VALUE CHAIN COORDINATION IN COFFEE SECTOR: AN ANALYSIS OF INFLUENCING FACTORS FOR SMALLHOLDERS UPGRADING IN TANZANIA

Winnie Nguni
Assistant Lecturer Department of Marketing, University of Dar es Salaam Business School, Tanzania
E-mail: wisangu@hotmail.com, winnienguni@udbs.udsm.ac.tz
+255 759 156 426, P.O. BOX 35046 DAR ES SALAAM
Henry Chalu
Lecturer Department of Accounting, University of Dar es Salaam Business School, Tanzania
E-mail: hchalu@yahoo.com, henrychalu@udbs.udsm.ac.tz
+255 713 295 909, P.O.BOX 35046 DAR ES SALAAM

Abstract

This study aims to provide understanding of how value chain coordination in coffee sector influences smallholders upgrading in Tanzania. The study's conceptual framework is based on global value chains and institutional perspective. Qualitative data collection approach through interviews, focus group discussions and documentary review was employed. Results indicate that critical factors can be grouped into institutional framework, standards, financing, and business management. The study recommends that to achieve a well-coordinated value chain that enhances smallholders upgrading, there is a need to improve institutional infrastructure, encourage local investment, facilitate good business models, and create financing mechanism for coffee production and selling.

Keyword: Qualitative method, Transaction cost Analysis, Value chain coordination, upgrading, coffee, Tanzania

INTRODUCTION

Upgrading of smallholders in developing countries particularly in Africa has received special attention in global value chain (GVCs) literatures (Fold & Larsen, 2011; Gereffi, 1999; Humphrey & Schimtz, 2002). Upgrading has been argued as a way that can create sustainable linkages between African small farmers and global consumers for agricultural products (Gibbon, 2008). Through upgrading small farmers are likely to improve their productivity and quality of the farm produce and therefore be able to access high value markets (Pelupessy & Díaz, 2008). However, this to be achieved will require a well-coordinated and functioning value chain.

Although agriculture is reported to be the main economic activity in many African countries including Tanzania, its impact to poverty reduction is yet to be seen. Tanzania as a case has been struggling for years to be competitive at the international market for its cash agricultural crops. Coffee has been one of the main cash and foreign currency earning crop in Tanzania. According to Tanzania Coffee Research Institute (TaCRI, 2008), coffee exports in Tanzania account for about 20 percent of Tanzanian foreign currency. Despite the fact that coffee is mostly grown by smallholders who account for about 95%, yet they are least rewarded as compared to estates, private coffee buyers and some cooperatives which account for the remaining 5% (TCA, 2007).

While previous studies have been able to recommend various strategies to promote small farmers in the country in accessing the global market, their performance in the coffee sector

continues to deteriorate (Coles, 2011; Mhando, Haller, Mbeyale & Ludi, 2013; USAID, 2010). Small farmers are still challenged with compliance of strict standards demanded at the international coffee market. Smallholders need to upgrade their farming activities if they are to overcome this challenge and eventually increase their reward share in this coffee value chain. However to provide scientific explanation on how should small farmers upgrade, one needs to understand the way coffee value chain is coordinated in the country. Understanding how the value chain is coordinated is very important as it highlights how the chain is structured and the way it influences smallholders to gain access to skills, competence and support services required to successfully participate in the global value chain as argued by Humphrey (2004). It is therefore the aim of this study to assess how coffee value chain is coordinated in Tanzania and its implication to smallholders upgrading.

LITERATURE REVIEW

Value chain coordination

Coordination has been defined as managing dependencies between activities (Malone and Crowston 1994). From a value chain perspective, coordination can be defined as the ability to provide direction and enforce instructions to other actors in the value chain (Ashinder & Deshmukh, 2008). Every value chain has a system of coordination which includes formal and informal arrangements between participants. Coordination structures may range from loosely-coordinated, market-based trading structures, to intensely coordinated vertically integrated production. Value chain coordination has received serious discussion due to increasing complexity of end market requirements (e.g. strict standard compliance, unique requirements of organic buyers and need for differentiation) and the need to mitigate business risk due to performance shortfalls (Humphrey & Memedovic, 2006).

