrained mainly as a result of lack of access to production assets, capabilities, technical know-how, and credit.

Overall, the results show that shea kernel producers have a strong desire to upgrade their operations. More than 70% of shea kernel producers expressed their capacity to process upgrade on all constructs or indicators, with the exception of the use of protective equipment and production tools (Figure 4). This is because the kernel producers consider equipment like weighing scales, mechanical nut-crackers, boots, and hand gloves for shea nuts picking to be expensive. During focus group discussion with shea collectors in Tolon, it emerged that an NGO had intervened and arranged with a UK-based buyer to provide shea kernel producer group with boots and hand gloves for free.

Our results confirm the assertion by Quisumbing and Pandolfelli (2010), Food and Agriculture Organization (FAO) (2011), and Ali et al. (2016) that women are generally asset-constrained, which constitutes a major barrier to value chain upgrading. Access to resources and production assets is critical, especially for women value chain actors. A study by Arthur et al. (2018) in Northern Region showed that value chain interventions that enabled access to assets, markets, and credit increased the business performance of shea

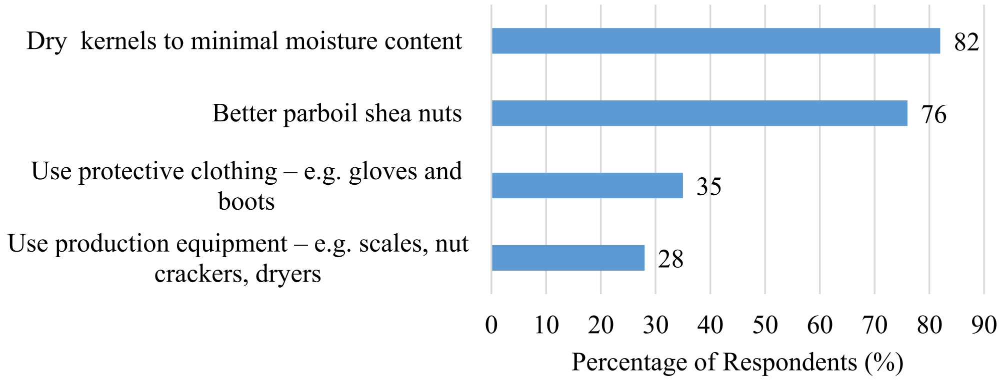

Figure 4. Summary of process upgrading capacity of Shea Kernel producers. Source: Authors computation from survey data, 2019.

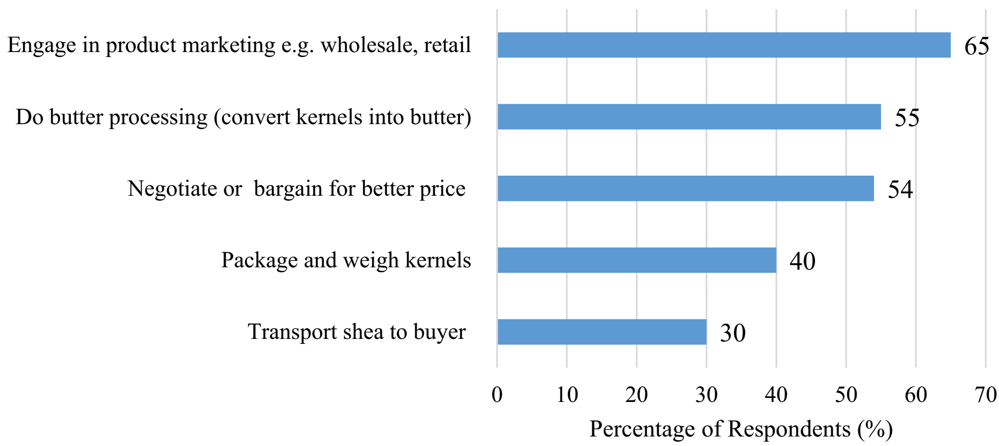

Figure 5. Summary of functional upgrading capacities of Shea Kernel producers. Source: Authors computation from survey data, 2019.

processors. Upstream actors should therefore be supported with production assets as part of shea value chain development efforts.

