



Determinants of Ethiopian Meat Export Abattoirs Performance

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Abstract

The objective of the study was to identify the main determinants of the Ethiopian meat industry's export performance. Kendall's Coefficient of Concordance (W) was used to measure differences in the ranking of variables and the degree of concordance among the respondents. Internal factors determining the Ethiopian meat industry's export performance, constraints in getting qualified and trained labor from the domestic market, and limited technology transferred from support institutions were ranked high with a mean rank of 2.93 and 2.92, respectively. Shortage of working capital was ranked least with a mean rank of 1.77 followed by manager educational readiness. Among external factors determining the Ethiopian meat industry's export performance, the existence of electric power supply interruption, involvement and the act of intermediary in live animal marketing, and entrant of new investment in the sector were ranked high being the top three determinant variables with a mean rank of 6.22, 6.00 and 5.92, respectively. The presence of illegal cross-border trade of live animals was also scored high with a mean rank of 5.73. Kendall's (W) test strength to judge external factors determining export abattoirs performance in Ethiopia was found strong (0.48) with a significance level of 0.000. Strongly works to stop illegal meat animal export by Government, the existence of a premium price scheme for quality meat animals, benefits from coordination among meat export abattoirs and lack of meat animal supply resulting from high domestic consumption were among the external determinants scored the least importance with the mean rank of 2.88, 2.93, 3.00 and 3.32, respectively. Hence, the existence of electric power supply interruption, involvement and the act of intermediary in live animal trade, entrant of new investment in the sector and presence of illegal cross-border trade of live animal, constraints in getting qualified and trained labor from domestic and limited technology transferred from support institution was identified as the main determinants of Ethiopian meat export abattoirs performance.

Keywords: Cross-border; Illegal; Intermediary; Live animal; Power supply

Introduction

Ethiopian livestock plays an important position in providing export commodities, such as live animals, meat and slaughter by-products, leather products, hides, and skins to earn foreign exchanges to the country [9]. Export marketing of livestock products like meat plays a significant role in changing the lives of rural and urban populations, particularly those involved in the production, processing, and marketing of those commodities. With the rapid growth in demand for meat products in the world, Ethiopia's opportunity to export meat to Middle East countries and other African countries has been growing. The meat export industry sub-

sector is becoming one of the sub-sectors that have been given development priorities by the Ethiopian Government to increase the sub-sectors productivity and its economic contribution at large. The sub-sub-sector has undoubtedly contributed to the poverty reduction effort of the country by generating foreign currencies and creating employment opportunities.

Ethiopia has a huge livestock wealth inventory in the world. The country has some important opportunities to influence the meat and live animals industry, particularly the export sector [5]. The number of modern livestock products industry, particularly meat

export firms established in the country has been on the rise. In the country, the number of abattoirs, capacity, the volume of meat exported, and the hard currency earned from this industry (meat) is getting ever-increasing [20]. The abundant livestock population, which is supposed to be an adequate source of supply for the sub-sectors industry, export abattoirs in Ethiopia is, however, confronted with several factors that affect their performance. The country's current share in the global export market for meat is quite small [21]. revealed improving productivity and market success sighting that although the country is endowed with a very high potential of livestock resources, the contribution of the sub-sectors to the national economy is much below the potential.

Meat production offers the opportunity to serve Ethiopia's domestic market and drives much of the rest of the livestock value chain [18]. The export abattoirs are competing for the supply of live cattle, sheep, and goats with the demand for live animals for domestic consumption, and for formal and informal (cross-border) trade [8]. Informal marketing, in general, accounts for 80 to 90% of the county's export of live animals [14]. An inadequate supply of good quality live animals in the formal market occurs because of illegal cross-border trade, and a lack of infrastructure [22,7]. The informal cross-border trade results in an inadequate supply of the required quality animals for meat processing plants or abattoirs, which causes below potential performance [6,7]. Shortage of consistent and competitive supply of slaughter animals that meet quality requirements for both export and domestic markets is a challenge [13]. Presumably, various factors associated with the less performance of meat exporting firms in Ethiopia emanated from both the firm level and the business environments which need critical analysis as per their weight and prioritization. It is, therefore, the objective of the study was to identify the main internal and external determinants of the Ethiopian meat industry's export performance.

