Capacity utilization strategies in the milk processing industry in Zimbabwe

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ABSTRACT

Lower levels of capacity utilization in the milk processing industry in Zimbabwe led to the adoption of various studies by many organizations in the industry in a bid to arrest the challenge. These strategies include investing in technology, new product development, strategic acquisition of raw materials, boosting working capital and opening new foreign markets. The study evaluated the strategies which were adopted by the milk processing industry to boost capacity utilization. A quantitative research design was adopted and a total of 102 managers were surveyed from three organizations in the milk processing industry. Strategies including investment in technology, strategic acquisition of raw materials, boosting working capital and opening new markets were found to have an association with increase in capacity utilization. However, the introduction of new products had no relationship with increase in capacity utilization. A lot of factors including power shortages, weak government policies, shortage of raw materials, high prices of raw materials and poor infrastructure were most instrumental to the decline in capacity utilization in the industry. Recommendations were that firms in the milk processing industry must also harness milk supply from smallholder farmers and not to concentrate only on commercial farmers to increase raw materials availability in addition to the current strategies of importing heifers and raw materials. There is need to look for other sources of financing the business like shareholders' funds through rights issue as well as failing to declare a dividend so that such reserves can be invested in other business without attracting high costs of capital.

Keywords: capacity utilization, milk processing, strategies, food industry, innovation.

INTRODUCTION

The Zimbabwean economy underwent a period of decline starting around the year 2000 following the adoption of the land reform programme resulting in a serious erosion of capacity utilization in the manufacturing sector and a dependence on imports. Following the adoption of the multi-currency policy by government, the challenge has been an endeavor to increase capacity utilization across the manufacturing sector. The adoption of the multicurrency system in the economy in 2009 improved the business environment to some extent and capacity utilization in the manufacturing sector moved from 10% in 2008 to 32.2% in 2009 (Business Reporter, 2014). According to Zinyuke (2013), capacity utilization in the manufacturing sector increased from 32.2% in 2009 to 57.2% in 2011. However, capacity utilization registered a sharp decrease in 2012 through 2014 from 57.2% in 2011 to 36.3% in 2014 (Zinyuke, 2013).

The milk processing industry has been characterized by stagnant raw milk deliveries with 51 million litres of milk being processed annually against the national demand of 120 million litres per year (Makichi, 2014). Closure of operating units by some of the major players occurred during the period as companies sought to match the diminished raw milk deliveries. Food manufacturing companies particularly in the milk processing industry implemented various strategies in a bid to increase capacity utilization including investing in technology, strategic acquisition of raw materials and boosting working capital and introduction of new products. However, capacity utilization, real GDP growth and growth in the manufacturing sector have been deteriorating since 2011 to 2014. The nation was importing milk products which could otherwise have been produced locally. Unfortunately capacity utilization continued to decrease despite the adoption of these strategies to improve capacity utilization (Makichi, 2014).

LITERATURE REVIEW

Slack et al. in Mojekwu and Iwuji (2012) defined capacity utilisation as the relationship between actual output and design capacity. Capacity utilization is regarded as one of the performance indicator in a given industry and it shows changes in inflation, investment and output growth in the long run among other things (Ray, 2013). Various factors can contribute to decline in capacity utilization. In the food processing industry, poor quality raw materials and inconsistencies in supply of raw materials adversely affect capacity utilization. Akpan et al. (2013) argued that prices of raw materials are critical in as far as fully utilizing capacity is concerned. A direct outcome of underutilized capacity is reduced competitiveness as local products end up being more expensive than local products hence requiring direct intervention by the affected organizations.