On functional upgrading, Figure 5 shows that more than 50% of shea kernel producers perceived that they can perform additional functions such as wholesaling or retailing products (65%), process shea butter (55%), and negotiate for better prices (54%).Almost half (45%) of the respondents indicated that they cannot independently switch to the production of high quality shea butter (specially to meet standards) demanded by industrial processors and exporter buyers, without support. The call for support and assistance was emphasized consistently throughout focused group discussion, as echoed by an actor:

> Shea butter processing calls for additional resources. To include or do shea butter of good quality for export as mentioned, we need help in terms of getting more shea nuts, tricycles, processing equipment, and training, so that we can satisfy the buyers. I hope this will increase our profits – leader of shea collector group in East Gonja.

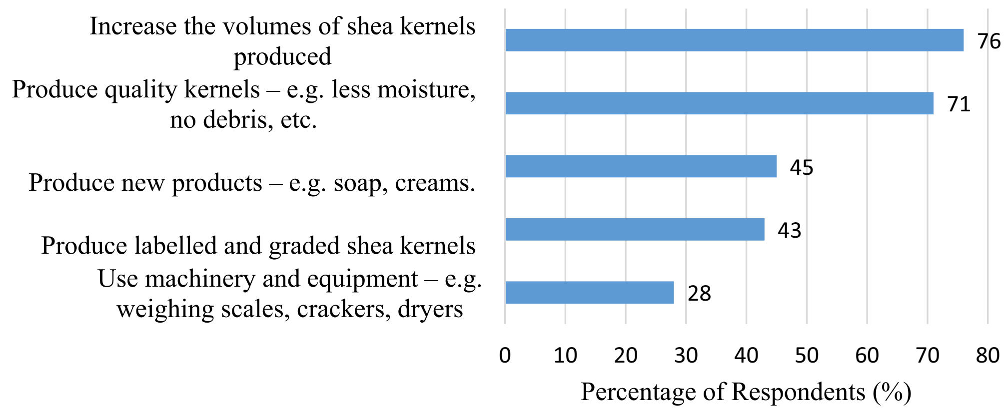

Figure 6. Summary of Shea Kernel producers showing product upgrading capacities. Source: Authors computation from survey data, 2019.

Figure 6 summarizes the expression of shea kernel producers' capacity to product upgrade. Most of them indicated their inability to label, brand or correctly grade shea kernels, to come up with additional or new products like soap or cosmetics, or use machinery and equipment. Kernel producers responses are not surprising since product upgrading activities demand extra resources and skills, and most importantly they have cost implications. Our results suggest that, even though kernel producers were enthusiastic about upgrading especially in terms of improving quantity and quality (observation made during FGDs), they lack the capacity, skill and resources to do so. Inadequacies including skills, equipment, and finance, have always been a constraint to upgrading by smallholders especially in developing economies (Devaux et al. 2018). Trienekens (2011) also attributes low skill and capacity of upstream actors as a major barrier to upgrading and this affirms the need for support and capacity building in those attributes where their capacity is low.

Shea butter processors have relatively better capacities to upgrade in the shea GVC compared to shea kernel producers, even though assets, capabilities, and credit remain barriers.

Shea butter processors were also assessed to determine their capacity to upgrade in all the three upgrading trajectories. First, the respondents were asked to indicate their process upgrading capabilities. The results show that, compared to kernel producers, a relatively higher percentage of shea butter processors expressed capacity to upgrade in their production processes as a means to improve on efficiency and output. More than 65% of shea butter producers indicated their capacity to improve their performance through process – upgrading (drying kernels to obtain low moisture content, high butter conversion rates, and recycle fuel stocks), except on the use of better processing equipment (Figure 7). This results therefore show that butter processors needed some little more support to be able to optimize performance in upgrading.

Figure 8 shows results of functional upgrading capabilities of shea butter processors. More than half of the respondents indicated that they had capacity to package product, negotiate for better prices, and do extra marketing. Again, like the shea kernel producers, cost is certainly a hindrance to acquisition of automated processing machinery. In some of the processing sites visited during the survey, processors were using semi-