Using transaction cost analysis and network theory Gerreffi, Humphrey & Sturgeon (2005) contend that there are five coordination arrangements to value chain. These coordination arrangements are distinguished based on three factors: 'the complexity of information and knowledge transfer required to sustain a particular transaction, particularly with respect to product and process specifications; the extent to which this information and knowledge can be codified and, therefore, transmitted efficiently and without transaction-specific investment between the parties to the transaction; and the capabilities of actual and potential suppliers in relation to the requirements of the transaction' (2005:85). Transaction cost analysis offers two extreme coordination arrangements to value chain, arm's length market relations and vertical integration (Williamson, 1979). Market relations work well for standard products because they are easily described and valued, transactions are easily codified, product specifications are relatively simple and suppliers have the capability to make the products in question with little inputs from buyers (Buvik, 2002; Gerreffi et al, 2005; Williamson, 1979). In market exchange buyers respond to specifications and prices set by sellers because the complexity of information is relatively low requiring little coordination effort. The more customized the product or service, the more likely it is to involve transaction-specific investment. This raises the risk of opportunism because product specifications cannot be codified, products are complex and highly competent suppliers cannot be found. For this reason transaction cost approach suggests that appropriate coordination arrangement should be vertical integration for it will assist the firm to reduce costs involved in complex transaction (Macher & Richman, 2008; Shelanski & Klein, 1995).

Recognizing the importance of transaction cost analysis, network theorists (Jones, Hesterly & Borgatti, 1997; Powell, 1990; and Thorelli, 1989) argue that complex product and tightly

coordinated production systems need not to result into vertical integration. Opportunism, asset-specificity and increased costs in the involved transaction can be managed at the inter-firm level through network relationships which are modular, relational and captive. Network actors in many instances control opportunism through the effects of repeat transactions, reputation and social norms that are embedded in particular geographic locations or social groups (Gerreffi et al, 2005). Modular coordination mechanism involves suppliers making products or services to a customer's specifications. Suppliers in these value chains tend to take full responsibility for process technology and often use generic machinery that spreads the machinery across a wide customer base, keeping switching costs low. Linkages are thicker than market due to higher level of information flow and the coordination mechanisms are command, and control by lead firm (Sturgeon, 2002). Relational coordination mechanism is based on social and informal interaction (community governance). It relies on a set of shared norms that regulate how transactions are carried out, and sanctions in case of non-performance. Dependencies are regulated through reputation, social and cultural norms, proximity, family ethnic ties etc. Switching costs are high due to high trust levels underpinning the relationships which would be slow to build elsewhere. The coordination mechanisms here are goal congruence, shared norms and informal rules (Buvik, 2002). Captive coordination mechanism constitutes small suppliers who are dependent on larger, dominant buyers. Dependence on dominant lead firm raises switching costs for suppliers, making them 'captive'. High switching costs for lead firm as well due to product specificity. The coordination mechanisms here are contracts (Humphrey and Schmitz, 2002).

Upgrading

The upgrading process is seen as one in which firms acquire capabilities and, once they have been acquired, the firms are able to find foreign buyers wishing to acquire products embodying the capabilities (Humphrey, 2004). Ponte and Ewert (2009) suggest that upgrading in agro-food GVCs should be understood as reaching a better deal including a balance between rewards and risk. Humphrey and Schmitz (2002) distinguish four types of upgrading in the value chain. Process upgrading in which inputs are transformed more efficiently by organizational or technical improvements; product upgrading where by production is moved into more sophisticated product lines, measured by, e.g., increased unit values; functional upgrading where new functions are acquired, leading to the increased skill content of activities; and inter-sectorial upgrading in which new productive activities are entered by firms – or clusters of firms – while leaving their traditional specialization.

Fold and Larsen (2011) claim that distinct types of upgrading in a particular global value chain are claimed to depend on the 'type of value chain', that is, on the nature of the relationships that exist between the main actors involved in a transaction. Gibbon (2003) maintains that different types of lead firms constitute different types of coordination structure and argues that different possibilities for upgrading (at the national level) exist in trader-driven GVCs. In view of this light therefore, this study argues that different forms of value chain coordination have different upgrading implications.