Material and Methods

Study population

The population for the study engulfed all Ethiopian meat export abattoirs. There were eleven meat exporting abattoirs, where located in different parts of Ethiopia. Among the existing meat export abattoirs, ten of them were considered. The reason why one export abattoir was excluded during the survey conducted; was since it was in pilot operation. General, production, and marketing managers were purposefully selected from each meat export abattoir. The targeted sample needed to have an exposure to direct management, because they were fully participating and facing the constraints that hampered meat export performances in Ethiopia. Accordingly, the total numbers of samples surveyed were 30 individual in the meat export abattoir firms.

Study Design

The survey research design was employed to assess and identify major determinants of Ethiopian meat export abattoirs' performance. Moreover, the study was a cross-sectional survey design. This was since a cross-sectional survey design is the type of survey design in which necessary data is collected at one point in time from a particular set of population.

Data Collection

To assess and identify the major determinants of meat export performance in Ethiopia primary data were collected through questionnaires and surveys. A questionnaire was used to collect feedback from the potential respondents, delimited to infrastructure, legal, market, the raw material (live meat animal), coordination (among export abettors), labor, technology, finance/capital, and managerial constraints.

Data Analysis

Collected data were coded and analyzed using Statistical Package for Social Sciences (SPSS) version 23. Respondents' perceptions of each meat export abattoir attribute were assessed by the use of a one-stage 5-point Likert scale. Thus; 5 = strongly agree; 4 = agree; 3 = neither; 2 = disagree; 1 = strongly disagree were used.

Kendall's Coefficient of Concordance was used to measure differences in the ranking of variables and the degree of concordance among the respondents. The Kendall's Coefficient of Concordance test is a nonparametric statistical procedure used to identify a given set of constraints or problems, from the most influential to the least influential as well as to measure the degree of agreement or concordance among the respondents [14].

To evaluate important determinants of meat export abattoirs constraints among the respondents, Kendall's coefficient of concordance (W) was used; a statistical tool that allows analyzing data gathered from several responses to be ordered or ranked. Thus, the inferential statistical test-Kendall's W Test was fitted to determine if there is any significant difference in the various rankings of infrastructure, legal, coordination, marketing, live animals, labor, technology, finance/capital, and managerial constraints in influencing the performances of Ethiopian meat export firms. A higher mean rank indicates the importance of the factors and vice versa.

The test statistics or the Kendall's coefficient of concordance, Kendall's W were computed as show:

where; W = Kendall's value, N = total sample size, R = mean of the rank. Kendall's coefficient of concordance (W) is a measure of the extent of agreement or disagreement among respondents of the rankings obtained. The value of W is positive and ranges from zero

to one where one denotes perfect agreement among respondents of the rankings and zero denotes maximum disagreement [19].

Result and Discussion

Internal factors

Internal factors determining the performance of Ethiopian Meat export abattoirs, constraints in getting qualified and trained labor from the domestic market, and limited technology transferred from support institutions were ranked high with a mean rank of 2.93 and 2.92, respectively. Shortage of working capital was ranked least with a mean rank of 1.77 followed by manager educational readiness (Table 1). The model further detected that the respondents were significantly concordant in ranking the variables to find out internal factors determining Ethiopian meat abattoirs export performance. It is inferred from the result that the judges' assessments were statistically concordant with the coefficient of concordance strength of 0.22 at a $p < 0.000$ significance level. Kendall's (w) is 0.22, which has indicated that there has been a weak agreement of opinion among the respondents of meat export firms in assigning ranks for the attributes of internal factors. When viewed as the reliability test, specifically, Kendall's Coefficient of Concordance showed that the constraints facing the respondents were distinct to the export abattoirs they worked with, and as such a constraint that was very severe to one abattoir was not the same with another farm.

Table 1: Internal factors determining meat export abattoirs performance in Ethiopia.

Internal Determinants	Mean Rank	Rank
Constraints in getting qualified and trained labor from domestic	2.93	1 st
Limited technology transferred from support institution	2.92	2 nd
Managers educational readiness	2.38	3 rd
Shortage of working capital	1.77	4 th

$W = 0.218$, Asymp. Sig. = 0.000, Significant at $\alpha < 0.05$, $N=30$

It is, therefore, the most pressing determinant internal factor hampering the export performance the sub-sector identified was a high constraint in getting qualified and trained labor from the local market. This determinant factor might be contributing to the low labor efficiency which in turn increases the cost of production either by exposing the export abattoirs to incur the extra cost to train the existing or to hire extra as a result of current labor inefficiency. Hence, at the end of the day, it may hamper abattoirs' export performance by threatening their competitiveness. This finding is concordant with the World Bank Group (2015), which

reported that in Oromia and Dire Dawa productivity levels lag behind the national average. It is, therefore, as far as more than about 82% of the export abattoirs were located in Oromia Regional State, the lagged labor productivity may be impeded factor in the performance of export abattoirs.

