



EFFECTS OF MARKETING PROCESSES ON PERFORMANCE OF COFFEE INDUSTRY IN KENYA

PETER NGIBUINI KUGURU

EFFECTS OF MARKETING PROCESSES ON PERFORMANCE OF COFFEE INDUSTRY IN KENYA

Peter Ngibuini Kuguru

The Management University of Africa, Kenya

Accepted May 5, 2016

ABSTRACT

This study sought to determine the factors affecting the performance of the coffee industry in Kenya with a case study of Mathira Constituency. The study sought to find the existing linear relationship between the factors affecting the coffee industry and performance of the coffee industry. The factors that were considered included type of samples, level of sweeping and type of cartels. The study was grounded on game theory, signaling theory, innovation and R&D model and product quality model. Mixed mode research approach was used which consisted of the descriptive research design and correlation research design. Simple random sampling technique was used and the sample consisted of 385 respondents out of a population of 26,000 farmers. The study involved a primary data collection from the coffee farmers and the coffee cooperative society managers. The collected data was edited, coded, keyed in and analyzed using Statistical Package for Social Sciences (SPSS). The study concluded that marketing process have appositive and significant influence coffee industry performance. This was guided by the findings that revealed that 67.90% of the respondents agreed and strongly agreed that marketing process played a significant role in the performance of coffee industry. The regression analysis showed that an increase in 0.162 in marketing process will have a corresponding increase of a unit in performance of coffee sector in Kenya. The study also concludes that to obtain an efficient working coffee industry a lot should be done as far marketing is concerned. The study also concludes that there exist a positive relationship between marketing process and performance of coffee industry in Kenya.

Key words: *Marketing Processes, Performance, Mathira Constituency, Coffee Industry*

Background Information

Smallholders in developing countries face numerous constraints due to the pervasive imperfections of markets. Increasing evidence shows that through collective action smallholders can reduce transaction costs of accessing input and output markets, adopt efficiency-increasing and value-adding technologies, and tap into high-value markets associated with certification and labeling (Vorlaufer, Wollni and Mithofer, 2012; Fischer and Qaim, 2012.; Gruere et al., 2009; Devaux et al., 2009; Narrod et al., 2009). Additionally, collective marketing can lead to improved bargaining power in negotiations with buyers and intermediaries (Markelova et al., 2009). Notwithstanding these potential advantages, collective action has often failed in practice. This has been most extensively studied in the context of the collective management of common pool resources (CPR). Introducing the concept of the 'tragedy of the commons', Hardin (1968) showed how individually rational behavior accounting only for private costs and benefits leads to the over-use of CPR and thus to a pareto-inferior outcome. Later studies have shown that under certain conditions collective management of CPR can lead to a socially optimal outcome, which can be superior to the state or privately controlled allocation of resources (Baland and Platteau, 1996). Similarly, collective action problems can emerge in agricultural cooperatives and producer groups, if group members free-ride on the contributions of others. According to Meinzen-Dick et al. (2004) the failure of early community-based development programs can be partly attributed to the lack of understanding of the processes and factors underlying successful collective action (Meinzen-Dick et al., 2004).

Since its introduction as a cash crop in the early 1900s, coffee has traditionally been the backbone of Kenya's highland economy. Until the global coffee crisis in 1933, when Brazil released its surpluses onto the world market and prices plummeted, coffee was

grown exclusively by European settlers around Nairobi. Starting from Kisii and Meru districts, smallholders were allowed to produce coffee on an experimental basis. In 1944, smallholders were required by law to join local cooperatives run by the government. The growth of the smallholder coffee sector was accompanied by the exclusive control over production and marketing by the Coffee Board of Kenya (CBK) and the Coffee Marketing Board (CMB) (Hyde, 2008). Since 1987/88, when a record production of 129,000 MT of clean coffee was reached, coffee production in Kenya has been declining (Karanja and Nyoro, 2002).

In the 2000's the coffee sector produced on average 50,379 MT of clean coffee per year; indicating a decline of 36% compared to the average production of the previous decade. The decline is most pronounced in the smallholder sector. While the average production of the smallholder sector decreased by 41% during the last decade, the average production of estates declined by 29% in the same period (Ministry of Agriculture, 2010). The weak performance of Kenya's coffee sector, characterized by comparatively low national coffee production and coffee yields in the last two decades cannot be explained by low world market prices in the early 2000's alone, since Kenyan coffee consistently fetches premium prices in international coffee markets. This suggests that additional circumstances specific to the Kenyan coffee sector contribute to low levels of coffee production and productivity.