In response to capacity utilization challenges, various companies adopted a number of strategies to increase capacity utilization such as development of new market, establishing better production processes, new product development and heavy investment in technological innovation (Mutopa & Ndlovu, 2013; Akpan et al., 2013). These strategies have had varying impacts on the goal of ramping up capacity utilization in the manufacturing sector. The key driver of capacity utilization is the introduction of new technology (Kehinde et al., 2013). Investment in technology is key or vital in all organizations in different industries particularly the manufacturing industry since this can assist in reducing production costs as well as improving capacity utilization (Mutopa & Ndlovu, 2013). It has been found out that productivity enhancement within a

manufacturing concern can only be realized through technological innovations and that the increase in investment in sophisticated technology by many local and multinational companies was meant to match production and demand (Kehinde et al., (2013); Ali, Sigh & Ekanem (2009); Akpan et al., (2013). The use of technology in the food industry in India resulted in improved capacity utilization levels (Kehinde et al., 2013). This was a result of the increase in demand for processed food which made it possible for technology to improve production quantities and that the government of India relaxed restrictions on technology imports and private direct investment from foreign players (Ali et al., 2009). Firms which recorded lower production levels in the food manufacturing sector in India did not embrace new technology due to lack of resources which greatly affected capacity utilization (Ali et al., 2009 and ICP, 2012). In this regard ICP (2012), recommended that more public resources must be given to the firms in the food processing industry for them to upgrade technology.

The introduction of new products was one other strategy used by firms, and according to Boynton and Novakovic (2013), the burgeoning of production capacity of the yoghurt industry in New York was made possible by the introduction of Greek yoghurt. Sustainable business success is brought by introduction of new products (Bhuiyan, 2011); which is said to be at the core or heart of competitiveness through increase in production capacity (IBM, 2013). Firms using the new product introduction strategy needed enough resources to improve capacity utilization in these organizations (Menrad & Feigl, 2006). Introduction of a new product increased production quantities in the food industry in India especially within high value subsectors of the industry (Ali et al., 2009); which was made possible by the ability of these firms to follow the changing demand patterns towards introducing the required food products in the market.

Serving a broad market was the critical success factor in the strategy of new product development (Menrad & Feigl, 2006) as this could improve production levels. It was also found out that firms which were serving huge markets in the food processing industry in Canada managed to increase their production capacity as compared to those which were serving small markets (ICP, 2012). Firms in the food manufacturing sector have decided to go after the strategy of opening new market in a bid to increase capacity utilization. Akpan et al. (2013) found out that there was a positive relationship between capacity utilization rates and exports of a given country. This means that an increase in exports can trigger an increase in the capacity utilization rate. Access to export markets managed to increase capacity utilization in the food processing industry in Canada (ICP, 2012). Fish and seafood sector as well as dairy products in Bangladesh food processing industry were normally meant for the export market and this greatly improved capacity utilization of firms which were producing these products (Salim & Kalirajan, 1999). However, the food processing industry in Serbia failed to increase capacity utilization through opening foreign markets (Ivan, Drago & Gorica, 2011); because the products they were offering were of poor quality and they were also lacking enough resources to support their international initiatives. Few products managed to meet EU hygiene regulations (Ivan et al., 2011). Failure to meet international standards normally reduced demand for the product negatively affecting capacity utilization (Rais et al., 2013) which was made worse by lack of international market research.

Availability of raw materials is key to survival of any business entity. Raw materials must be available in their right quantity, quality and price since this can go a long way in improving production levels and output will be available in right quantity, price and quality (Akindipe, 2014). Ray (2013) also argued that healthy operations and sustainability of the company are ensured through a proper way of sourcing raw materials; and that capacity utilization in

the food processing industry can be affected by the supply of critical inputs (ICP, 2012). As a result firms in the food manufacturing sector embarked on various strategies to acquire strategic raw materials to avert decreases in capacity utilization. Availability of big farm milk production segment in New York has enabled a boom in the manufacturing of Greek Yoghurt (Boynton & Novakovic, 2013) and similarly Kumar et al. in Akpan (2013) indicated that variation in capacity utilization in the industry was most explained by variations in raw materials.