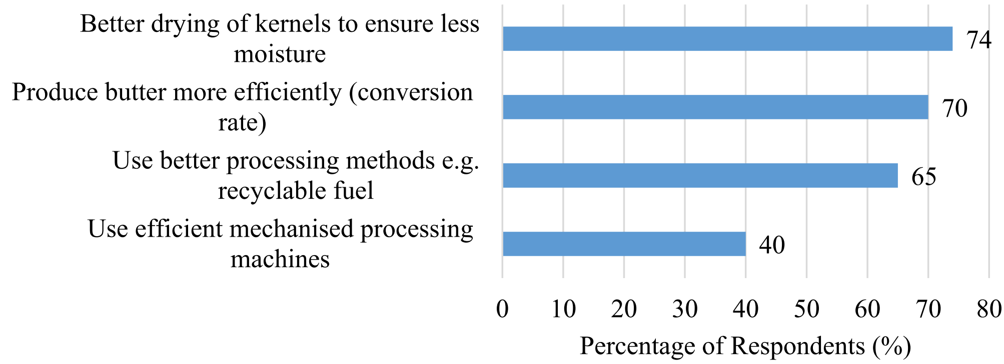

Figure 7. Summary of process-upgrading capacities of Shea Butter processors. Source: Authors computation from survey data, 2019.

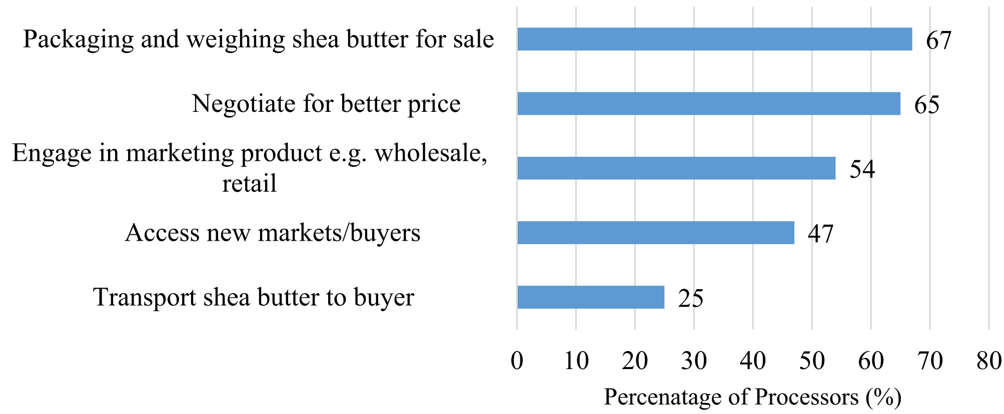

Figure 8. Summary of functional upgrading capacities of Shea Butter processors. Source: Authors computation from survey data, 2019.

automated equipment either in a group, or communal or rental basis, suggesting some gaps in access to production assets. Overall, results of functional upgrading capacity are mixed, as more than 50% of processors expressed difficulty to transport butter to buyers, as well as not being able to access new markets which can adversely inhibit upgrading (Trienekens 2011; Anane-Taabeah et al. 2016) opportunities. More than half indicated they had capacity to package product, negotiate for better prices, and do extra marketing. Policy makers and value chain influencers that have played a key role (especially NGOs) in the shea sector must strengthen support for processors facilitating market linkages and access.

Lastly, when asked to indicate their capacity to upgrade products, more than 60% of the shea butter processors perceived and indicated that they can improve on their performance in the specific indicators assessed. Most notably, majority indicated capacity to increase both the volumes of butter processed (84%), and the quality to meet customer demands (78%; Figure 9). When asked about prospects of improving products some responses captured included:

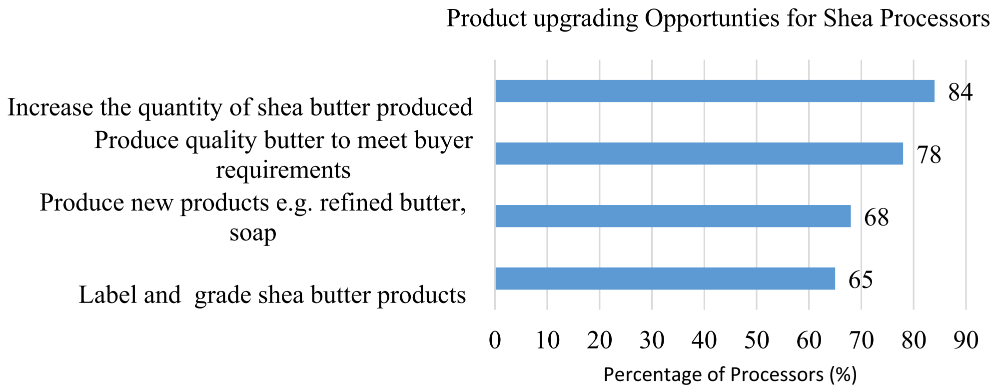

Figure 9. Summary of product upgrading capacities of shea butter processors. Source: Authors computation from survey data, 2019.