According to Lee, Gareffi, and Beauvais (2010), each type of agro-food value chain structure is associated with a distinctive pattern of food safety and quality standards reflecting the attributes of its lead firms, smallholder involvement and upgrading potentials. Nadvi (2008) contends that standards have clear implications to upgrading and also influence the way the lead firm coordinate the value chain. To ensure food safety and quality, lead firms are forced to work with a group of preferred suppliers who are capable of meeting the stringent and costly standard requirements. On the other hand higher compliance to standards can be a

catalyst for smallholders upgrading as a result of improved farming techniques and product quality to meet higher requirements (Jaffe and Masakure, 2005).

In addition to standards, Selwyn (2008) and Neilson and Pritchard (2009) propose that, the nature and scope of institutional support is of crucial importance for smallholders upgrading. To enhance smallholders upgrade in the value chain, national and local institutions such as national research institutions, marketing boards, local technical service centres and producer organisations, can develop and implement food safety and health-related training programs to help smallholders comply with the standards, offer financial support, transfer knowledge through extension services among others.
Jaffe and Masakure (2005) and Pingali, Khwaja & Meijer (2005) claim that of all network coordination mechanisms 'captive' is most relevant for smallholders upgrading in agri-food value chain in developing countries followed by relational coordination mechanism. Agriculture has been moving away from traditional self-sufficiency to an activity where farm output is more responsive to market trends. The demand for credence good (complex, new product with more emphasis on standards such as quality, size, delivery, safety, healthier, more nutritional, authentic, etc.) in food retailing has placed new pressures on the agro-food value chains and raised the capabilities required by suppliers. Compliance to meet these complex and new private, national and international grades and standards for food quality and safety requirements has raised the exchange costs for both suppliers and sellers which in turn influenced greater degree of integration between producers and the output market. Therefore prevalence of social networks and long-term contracts may substantially reduce transaction costs. Banding together in a network such as cooperative or association can increase smallholders' collective ability to negotiate effectively with authorities and buyers, as well as sharing the use of scarce resource e.g. water and the cost of inputs, and investment in infrastructure. Often strengthening organisations are essential if smallholders are to upgrade in the value chain.