Conversely, an imbalance of supply and demand of raw materials will affect capacity utilization of organizations in the long run and consequently their performance. Ray (2013) confirmed that shortages of raw materials affected capacity utilization in India. There is the need to efficiently manage the imbalance of supply and demand in a bid to improve capacity utilization management (Dingman, Theobald, & Jefferson, 2012). However, strategic acquisition of raw materials in the food processing industry in Canada failed to increase capacity utilization in the industry (ICP, 2012). This was because the marketing of the raw farm produce was heavily regulated with regulatory authorities setting the minimum price of farm produce, control product quantity as well as allocating products to processors. Increase in capacity utilization in the sugar industry in Nigeria was made possible by backward vertical integration strategy which resulted in many firms being involved in farming sugar cane (Akpan et al., 2013). Obtaining inputs straight from suppliers was a critical strategy to increase capacity utilization and this would go a long way in reducing costs of the final product thus competitiveness was ensured (Mutopa & Ndlovu, 2013). They further argued that firms which were getting their raw materials straight from suppliers especially from Asia have significantly and unequivocally increased their capacity utilization due to availability of raw materials.

Working capital is a necessity in the functioning of both small and large business that is from a retail shop to a manufacturing concern (Awan, Shahid, Hassan, & Ahmad, 2014). Proper management of working capital will see organizations reaping benefits beyond what is expected in the finance department (Davies & Merin, 2014). Working capital management is necessary since it plays a vital role for the success or failure of an organization due to its effects on firm's liquidity and profitability (Vural, Sökmen & Çetenak, 2012; Osundina, 2014). Bansak, Morin, & Starr (2004) found out that boosting working capital worked as a better strategy in the manufacturing sector since this made it possible for the sector to invest heavily in technology thereby increasing capacity utilization. Shortage in working capital result in underutilization of machinery. The proper management of working capital in the food and beverages industry in Nigeria improved capacity utilization of the sector thereby improving profitability of the same (Osundina, 2014). According to Davies and Merin (2014) one of the best strategies to increase capacity utilization is to keep more inventories which is an important aspect of working capital. Blinder and Maccini in Omolade and Mukolu (2013); and Blinder and Maccini in Awan (2014) found out that organizations which kept more inventories were more viable since they could cut costs of possible interruption in production thus maintaining favourable production levels. The need to avoid disruption in the production process was the reason why firms kept more inventories (Mathuva in Omolade, & Mukolu, 2013).

METHODOLOGY

This research adopted a quantitative research design and a total of 102 managers were surveyed from three organizations in the milk processing industry, and the response rate was 60.7%. The study focused on managers since they are the people with the relevant information

about strategies which were adopted by the milk processing industry. SPSS was used to calculate chi squared in order to test the association between strategies which were employed in industry and the increase in capacity utilization.

FINDINGS

It was found out that two organizations were operating at 20 % and 40% respectively while the third organization was operating between prior to the adoption of the strategies to increase capacity utilization. However, the first two organizations were still operating at between 20% to 40%, whilst capacity utilization at the third organization improved to between 61% to 80%.capacity utilization after the adoption of various strategies. This shows that, on average the strategies were beneficial to but capacity was generally below 60% capacity utilization levels.

The study also sought to establish the relationship between investment in technology in the milk processing industry and capacity utilization, and the following hypothesis was tested:
H0: There is no relationship between investment in technology and increase in capacity utilization.
H1: There is the relation between investment in technology and increase in capacity utilization.
Using Chi Squared test, H0 is rejected whenever the P value is less than 0.05 and we fail to reject H0 if the P value is above 0.05. The P value was 0.026 and the null hypothesis was rejected. It can be concluded that there was a relationship between investment in technology and increase in capacity utilization. This concurs with the ideas of other researchers. Kehinde et al. (2013) propounded that productivity enhancement within a manufacturing concern can only be realized through technological innovations. Investment in technology is vital in all organizations in different industries particularly the manufacturing industry since this can go a long way in reducing production costs as well as improving capacity utilization (Mutopa & Ndlovu, 2013). At Company A the immediate result of the commissioning of $4 million rehabilitation of the sterilized milk plant has enhanced efficiencies with maintenances cost going down by 30% in the period up to April 2015 (Sibanda, 2015).