The second most severe constraint that the export abattoirs faced was limited technology transferred from support institutions. This implies that the involvement of support institutions, regarding technology transfer to solve the technical problems of export abattoirs that hamper their performance through research and development looked somewhat weak. Similarly, [20]. reported that limited coverage of research and development interventions in the sector and limited skill to handle the challenges in the meat sector were the challenges observed in the sector.

Comparatively, the shortage of working capital ranked least might be due to the secured financial requirements to invest in the business on its own. The majority of meat export abattoirs' raw material (live animals) demand was sourced from the domestic market and hence hard currency demand by export abattoirs in Ethiopia is relatively small as compared to other industries. This finding is against [17], who reported lack of access to pre and post-shipment export finance, was the fundamental constraint on export growth in Ethiopia.

External Factors

The model detected that among the eight variables considered measuring the external determinants of meat export abattoirs' performance in Ethiopia (Table 2). The existence of electric power supply interruption, involvement, the act of intermediary in live animal marketing, and the entrant of new investment in the sector was ranked high being the top three determinant variables with a mean rank of 6.22, 6.00, and 5.92, respectively. The presence of illegal cross-border trade of live animals was scored high with a mean rank of 5.73. The Government of Ethiopia strongly works to stop illegal meat animal export, the existence of a premium price scheme for quality meat animals; benefits from coordination among meat export abattoirs, and lack of meat animal supply resulting from high domestic consumption were scored least importance with a mean rank of 2.88, 2.93, 3.00 and 3.32, respectively. A Kendall's W of standardized test statistics proved that there was agreement among respondents and the significant difference among mean ranks was identified in external determinant factors. Since Kendall's coefficient of concordance (W) strength to judge external factors determining export abattoirs performance in Ethiopia was found strong (0.48) with a significance level of 0.000.

Table 2: External factors determining meat export abattoirs performance in Ethiopia.

External Determinants	Mean Rank	Rank
Existence of electric power supply interruption	6.22	1 st
Involvement and act of intermediary live animal marketing	6	2 nd
The entrant of new investment in the sector	5.92	3 rd
Presence of illegal cross-border trade of live animal	5.73	4 th
Lack of meat animal supply resulting from high domestic consumption	3.32	5 th
Coordination among meat export abattoirs	3	6 th
The existence of a premium price scheme for quality meat animals	2.93	7 th
The Government strongly works to stop illegal meat animal export	2.88	8 th

W=0.48, Asymp. Sig. = 0.000, Significant at $\alpha < 0.05$, N=30

The existence of electric power supply interruption was identified and considered a major determinant factor affecting the performances of the existed Ethiopian meat export abattoirs. Electric power interruption and/or lack of power supply may lead export abattoirs either to stop production or to incur an extra cost as a result of using other power options (fuel generator). In nutshell, the existence of power interruption in Ethiopian export abattoirs hampers their meat export performance by increasing their cost of production and/or decreasing product delivery time efficiency which in turn results in increased customer complaints. The result might be a loss of customers.

The highest mean rank on involvement and act of intermediary in the live animal market in the meat industry was identified and considered as the second major factor affecting the performance of meat export abattoirs in Ethiopia. As the involvement and act of price intermediary negotiators across the meat value system (among meat animal producers, collectors, traders, and export abattoirs) increased there might be a tendency to increase the transaction cost than add value. This, in turn, decreases competitiveness particularly by limiting export abattoirs' ability to compete by price and at the end of the day negatively affects the performance of export. An unstable and non-ethical market environment will prevent an effort to increase the supply of exportable animals from the source areas [3].