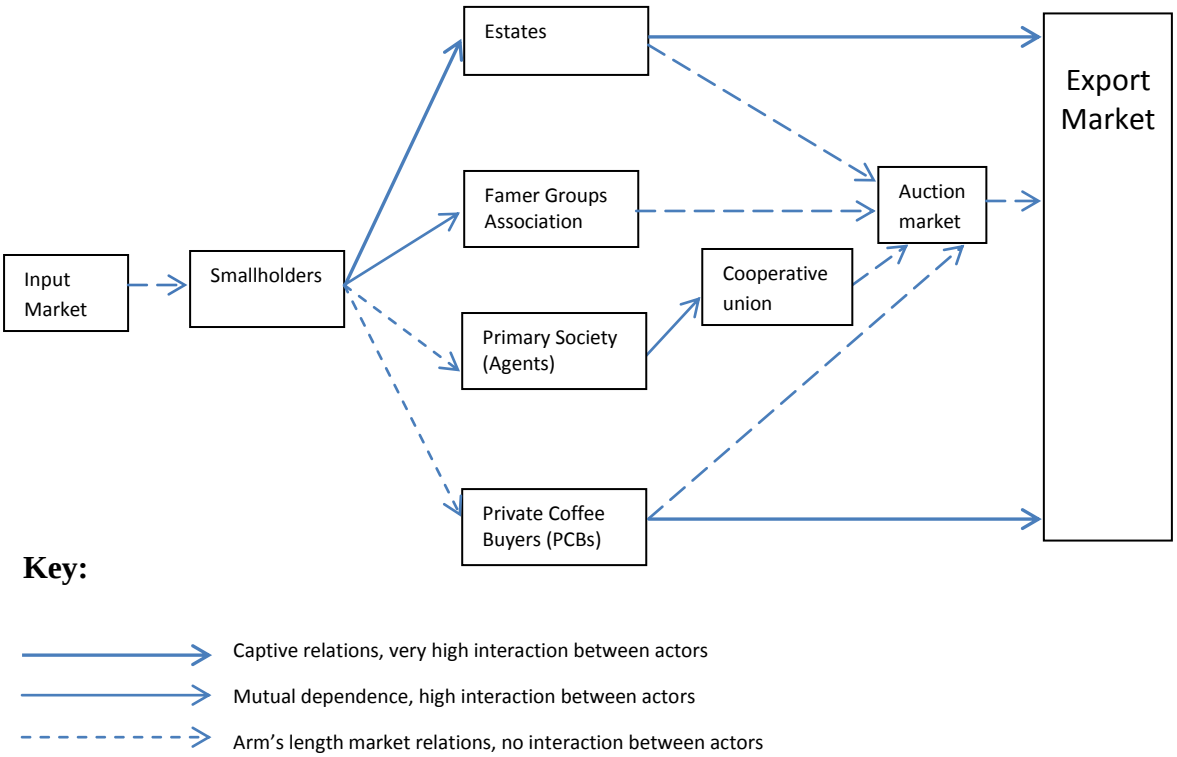
METHODOLOGY

This study uses qualitative approach whereby data were collected through interviews, focus group discussions and documentary review. The data were collected from Tanzania coffee board (TCB), primary societies, Cooperative union, farmers groups, private coffee buyers and Local government officials in Kagera region. In-depth interviews with the key informants from TCB, Kitendaguro Primary Society, and Kagera Cooperative Union (KCU) were conducted. Other individual face-to-face interviews involved private coffee buyers and estates. The study also conducted several focus group discussions with farmer groups and groups of individual farmers who were not in members of any farmer group. In addition to interviews and focus group discussion we also conducted direct observation, used audio instruments to record the conversations and reviewed relevant documents with regards to coffee sector and value chain management.

CONCLUSION

Value chain coordination in coffee sector

Figure 1: Coffee value chain structure in Tanzania



Source: Authors' interviews and focus group discussions, 2014

Figure 1 illustrates how the coffee value chain is structured in Tanzania. Smallholders can access the international coffee market through various ways. Firstly, farmers can sell their coffee through Cooperatives whereby farmers bring their coffee (in most cases in dry cherry form) at the primary society (and this does not distinguish whether a farmer is a member or not). The Primary societies are used as collecting agents for the Cooperative Union. Once coffee has been purchased by primary societies, Cooperative Union will transport the coffee to the processing factory which is owned by the Cooperative Union. Once coffee has been processed it can be sold either through Moshi Auction or Direct Export. However, to make direct export, always Cooperative Union delivers the coffee at Moshi Auction first and then bids for its own coffee (known as captive coffee) then export it.

Secondly, farmers can sell coffee through private coffee buyers (PCBs) who are licensed by the Tanzania Coffee Board. PCBs procure coffee from farmers and then sell through Moshi auction or direct export if they have contract with overseas buyer. Thirdly, farmers can form association (called farmer groups association) which can be used as channel for selling their coffee at the auction market. Fourthly, farmers can enter into contract farming with Estates through which the estates agree to develop farmers by buying their coffee. Estates sale their coffee to both; Moshi Auction market and direct export. Auctions are held twice every month at the Tanzania Coffee Board (TCB) head office in Moshi and are conducted centrally by the TCB itself. In addition to auctions, licensed coffee exporters can directly export to the buyer.

Coffee value chain structure indicates that arm's length market relation is dominant among actors in the chain. As discussed by Jaffe and Masakure (2005) market linkages among value chain actors cannot enhance smallholders upgrading. This is because buyer- seller relationship is determined by market price and there is no direct transfer of information (feedback) about demand and supply since there is no interaction between actors in the chain. According to Cooperative Societies Act No. 20 of 2003 Cooperative Union were established with the objectives of promoting economic and social interests and facilitating operations of its members by means of common undertaking, based upon mutual aid and which conforms to the cooperative principles. Primary societies were formed to provide services to its members such as supplying agricultural inputs, collecting, processing and marketing the products of its members. Based on this light, it should be expected that there is mutual dependence, benefit and understanding between smallholders in one hand and Cooperative Union and primary societies on the other hand. The social and informal interactions were expected to be high between these two groups and the coordination mechanism here was supposed to be relational as they are working towards the common goal as discussed by Pingali, Khwaja & Meijer (2005).