Investing in technology, strategic acquisition of raw materials and boosting working capital were strategies which were found to be often used by all organizations, with the introduction of new products being sometimes used in a bid to boost capacity utilization. All three organizations focused more attention towards investing in technology while decommissioning older plants. It was found out that investment in technology was the most used strategy by all players in the industry and this has largely improved production levels in some segments of the industry. However, some other companies were doing better than others in terms of technology. At Company C and Company B, 47.5% and 22.7% respectively disagreed that poor technology was affecting capacity utilization whilst only 9.7% disagreed at Company A. Mtomba (2015) reported that Company invested US$30 million to upgrade the production capacity of its plants.

The study also sought to establish whether availability of resources led to the success of new technology. Firms which recorded high levels of capacity utilization indicated that they had enough resources which enabled them to invest in technology. Company A introduced a new product to boost its production levels but the fact that the company had no enough resources to support this initiative explains why the company is still operating at between 20% to 40% levels of capacity utilization, as the company was actually failing to meet customer demand of the new product due to shortage of resources. Forty six percent of the respondents agreed that the availa-

bility of resources made it possible for their respective companies to invest in technology. Company C was operating at between 61% to 80% level of capacity utilization due to the availability of resources. Firms which recorded lower production levels in the food manufacturing sector in India did not embrace technological advancements (Ali et al., 2009). The lack of resources in these organizations made it impossible for them to embrace new technology and this greatly affected capacity utilization (Ali et al., 2009). Also, lack of resources was the reason why the food processing industry in Canada failed to embrace technology in a bid to improve capacity utilization (ICP, 2012). Given these findings, the following hypothesis were tested:

H0: There is no relationship between strategic acquisition of raw material and increase in capacity utilization.

H1: There is the relationship between strategic acquisition of raw material and increase in capacity utilization.

The P value of 0.002 was less than 0.05 and the Null hypothesis was rejected, thus it can be concluded that there is a relationship between strategic acquisition of raw materials and increase in capacity utilization. The ICP (2012) reported that capacity utilization in the food processing industry in Canada was affected by the supply of critical inputs.

Of the three organization looking at exploiting new markets, two indicated that they were looking to extend into the regional market with Company B looking to expand into Mozambique targeting sales of $555 000 and Company A exploring markets for its range of leading brands and was targeting Zambia and Mozambique in the wake of weak domestic demand due to low disposable incomes (Sibanda, 2015). However, this was likely to be hampered by the shortage of raw materials and working capital which have been cited as key impediments to such an undertaking. For example at Company A, the intake of raw milk was low and according to company's report for the period up to April 2015, supply was being boosted by the acquisition of 500 heifers and that the company intended to acquire an additional 500 heifers by year end. To this end, a $1.6 million facility had been secured for the purpose. Whereas adding volumes would surely increase capacity utilization, the companies were likely to be hamstrung by the lack of resources. The heifer project is contributing only 10% to Company A's current intake of raw milk meaning that the raw material will continue to be in short supply thereby suppressing capacity utilization for the foreseeable future. For instance, Company C indicated that there was enough resources at the company and the company is now operating at between 61% to 80% level of capacity utilization.

The influx of imports into the Zimbabwean market at a cheap price has adversely undermined production levels in the industry. All companies were feeling the impact of the influx of imports which continued to register an upward growth trend. Ninety seven percent of the respondents agreed that capacity utilization was being affected by imports from other countries while 3% of the respondents were not sure. All the respondents agreed that decrease in demand impacted negatively on the capacity utilization rate in the milk processing industry. The weak demand has been a result of a decrease in disposable income causing a decrease in capacity utilization in all organizations. This has seen most of the companies in Zimbabwe opting for international markets as a strategy to boost capacity utilization through looking for new demand of their products. As a result of competition and squeezed disposable income the focus on low value products and widening the product mix is justified. This will not necessarily result in improved capacity utilization which according to the study remained stagnant.