Since the early 1990s, the liberalization of the Kenyan coffee sector has fundamentally altered the structure of the coffee value chain. Beyond the dismantling of the monopoly power of the Coffee Board of Kenya as a marketing agent, it also led to the removal of all policy-making jurisdictions over the economic activities of cooperatives. On the one hand, the reforms encouraged farmer and private sector participation through the reduction of

government involvement in the coffee sector. Processing costs and statutory deductions especially at the milling and marketing stages decreased substantially due to increasing competition in the coffee value chain. On the other hand, problems of corruption, political opportunism, and mismanagement have been reported to rise across all institutions in the coffee sector, especially in coffee cooperatives (Karanja and Nyoro, 2002; Mude, 2007). Yet, up until now a systematic analysis of free-riding in Kenyan coffee cooperatives and of the implications for collective marketing performance is lacking.

Smallholders are legally bound to deliver their coffee cherries to cooperatively owned factories for primary processing (Ministry of Agriculture, 2010). Each cooperative runs one or more factories within a certain catchment area defined by natural borders, political boundaries and/or generally accepted informal boundaries. Coffee farmers within a catchment area hold shares of the cooperative's capital and are thereby obliged to deliver their coffee to the factories of that particular cooperative. The coffee produce at each factory or cooperative is pooled together so that each farmer's contribution is not discernible from the others. The calculation of the final payment is based on the revenue received from coffee sales. The cooperative management deducts then all of its operating costs, including maintenance and service expenses, loan repayments and salaries. The final payment can either be done at cooperative level or factory level. The second method allows for inter-factory, intra-cooperative price variation. Besides primary processing, cooperatives provide inputs as well as education and extension services to their members.

Under the Coffee Act 2001, growers are required to appoint a marketing agent with whom they sign a contract for a minimum period of one year to market their coffee. These marketers are licensed by the CBK. The marketing function entails four main tasks:

receiving the milled coffee from millers and preparing a catalogue for the auction, ensuring proper warehousing of the coffee to be auctioned at the NCE, providing samples of the coffee to be sold to dealers; and collecting payment from buyers and remitting proceeds to growers/cooperative societies management rather than optimizing the grower's earnings. Since marketing agents receive a captive fee of US\$50 per ton, they have no incentive to promote the price received by the grower. This is an area that needs to be improved by relating the marketing fee to the actual prices realized at the auction. In this way, marketing agents will have an interest in promoting coffee prices for the growers. The growers, too, should insist that they be paid within two weeks of a sale by a marketing agent (Mureithi, 2008). Given the impetus of the coffee sector to the Kenyan economy and all the efforts the government has put in place to reform the sector, the study seeks to assess the impact of the said marketing processes on coffee production. The following research question assisted the researcher in undertaking this study; what effects does marketing processes have on the performance of coffee industry in Kenya?

LITERATURE REVIEW

Theoretical Review

One of the theories that explain the marketing processes is the game theory. Game-theoretic models assume that firms are (hyper)rational utility maximizers, where rationality implies that they strive to achieve the most preferred of outcomes subject to the constraint that their rivals also behave in a similar fashion (Zagare 1984). While there may be uncertainty regarding the expectations and actions of its rivals, a rational firm is expected to overcome uncertainty by forming competitive conjectures, subjective probability estimates of rivals' expectations and behavior. In effect, game-theoretic models assume intelligent firms that can put

themselves into the "shoes" of their rivals and reason from their perspective.

Signaling theory on the other hand argues that competitive signals are "announcements or previews of potential actions intended to convey information or to gain information from competitors". Competitive behavior is often influenced by signals sent by competitors. Signaling could also place the firm that sends the signal at a disadvantage. For example, signals that provide competitors with advance information about the firm's intentions could hurt the competitive position of the firm, and signals that are not followed through (cheap talk) could hurt the competitive reputation of the firm. Furthermore, signaling that is interpreted as predatory behavior may trigger antitrust review into the behavior of the firm (Connelly et al., 2011)

Innovation theory and R&D for the long-term profitability of the firm is viewed as a process of "creative destruction" (through innovation that changes the very nature of competitive advantage in the market) rather than as a condition leading to equilibrium. This argument is supported by the "Austrian" school of strategy (Jacobson 1992), which suggests that the business environment is inherently dynamic and therefore characterized by uncertainty and disequilibrium. The Austrian school views profits in such an environment as a consequence of discovery and innovation. Such discovery and innovation do not necessarily mean drastic changes of a discontinuous (Schumpeterian) nature alone. Rather, they span a continuum encompassing innovations with the potential to provide the firm with a differential advantage over its competitors (Jacobson 1992) such as reformulation of a product, developing new processes for manufacturing a present product, and developing new channels of distribution.