However the findings show that most of primary societies in Tanzania are used by Cooperative Unions as marketing channel for agricultural crops, the same was found by Mhando et al (2013). There is no close interaction between Cooperative Unions and farmers and since primary societies operate under cooperative unions, they are operating in bureaucratic model which reduce flexibility and innovation in the decision making process. The cooperatives unions and primary societies are no longer working for the interest of the member farmers but as a profit making organizations. PCBs pose as a stiff competitor to both Cooperative Union and primary societies when procuring coffee from farmers. They offer higher prices to farmers for quality coffee than cooperative union's price. In addition, because farmers receive cash immediately from PCBs, they sell coffee of good quality to PCBs and deliver the remaining coffee of poor quality to cooperatives. PCBs have incentive to offer higher price as a strategy to get quality coffee since it has strict contracts with overseas buyers to deliver coffee that comply with international standards. Unlike PCBs, cooperative pay farmers in two installments; first payment after receiving coffee from farmers and second payment after the coffee is exported. However the second payment is not certain, sometimes can take up to two years, with bureaucratic procedures to obtain it.

Main reasons for formation of farmer groups were corruption and mismanagement of funds by the cooperatives' leadership. Farmers joined into groups so that they can get better prices for their coffee by accessing auction market directly. Findings show that through groups, farmers have high interaction as they have common objective and mutual dependence due to relational ties. However the biggest problem facing farmer groups is sustainability. Some farmers groups which show strength like Kilicafe have been formed and supported by NGOs. For the farmer groups which do not have support from NGOs most of them suffer from financial and management problems. Financial problems are caused by limited access to credit. Even if they are able to secure credit, the interest rates are exorbitant hence increasing groups' operational costs. Second, the time taken to receive funds once coffee is sold at the auction is very long. This of course erodes farmers' confidence on the farmers groups because farmers need prompt payment to cater for their needs. Captive coordination arrangement has been found between small farmers and estates. To upgrade farming activities for small farmers estates provide farmers with credits for inputs such as chemicals, equipment and seeds in exchange for exclusive purchasing rights for the resulting coffee.

In addition, estates may also provide extension services to the farmers to ensure that they increase production and improve the quality of coffee produced. Contract farming is considered to provide a number of benefits to the coffee farmers and estates. The benefits to the coffee farmers include greater yields because of inputs and technical assistance which eventually leads to higher greater income. In case of estates, they benefit from increased quality and quantity. This finding is in line with Jaffe and Masakure (2005)'s claim that captive coordination arrangement has a greater potential for smallholders to upgrade their farming activities.

From the results discussed above identified issues to smallholders upgrading can be grouped as follows:

a. Institutional framework

Under institutional framework, here it means the role of regulatory bodies and participant in coffee business. The institutional framework should provide good environment for coffee business to flourish. However, what has been learnt is that there is a confusion of roles and responsibilities. For example, TCB runs the auction while it is also a regulatory body. As result for those companies who may wish to sell their coffee without passing through Moshi Auction are seen as creating competition with same organization which is supposed to regulate them. It would have been better therefore that auction could be voluntary and managed independently by estates, PCBs, farmers associations and cooperatives. TCB has to play a regulatory role to including the overseeing of the auction. In addition, running the auction centrally in one location for the whole country is not health business wise because increases operation costs to traders and Cooperatives. While the operation costs are increased to traders, the burden is borne by the farmer through reduced price or other kind of manipulation.

