

Testing the relationship between constraints management and capacity utilization of tea processing firms: Evidence from Kenya

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Abstract

Despite having one of the many studies in constraints management and capacity utilization, there is dearth of the same in the tea processing firms. The purpose of this study was to link constraints management to capacity utilization of tea processing firms by focusing on a Kenyan developing economy. Specifically the study determines the relationship between constraints management and capacity utilization of tea processing firms in Kenya. A multiple linear regression and correlation models were performed on a sample that included 84 firms operating in the Kenyan tea industry for the period 2008–2012. The study established that the relationship between constraints management and the firm's capacity utilization is significant and positive.

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1. Introduction

The business environment in which most of the firms operate in is characterized by the cut-throat competition due to globalization. The management of these organizations is working round the clock to make sure that they improve the stakeholders' welfare now and in the future. The managers are faced with a myriad of challenges in their effort of trying to achieve the set goals. According to Goldratt and Cox (1992), a constraint is any element or factor that blocks the system from achieving more of what it was designed to accomplish (achieving its goal). Bhardwaj, Gupta, and Kanda (2010) in their study on fundamentals of Theory of Constraints (TOC) argued that inconsistencies between goals, measurement systems, and policies are the major problems organizations face. Goldratt (1990) argued that the TOC guides the user through the decision-making process of problem structuring, problem identification, solution building, identification of constraints to be overcome, and implementation of the solution. The TOC thinking

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processes are crucial in establishing what should be changed, what to change to, and how to carry out the change when an organization wants to introduce changes in their production system. It is also called as problem-solving methodologies. Goldratt (1990) states that it is the weakest link that limits the overall performance of an organization, and for an organization to improve its performance, it must identify the system's constraints or bottleneck.

According to Mabin and Balderstone (2003), the constraints may be equipment constraints, such as a machine with limited capacity, raw material, policy or behavioral constraints. Policy constraints arise when the environment in which the company operates in changes while the policies of the business remain unchanged. Most significantly, policy constraints are within the control of the management of the organization. Behavioral constraints are as a result of performance measures or policies that lead to that, even after policies or rules are changed, they are firmly embedded and constrain the system's performance. Gupta and Boyd (2008) argued that TOC provides a framework to assist organizations to avoid pitfalls of local optimization by ensuring that everybody and every part of the organization is involved.

According to Larson and Halldorsson (2002), supply chain management is a set of approaches that are used by organizations to efficiently integrate suppliers, warehouses, manufacturers, and stores, so that products are produced and distributed to the right locations in the right quantities, and when they are required, so as to minimize system-wide costs while satisfying service level requirements. This definition was used to guide this study given that it recognizes a supply chain management as a network that takes into consideration every facility's role and impact on cost when making the product that conform to customer requirements with a single objective of being efficient and cost-effective across the entire system which should be well integrated.

According to KNBS (2012), since 2004, the strategy for increasing processing capacity for the tea processing firms has changed from construction of new limited liability companies to processing plants, satellites factories developed by a mother plant. To date, 11 such tea processing firms have been put up and commissioned bringing the total number of processing units to 107.

The tea processing firms face many challenges in their efforts to meet their customers' expectations and make money. Most of these constraints are similar to those outlined by Abeysinghe (2013) ranging from high-cost component to workers as a result of higher wages and other social costs; high input costs like agrochemicals, machinery and fuel; low productivity in all tea growing belts; ageing of tea and expansion of uneconomical tea lands as a result of reduced replanting rate; shortage of workers; climate change; meeting energy requirements; food safety; mandatory certifications and hygiene protocols for tea production and processing to satisfy International food, worker safety requirements and environment; and to increase their share in the international market.

Many studies have been done on constraints management and capacity utilization and initiatives have been implemented in various industries from both developed and developing nations, for example, in USA (Anderson, Morrice, & Lundeen, 2005; Morin & Stevens, 2004, 2005), in UK (Evans & Naim, 1994), in Nigeria (Mojekwu & Iwuji, 2012) and in India (Tulasi & Rao, 2012); yet, none have been completed in the Kenya tea processing chains context. The Kenyan tea industry is ranked as one of the Africa's and world top producers of black tea (KNBS, 2012) and contributes significantly to the economy of the nation ("www.teaboard.or.ke," n.d.). This, therefore, makes Kenya's tea farming not just important to the Kenyan economy but also to the world's tea production. Kenya's tea industry is among the country's leading foreign exchange earner and contributes to about 20% of the Kenya's total export earnings, about 4% of the Gross Domestic Product (GDP) and 8% of the total employment. This significant production and export contributes greatly to Kenya's economy. To gain higher economic benefits from the tea industry, there is the need to understand the relationship between constraints management and capacity. To do this, one of the most promising approaches will be to investigate the relationship between constraints management and capacity utilization in relation to sustainability development in the Kenyan tea industry. For this reason, the primary motivation behind this study is to satisfy the need for the investigation of the relationship between constraints management and capacity utilization in relation to sustainability development in the Kenyan tea industry. This investigation will set the foundation for future constraints management and capacity utilization research in the tea industry and provide managers and researchers with a better understanding of the different sustainable operational factors and specific management interventions that will enhance the value chain performance of Kenyan tea industry in particular and general tea industry.

The rest of the paper will be organized as follows: Section 2 will be theoretical background and literature review, Section 3 will be conceptual model and hypothesis, Section 4 will be on research methodology, Section 5 will be

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