Product quality theory: The economic view of quality is "any aspect other than price that influences the

demand curve of a product". Combining these two notions, quality can be construed as any non price aspect of a product that signifies its superiority and causes a shift in its demand curve. Ideally, a business would want to sustain a higher price as well as a higher market share but these two objectives may not always be compatible (Mussa and Rosen, 1978). That is, if the business were to follow a niching strategy by offering a high quality product at a high price targeted at a small market niche, it effectively excludes itself from the contest for market share dominance in the broader market. The ability of a business to charge higher prices for higher quality is contingent on the ease with which consumers can determine the quality of the product. When quality is uncertain, consumers tend to use price as an indicator of quality. This suggests a bidirectional relationship between quality and price, in which perceived quality positively influences price under conditions of greater information availability, and price positively influences perceived quality under conditions of lower information availability.

Empirical Review

The International coffee market was subjected to continuous control from 1962 to July 1989 using the International Coffee Agreements (ICA). When the agreements were in force, coffee market was regulated through systems of export controls (quotas), which were triggered when prices fell to significant low levels. According to Gilbert and Brunett (1998), and Gilbert, (1996), the main benefit of the coffee agreements was to raise the average level of producer prices relative to the levels which would have prevailed without the agreements. Gilbert & Brunett (1998) estimate that the agreements may have indeed raised producer prices by as much as 50-60%.

Mwongombe (2011) conducted a study on Impact of the liberalization of coffee marketing rules on the performance of coffee industry in Kenya: a survey of coffee farmers' co-operative societies in Mathira

Division, Nyeri District. The target population was the managers and management committee officials of the coffee farmers' cooperative societies in the Division. A sample size of 36 managers out of a population of 60 and 27 management officials out of a population of 81 was targeted. From the sample size of 63 out of a population of 141, 60 respondents were interviewed. Questionnaires were used as the main data collection instruments for both groups of the respondents. The finding reveals that since the coming into effect of the new liberal marketing rules, coffee is fetching a higher price per kilogram than before. The price changed from, Ksh19 in 2004 to Ksh 34 in 2008. Coffee farmers income also increased from a percentage payout of 65.6% in 2004 to 83%'s in the year 2005. Coffee output though the average for the two time periods reflects an increase, but a substantial reduction in production for 2008 from the 2007 level. This was attributed to change in weather patterns and settlement on previously coffee farms due to population pressures. However the quality of coffee is generally higher due to introduction of new or improved varieties and high price incentives on high quality coffee.

Theuri (2012) conducted a study which aimed at investigating the factors that influence revitalization of coffee programmes with the case study of Mukurweini district. He sought to investigate on accessibility of coffee markets, management and gender discrimination coexisting in the coffee cooperative societies. Descriptive statistics were used and they indicated that men dominate with regard to accessibility to credit, coffee crop ownership and control of income from coffee. The study further showed that proper marketing and good leadership are essential factors of coffee revitalization.

Karanja (2002) argued that the greatest threat to the social sustainability of coffee production results from the economic conditions facing coffee producers. They added that Coffee farmers typically depend upon coffee as their primary source of hard currency. As a result, declining and volatile coffee prices had a

direct negative impact on access to education, housing, food, medical services and other basic necessities. David (2001) said that producer organizations can provide an important avenue for democratic, equitable representation and infrastructure development, the relative isolation of many small coffee farmers often places prohibitively high transaction costs on effective participation in such organizations. On the other hand, hired labor serving coffee plantations and estates typically represents the poorest segment of the population serving the supply chain. Although workers are not directly exposed to the vagaries of the market, evidence suggests that the performance of the market is transmitted to workers through poor general working conditions among such plantations have also been reported to be below national requirements and there is increased child labor reported on coffee plantations in some countries

Conceptual Framework

The The study was to determine the extent to which marketing factors influence the performance of coffee industry.