In addition the input market is not well regulated by the government, there is lack or insufficient farming inputs in the market. Even when chemical inputs are subsidized and supplied to growers

Through the cooperative system cooperatives supply them at market prices, only few farmers can afford to buy. Moreover, it is clear that extension officers are not adequate and cannot be recruited to cover all coffee producing villages the situation that hinder transfer of knowledge to farmers to a great extent.

b. Standards and marketing

The price for coffee has been changing from one day to another and from one season to another hence creating uncertainty to small farmers and businessmen. This may be due to strict standards that are demanded at the international market in which small farmers are constraints with their size and capability to comply with them. Although cooperatives like Kagera Cooperative Union, are certified for organic and fair trade arrangement, little effort has been made by these cooperatives to communicated the standards to small farmers so as to improve their farming activities. The success of smallholders to comply with the international market standards hinges on cooperatives financial, informational and network support and active upgrading efforts of PCBs and lager agro-exporters that link smallholders to foreign buyers as suggested by Lee et al (2010). This is lacking in the coffee value chain in the country and it tends to cost small farmers more than their large peers who are financially sound making them uncompetitive in the market.

c. Agricultural financing

Financial constraint is faced all dealing with coffee business (Farmers groups, PCBs as well as cooperatives). Financial constraints arise from two sources. First limited access to credit and in the credit is available interest rates changed are so high. With uncertainly in prices, then most of those dealing with coffee business cannot take adequate loans. Second, high operation and administration costs such as transport, processing and warehousing requires these participant to be financially strong. Given this financial constraint and prices offered at the market, coffee business may not appear to be good for companies to invest heavily. It would be good for the government to develop mechanism to enhance finance in coffee industry.

d. Business management

There is limited knowledge on business management and entrepreneurship skills for both farmers and traders (especially primary societies, farmers groups) and government officials). Figure 1 show clearly that there is no specialization of labour there is overlapping of activities. If each value chain actor would concentrate to its core value adding activity the value chain could be efficient and the level of interaction and communication could go high, currently every actor is trying to do almost everything for its own benefit. Example cooperatives have reported to own their own farm, small farmers bypass cooperatives to sell directly to the auction market, and TCB is also involved in marketing coffee instead of regulating coffee sector. To enhance this business management knowledge, trainings in the areas of supply chain, management, logistics and entrepreneurship should be provided to the coffee value chain actors in Tanzania.

Hence, this study recommends that to achieve a well-coordinated value chain that enhances smallholders upgrading, there is a need of improving institutional infrastructure, encourage local investment to enhance farmers observe international standards, facilitate good business management, create marketing and financing mechanism for coffee production and selling.

REFERENCES

Ashinder, K. A., & Deshmukh, S. 2008. Supply Chain Coordination: Perspectives, Empirical Studies and Research Directions. *International Journal of Production Economics* , 115, 316-335.

Buvik, A. 2002. Hybrid governance and governance performance in industrial purchasing relationships. *Scandinavian Journal of Management*, 18, 567-587.

Coles, C. 2011. Kilimanjaro and Oromia coffee value chain case studies: Producer benefits from fair trade and free market channels. NCCR North-South Dialogue, no. 34

Fold, N. & Larsen, M.N. 2011. Upgrading of smallholder agro-food production in Africa: the role of lead firm strategies and new markets, *Int. J. Technological Learning, Innovation and Development*, 4(1/2/3), 39–66.

Fold, N. and Larsen, M.N. (2011) Upgrading of smallholder agro-food production in Africa: the role of lead firm strategies and new markets, *Int. J. Technological Learning, Innovation and Development*, Vol. 4, Nos. 1/2/3, pp.39–66.

Gereffi, G. (1999) International Trade and Industrial Upgrading in the Apparel Commodity Chain. *Journal of International Economics*, 48, pp. 37-70.

Gereffi, G., Humphrey, J., & Sturgeon, T. 2005. The Governance of Global Value Chains. *Review of International Political Economy*, 48(1), 78-104.

Gibbon, P. (2008) Governance, Entry Barriers, Upgrading: Re-Interpretation of Some GVC Concepts from the Experience of African Clothing Exports. *Competition and Change*, 12(1), pp. 29-48.

Gibbon, P. 2003. Commodities, donors, value-chain analysis and upgrading, Paper prepared for UNCTAD, November 2003.