> Producing quality butter is not a problem since we have been doing the business a long time and some of the NGOs have also been training us to produce quality butter. We even have posters of the training posted on our house walls. (Remarks of shea butter processor at Sagnarigu, 2018)

> We can produce whatever quantities of shea butter they ask for. All we need is the plenty supply of kernels and also how to cart shea nuts from the bush to our homes for processing. The distances are too far. (Shea kernel producer cum shea butter processor from East Gonja, 2018)

Overall, it thus appears that shea butter processors have a relatively better capacity to upgrade on products than either process upgrade or functional upgrade.

In summary, deliberate effort and advocacy to employ upgrading as a pro-poor tool to turn the fortunes of upstream actors or smallholder producers would be very useful. In the shea GVC, lead firms and midstream actors like industrial processors and exporters are better placed to strengthen relationships in the shea GVC and facilitate upgrading through technology transfer. However, there are fears that these rent-seeking value chain actors (especially domestic buyers, industrial processors and exporters) may not readily transfer high technology skills or equip upstream actors with sophisticated equipment for processing high-grade shea products. From a logical and strategic business point of view, industrial processors leveraged on their high competencies and skills and assumed responsibility for meeting the high quality parameters of their buyers abroad. This goes to buttress the argument that multi-national companies and lead firms may be reluctant to relinquish rent-generating functions and processes to smallholders.

7. Conclusions and recommendations

This study explores relationships between value chain actors, and governance mechanism in the shea global value chain in Ghana, and in relation to the capacity of shea kernel producers and butter processors to upgrade. This study revealed that, the aggregators link the shea kernel producers and shea butter processors to industrial processors and exporters in the shea-GVC. The industrial processors and exporters govern the shea value chain through aggregators; the former dictate roles of actors, volume and quality requirements, and set prices for shea products. Upstream actors, particularly kernel producers, generally appear to have less bargaining power, and in the midst of information asymmetry, stand the risk of exploitation by aggregators, especially where there is no direct interaction between the upstream actors and industrial processors or exporters.

On upgrading, the shea kernel producers and shea butter processors are enthusiastic to upgrade. However, it is doubtful if these upstream actors can upgrade given their low capabilities and competences, low value-adding activities, and resource-constrained status. Moving into more lucrative segments of the shea-GVC, to perform more sophisticated functions, and deliver higher quality products profitably and in an efficient manner, is feasible with some external support in the form of commercially viable linkages to production equipment, tools, skills training that is targeted at standards, and market access through linkage to downstream actors. However, some smart subsidies may be needed in some cases. Without these, upstream kernel producers and butter processor in the shea GVC may struggle to upgrade. For several of these actors, impediments like information asymmetry, inadequate knowledge of product quality attributes, and the lack of direct feedback mechanism between actors along the chain can further constrain upgrading opportunities.

Policy makers, led by government, must make deliberate efforts to facilitate functional and product upgrading of upstream actors through the provision of better production assets like tricycles, moisture meters, dryers, roasting and kneading machines, and boilers. Value chain influencers like NGOs and international development agencies can facilitate market access and linkage to foreign buyers especially in the cosmetic industry that demand handcrafted shea butter for their end products. In this regard, upstream actors need to be supported to upgrade their processes, through higher level and more efficient skills training that minimizes cost and waste. Finally, government, NGOs, and development agencies may also advocate for, and through policy facilitate, a strengthening of the GVC, where industrial processors help building capacity and skill of upstream actors to process-upgrade through technology transfer in the form of training, the provision of production assets, technical know-how, and better prices.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Author contributions

SOM conceptualized the paper, designed questionnaire, collected and analysed data, and prepared the first draft document. RAM designed questionnaires, reviewed data analysis, discussion of results, and the entire manuscript. MAB reviewed data analysis, discussion of results, and the entire manuscript. All authors contributed to this article and approve of the submitted version.

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