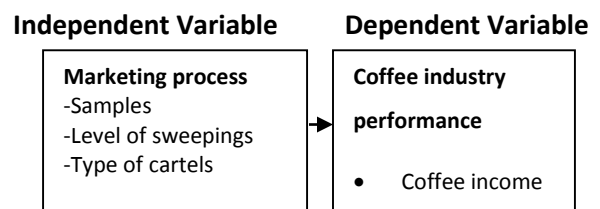


Figure 1: Conceptual Framework

METHODOLOGY

The study adopted a descriptive research design. Descriptive research design enhanced clear examination of the research topic and also facilitated data collection process by answering questions concerning the study as per the current status (Gravetter & Forzano, 2011). A descriptive survey entailed the collection of information by administering a questionnaire to a sample from the entire population of study. The study targeted the

managers of coffee cooperative societies and coffee farmers in Mathira constituency. The study used primary data collected from a representative sample of the entire population via questionnaires which was used to solicit information as per the objectives of this study.

The target population in this study was 26, 000 coffee farmers inclusive of factory managers in Mathira constituency. Simple random sampling technique was used in this study. Primary data was of essence in this study as it allowed the researcher to address issues that are specific to their study. Primary data was collected from respondents via questionnaires. The questionnaires were administered to the coffee cooperative society managers, who are the project representatives, and to the randomly selected members of the community by the researcher. The questionnaire comprised of the questions that intended to answer the questions formulated with reference to the objectives of the study and the research questions. The researcher furnished the respondents with an introductory letter issued by the university to instill confidence into the respondents. Piloting was carried out to assess the ability of research instruments in collecting viable and reliable data that corresponded to the objectives of the study. The research yielded quantitative and qualitative data. The quantitative data was analysed using both descriptive statistics and correlations. Descriptive statistics helped to get the measures of central tendency and measures of dispersion which included the mean and standard deviation. The study used the quantitative method of data analysis. Data analysis played an important role in conversion of raw data into a form that can be subjected to statistical interpretation and presentation. The collected data was edited, coded, keyed in and analysed using Statistical Package for Social Sciences (SPSS). The researcher upheld ethical issues in the process of the study and gave respondents assurance that confidentiality was observed and data collected was

to be used for research purposes only. The researcher obtained an informed consent from every respondent and all the relevant authorities were consulted. The researcher sought permission to collect all the necessary data required.

RESULTS AND DISCUSSIONS

Results are presented in tables and diagrams. The analyzed data was arranged under themes that reflect the research objectives. The number of questionnaires that were administered was 385. A total of 385 questionnaires were properly filled and returned. This represented an overall successful response rate of 92.5%. According to Mugenda and Mugenda (2003) and also Kothari (2004) a response rate of 50% is adequate for a descriptive study. Babbie (2004) also asserted that return rates of 50% are acceptable to analyze and publish, 60% is good and 70% is very good.

Demographic Characteristics of the Respondents

Majority of the respondents who participated in this study were male who were represented 55% of the sample while 45% were female. The respondents were asked to indicate whether they were members of a cooperative society or not. 96% of the respondents were members of cooperative societies while 4% were not members of the cooperative society. The respondents were also asked to indicate their age bracket. 60% of the respondents were over 50 years, 28% were between 41 to 50 years, 12% of the respondents were between 31 years to 40 years. This indicate that those who were the majority were above 50 years. Results further showed that 35% of the respondents earned below ksh. 2200 while 33% of the respondents earned income of over ksh. 6001 while 32% represented respondents who earned between ksh. 2201 to 6000 this implies that majority of the respondents generated an income of below 2200 from coffee farming.

Descriptive Results of Effect of Marketing Processes

The objective of the study was to establish the effect of marketing processes on the performance of coffee industry in Kenya. Results showed that 67.90% of the respondents agreed and strongly agreed that increased production cost accompanied by constant price fluctuations on coffee led to the decline in small scale farming while 82.30 % of the respondents agreed and strongly agreed that delays and inefficiencies by the marketing agents leads to increase in lead time for payment to the farmers and thus leading to low performance of coffee industry. Majority (40%) of the respondents disagreed that long distance to the market has negatively affected the production of coffee crop. Further, 47.80% of the respondents also disagreed that poor roads led to delay in harvesting of coffee during rainy season thus low performance of coffee industry while 43.50% of the respondents disagreed that marketing and branding of Kenya coffee in the international markets is poor and thus low performance of coffee industry. On an average likert scale the responses had an overall mean of 3.458 which indicated that the respondents were neutral to the majority of the questions asked. The standard deviation of 0.993 indicates that the responses small variation.