A total of 32.3% of respondents disagreed that they were making enough investments in research and development (R&D) when introducing new products. About 19.4% were not sure, and 48.4% agreed that they were investing enough in R&D. The following hypothesis was tested to establish whether the introduction of new products improved capacity utilization:
H1: There is the relation between introduction of new products and increase in capacity utilization.
The P value of 0.178 was above 0.05 and the null hypothesis is accepted which stated that there was no relationship between introduction of new products and improvement in production levels of the milk processing industry. However, this is contrary to what other authors reported. The burgeoning of production capacity of the yoghurt industry in New York was made possible by the introduction of Greek yoghurt and this created more jobs in the industry (Boynton & Novakovic, 2013). Sustainable business success is brought by the introduction of new products (Bhuiyan, 2011). Introduction of new products was said to be at the core of competitiveness through increase in production capacity (IBM, 2013). The introduction of new products at Company A was a good idea to increase capacity utilization at the company. However, the company is failing to channel adequate resources towards the improvement of performance in these new lines of business.

Factors like power shortages, weak government policies and decrease in demand were also found to be affecting almost every organization in the industry. Factors such as increase in interest rates and shortage of working capital had little impact on Company C as the company was not relying on local funding only. Company A which was borrowed to the tune of above US$11 million was feeling the impact of interest rates and this heavily affected capacity utilization of the company. Company B was mainly affected by lack of raw materials and its size as well. Though Company B has invested more in technology, lack of raw materials has adversely affected the company's production levels. This shows that these strategies do not work in isolation.

Ninety eight percent of the respondents agreed that their operations were hamstrung by power shortages which greatly affected their production levels and this is the reason why most companies like Company A have invested in standby diesel generators (Moyo, 2011). About 98% of the respondents agreed that weak government policies were instrumental in as far as the decline in capacity utilization was concerned. Failure by the government to come up with consistent policies remained the reason why investors are shunning the country thereby reducing levels of investment in these companies. This has gone a long way in denying an opportunity for these organizations to improve their production levels.

CONCLUSIONS AND RECOMMENDATIONS

Several factors have undermined capacity utilization levels in the milk processing industry. Power shortages, weak government policies, poor technology increase in interest rate, shortage of skilled labour, the influx of cheap imports, decrease in demand, shortage of raw materials, high prices of raw materials, poor infrastructure and shortage of working capital among others have adversely affected capacity utilization in the milk processing industry. However, it must be noted that the demand for milk products remains high in Zimbabwe but the fall in disposable income has forced customers to opt for cheap imports. Investing in technology, strategic acquisition of raw materials and boosting working capital were strategies which were very often used by

all organizations with introduction of new products being sometimes used in a bid to boost capacity utilization. Thus investing in technology was the most used strategy in the industry.

The milk processing industry must harness the supply of milk from small holder farmers instead of focusing only on big commercial farmers. In addition to importing heifers, cross breeding of the available cattle herd can go a long way in boosting supply of raw materials for these companies. Firms in the milk processing industry should consider resourcing small holder farmers to produce raw milk with a view to boosting capacity utilization in the industry. The firms in the industry must invest more in technology since the strategy was said to have a greater impact on capacity utilization hence a lot of resources must be channeled towards bringing in new technologies. However, it must be noted that these strategies do not work in isolation. Lack of resources was said to be condemning operations in the industry hence the need to curiously and prudently devote more time and effort in sourcing resources. Organizations lacking resources must consider embarking on strategic partnership since this can broaden the resource base of these organizations. Also, companies may not declare dividends and decide to use the funds in expanding business or investing in new projects to boost capacity utilization since borrowing can prove to be costly. There is need for the industry to focus on reducing costs of production for the industry to be competitive as this initiative will go a long way in making sure that the industry will stand the competition from imports. Lobbying for government to come up with protective measures to protect the industry from cheap imports is also another way to go. Increase in duty on these cheap imports will result in increase in the costs of these products thereby rendering these products uncompetitive. The opening foreign markets must be expedited in order to increase demand and subsequently capacity utilization.

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