Humphrey, J & Memedovic, O. 2006. "Global value chains in agrifood sector". IDS Working Papers , (Brighton:Institute of Development Studies).

Humphrey, J. & Schmitz, H. 2002. How does insertion in global value chains affect upgrading in industrial clusters?. *Regional Studies*, Vol. 36(9), 1017–1027.

Humphrey, J. 2004. Upgrading in Global Value Chains. ILO Working Paper No.28, Geneva

Jaffee, S. & Masakure, O. 2005. Strategic use of private standards to enhance international competitiveness: Vegetable exports from Kenya and Elsewhere. *Food Policy*. 30, 316-333.

Jaffee, S., & Masakure, O. 2005. Strategic use of private standards to enhance international competitiveness: Vegetable exports from Kenya and Elsewhere. *Food Policy*. 30, 316-333.

Jones C., Hesterly W. & Borgatti S., 1997, A general theory of network governance: exchange conditions and social mechanisms. *The Academy of Management Review*, 22(4), 911-945

Lee, J., Gareffi, G., & Beauvais J. 2010. Global value chains and agrifood standards: Challenges and possibilities for smallholders in developing countries, PNAS Early Edition, available at http://www.pnas.org/cgi/doi/10.1073/pnas.0913714108 (accessed on 31 January 2013).

Macher, J. T. & Richman, B. D. 2008. Transaction Cost Economics: An Assessment of Empirical Research in the Social Sciences. *Business and Politics*, 10(1), 1-63

Malone, T. W., & Crowston, K. 1994. The Interdisciplinary Study of Coordination. ACM Computing Surveys, 26(1), 87-119.

Mhando, D. G., Haller, T., Mbeyale G. & Ludi, E. 2013. Adaptation to changes in the coffee value chain and the price of coffee among coffee producers in two villages in kilimanjaro, Tanzania. *African Study Monographs*, 34 (1): 27–56

Nadvi, K. 2008. Global standards, global governance and the organization of global value chains. *Journal of Economic Geography*, 8, 323-343.

Neilson, J. & Pritchard, B. 2009. *Value Chain Struggles – Institutions and Governance of the Plantation Districts of South India*, Wiley-Blackwell, West Sussex.

Pelupessy, W., and R. Díaz (2008) Upgrading in Lowland Coffee in Central America. *Agribusiness*, 24(1), pp. 119-140.

Pingali, P. Khwaja, Y. & Meijer, M. 2005. Commercialising Small Farms: Reducing Transaction Costs. ESA Working Paper No. 05-08. Agricultural and Development Economics Division. The Food and Agriculture Organisation of the United Nations.

Ponte, S. and Ewert, J. 2009. Which way is 'up' in upgrading? Trajectories of change in the value chain for South African wine, World Development, 37(10), 1637–1650

Powell, W. 1990. Neither Market nor Hierarchy: Network Forms of Organization, *Research in Organizational Behaviour*, 12, 295–336.

Selwyn, B. 2008. Institutions, upgrading and development: evidence from North East Brazilian Export Horticulture, Competition & Change, 12(4), pp.377–396.

Shelanski, A. & Klein, P. G. 1995. Empirical Research in Transaction Cost Economics: A Review and Assessment. *Journal of Law, Economics and Organisation*. 11(2), 335-361

Sturgeon, T. 2002. Modular Production Networks: A New American Model of Industrial Organization, Industrial and Corporate Change, 11(3): 451–96.

Tanzania Coffee Association (TCA, 2007)

Tanzania Coffee Research Institute [TaCRI] Annual Report of 2008

Thorelli, H. 1986. Networks: Between Markets and Hierarchies, *Strategic Management Journal, 7: 37–51.*

United Republic of Tanzania, The Cooperative Societies Act, 2003 (Act No. 20 of 2003). *Acts of Parliament, Act No. 20 of 2003 (revised edition, 2004), 2004-11-17, 92*

USAID Report 2010. Tanzania coffee industry value chain analysis. Profiling the actors, their interactions, costs, constraints and opportunities

Williamson, O. E. 1979. Transaction-Cost Economics: The Governance of Contractual Relations. *Journal of Law and Economics*, 22(2), 233-261