Correlation Results for Marketing Processes and Coffee Industry Performance

The results presented in the Table 1 showed that marketing processes and performance of coffee industry have positive and significant association ($r=0.291$, $p=0.042$).

Table 2: Regression of Coefficients

Parameter Estimate	Performance of Coffee Industry
	Coefficient(P value)
Constant	1.176 (0.000)
Marketing Processes	0.162 (0.002)
R Squared	0.28
F statistic (ANOVA)	38.095 (0.000)

Table 1: Correlation Results of Marketing Processes

		Marketing Processes	Performance of Coffee industry
Marketing Processes	Pearson Correlation	1	0.291*
	Sig. (2-tailed)		0.042
	N	385	385
Performance of Coffee industry	Pearson Correlation	0.291*	1
	Sig. (2-tailed)	0.042	
	N	385	385

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

Regression Results of Marketing Processes and Performance of Coffee Industry

The results presented in table 2 present the fitness of model used in regression to explain the study phenomena. Marketing Processes was found to be satisfactory variable in explaining coffee industry performance. This is supported by coefficient of determination also known as the R square of 28%. This means that the above variable explained 28 % of the variations in the dependent variable which is performance of coffee industry in Kenya. This result further suggests that the model applied to link the relationship of the variables was satisfactory.

The study sought to establish the effect of marketing process on coffee industry performance. The respondents were divided in opinion with some agreeing and others disagreeing on the effects of marketing process on coffee industry performance. The findings indicate that there is a positive significant relationship between marketing processes and performance of coffee sector in Kenya ($B=0.162$, $p=0.002$). The regression analysis showed that an increase in 0.162 in marketing process will have a corresponding increase of a unit in performance of coffee sector in Kenya. These findings are in agreement with those of Mwangombe (2011) who conducted a study on Impact of the liberalization of coffee marketing rules on the performance of coffee industry in Kenya. Mwangombe's study finding reveals that since the coming into effect of the new liberal marketing rules, coffee is fetching a higher price per kilogram than before. The price changed from, Ksh19 in 2004 to Ksh 34 in 2008. Coffee farmers' income also increased from a percentage payout of 65.6% in 2004 to 83%'s in the year 2005. Coffee output though the average for the two time periods reflects an increase, but a substantial reduction in production for 2008 from the 2007 level. The findings of this study are also in line with those Theuri (2012) who conducted a study which aimed at investigating the factors that influence revitalization of coffee programmes with the case study of Mukurweini district. The study findings showed that proper marketing and good leadership are essential factors of coffee sector rejuvenation.

Conclusion

The study concluded that marketing process have appositive and significant influence

coffee industry performance. This was guided by the findings that revealed that 67.90% of the respondents agreed and strongly agreed that marketing process played a significant role in the performance of coffee industry. The regression analysis showed that an increase in 0.162 in marketing process will have a corresponding increase of a unit in performance of coffee sector in Kenya. The study also concludes that to obtain an efficient working coffee industry a lot should be done as far marketing is concerned. The study also concludes that there exist a positive relationship between marketing process and performance of coffee industry in Kenya.

Recommendation

The following recommendations based on the study findings are suggested to help boost performance of coffee industry in Kenya.

- i. The coffee industry players and the government need to harmonize the policies regulating coffee industry in order to achieve a robust industry.
- ii. The policies must be formulated with the benefits to farmers in mind and this will act as incentives to farmers to commit them to coffee farming.
- iii. Farm Inputs Loans should be re-introduces, taxes on farm input harmonized, and the government should ensure that CBK is corruption free to pump new energy into the coffee industry.
- iv. In addition, CBK should be accountable in its transactions; exploitative middlemen should be rooted out of the industry to lay proper grounds for rejuvenation of coffee industry in Kenya.

REFERENCES

- Baland, J.M.; Platteau, J.P. (1996): Halting Degradation of natural resources: Is there a role for rural communities?, Oxford University Press, New York, USA
- Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management*, 37(1), 39-67.
- Devaux, A.; Horton, D.; Velasco, C.; Thiele, G.; Lopez, G.; Bernet, T.; Reinoso, I.; Ordinola, M. (2009): Collective action for market chain innovation in the Andes, *Food Policy* 34 (2009), p.31-38
- Fischer, E., & Qaim, M. (2012). Linking smallholders to markets: determinants and impacts of farmer collective action in Kenya. *World Development*, 40(6), 1255-1268.
- Gilbert, C.L. & Brunnet, C. (1998). Speculation, hedging and volatility in the coffee market, 1993-96: Department of Economics, Queen Mary and Wesfield College, London.
- Gilbert, C.L. (1996). International commodity agreements: an obituary notice. *World Development* 24: 1-19
- Gravetter, F. & Forzano, L. (2011). *Research Methods for the Behavioral Sciences*. Boston: Cengage Learning.
- Gruere, G.; Nagarajan, L.; King, E. (2009): The role of collective action in the marketing of underutilized plant species: Lessons from a case study on minor millets in South India, *Food Policy* 34 (2009), p. 39-45
- Hardin, G. (1968): The Tragedy of the Commons, *Science* 162 (1968), p.1243–1248
- Hyde, D. (2008): Global Coffee and Decolonisation in Kenya: Overproduction, quotas and rural restructuring, *Commodities of Empire Working Paper No.8*, University of East London, UK
- Jacobson, R. (1992). The “Austrian” school of strategy. *Academy of management review*, 17(4), 782-807.
- Karanja, A.M.; Nyoro, J.K. (2002): Coffee process and regulation and their impact on livelihoods of rural community in Kenya, Tegemeo Institute of Agricultural Policy and Development, Egerton University, Nairobi, Kenya,
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.
- Markelova, H.; Meinzen-Dick, R.; Hellin, J.; Dohrn, S. (2009): Collective action for smallholder market access, *Food Policy* 34 (2009), p.1-7
- Meinzen-Dick, R.; DiGregorio, M.; McCarthy, N. (2004): Methods for studying collective action in rural development, *Agricultural Systems* 82, no. 3 (2004), p.197-214
- Ministry of Agriculture (2010): Economic review of Agriculture 2010, http://www.kilimo.go.ke/kilimo_docs/pdf/ERA_2010.pdf
- Mude, A.G. (2007): Institutional Incompatibility and Deregulation: Explaining the Dismal Performance of Kenya’s Coffee Cooperatives, in *Decentralization and the Social Economics of Development Lessons from Kenya*, Barrett C.B., Mude A.G., Omitii J.M. (Eds.), Cabi, Oxfordshire, UK, p.33-63

- Mugenda, O.M. & Mugenda, A.G. (2003). *Research methods: Quantitative and Qualitative Approaches*. Nairobi: ACTS Press.
- Mureithi, L. P. (2008). *Coffee in Kenya: Some challenges for decent work*. ILO.
- Mussa, M., & Rosen, S. (1978). Monopoly and product quality. *Journal of Economic theory*, 18(2), 301-317.
- Mwangome, K. M. (2011). *Impact of the liberalization of coffee marketing rules on the performance of coffee industry in Kenya : a survey of coffee farmers' co-operative societies in Mathira Division, Nyeri District*. Nairobi: Kenyatta University Institutional Repository. <http://ir-library.ku.ac.ke/handle/123456789/1045>
- Narro, C.; Roy, D.; Okello, J.; Avendano, B; Rich, K.; Thorat, A. (2009): Public-private partnerships and collective action in high value fruit and vegetable supply chains, *Food Policy* 34 (2009), p.8-15
- Sonnentag, S. & Frese, M. (2001). *Performance Concepts and Performance Theory*: Konstanz: University of Konstanz.
- Theuri, B. N. (2012), *Factors affecting coffee revitalization Programmes in Mukurweini District Nyeri County, Kenya*. Nairobi: University of Nairobi.
- Vorlauffer, M., Wollni, M., & Mithofer, D. (2012). Determinants of collective marketing performance: Evidence from Kenyas coffee cooperatives. In *Selected Paper prepared for presentation at the IAAE Triennial Conference, Foz do Iguacu, Brazil (pp. 18-24)*.
- Zagare, F. C. (1984). *Game theory: Concepts and applications (Vol. 41)*. Sage.