Intermediary negotiators intentionally create a communication gap between buyers and sellers (producers) and arbitrate them in the way they need in the live animal market. Moreover, next to intermediary existence the highest mean rank scored by the existence of new entrant investment in the meat industry is another major factor affecting meat export performances. With the absence of a new market outlet, the new investment in the meat sector may increase the probability of vulnerability to stiff competition for this limited market destination, and therefore may be snatching of the

customer through price reduction might be the ultimate strategy. These all together with the absence of a new market segment and/or destination the new investment might hamper the performance of existing export abattoirs preassembly as a result of competition in the same market even in some cases for the same customers. A similar report by [12], reported that export abattoirs were complaining about a shortage of shoat (sheep and goat) supply for export markets; they were even unable to meet the already requested quantity by their customers, let alone searching new market for shoat meat.

New entrants and emerging investments in meat export abattoirs might be made a shortage of meat animals and create stiff competition for raw materials which in turn increase the purchasing price of live animals. Consequently, a lack of quality and transparency may lead to producing low-quality meat which is unfit for the client's country's requirements. Irregular, variable quality and lack of transparency in the supply of meat animals as a result of domestic market demand increases following major holidays, and also Ramadan fasting season usually overlaps with the dry season in the pastoral areas (since highlands small ruminant are not usually targeted for meat export) export abattoirs complained that they are not getting enough supply of small ruminants during these seasons. This finding is in line with [13], who reported the shortage of live animals, as one of the main challenges facing the Ethiopian meat industry sector. Thus, shortage of supply of live animals for export abattoirs, matching exporters' demand with market supply is a major observed problem.

The highest mean rank observed regarding the expansion of illegal cross-border trade of live animals was the fourth main factor that affects Ethiopian export abattoirs to enhance their meat export performance. Actors who participate in illegal animal trade relatively more benefitted as compared to the legal animal exporter, because they might have little legal liability and procedures to follow including health certification, tax, and customs clearing and therefore they might have an illegal competitive advantage in smuggling live animals. Moreover, actors in this illegal cross-border animal trade might have the advantage to support their hard currency demand for importing (for those engaged in importing other commodities), even though, they traded it in black-market currency. Hence, though there is a legal ground, live animals marketing proclamation rarely denied this illegal activity. Multiple illegal competitive advantages attract the smugglers and the practice might hinder the performance of legal meat export abattoirs. This implies that legal meat exporters were thus constrained due to the shortage of live animals created by the illicit export. Since, the booming informal trade of live animals across the frontiers of neighboring states has kept significant numbers of animals from reaching abattoirs in Ethiopia [1]. Similarly, [4] reported that informal marketing, in general, accounts for 80 to 90% of the country's export of live animals. In Ethiopia, the estimated

annual illegal livestock flows through boundaries reached as high as 320,000 cattle [22]. Furthermore, the current study findings supported by [10], who reported informal or illicit cross-border trade accounts for the majority of live animal exports from Ethiopia, as it tends to be simpler and less expensive for exporters, and therefore legal export of both live animal and processed meat is thus constrained due to shortage legal systems created by the illicit export. [18] noted that the main challenge for the beef cattle value chain was the unofficial cross-border trade dominated by influential personalities and illegal export.

Strongly working to stop illegal meat animal export by the Government scored least by the export abattoirs. The prevalence of illegal live animal export is contributed to shortages of supply for meat export abattoirs. The delegated government structure operating to control illegal cross-border live animal trade might be hardly made harsh penalties such as catching any persons intimidating the law and confiscating their animals. This situation might be led the existing export abattoirs to operate far beyond their installed capacity (very low capacity utilization). This is apparently due to the inadequate supply of the required quantity of live animals for meat processing by the export abattoirs which makes them less competitive in the global or regional meat market. Livestock trade in Ethiopia as reported by [12] is characterized by informal cross-border trade between adjacent neighboring countries, mainly Somalia and Kenya, where the livestock are used either for re-export or domestic consumption. Contraband/smuggling and illegal trade have a major impact on the livestock marketing system through loss of foreign exchange; income taxes and its impact on legal livestock trade [11].

The least scored for the existence of a premium price scheme for quality meat animals revealed that export abattoirs hardly pay the higher premium price for meat animals implies that the purchasing strategies of live animals may be on weight bases, either live weight or carcass weight base. This weight-based live animal purchasing scheme indicated that somewhat weak attention has been given to quality-based payment and purchasing strategies. Weak attention given to quality-based payment and purchasing strategies, in turn, makes the supplier deliver poor quality and lacks transparency; meat export abattoirs also may lead to producing low-quality meat export which lag behind importing countries' meet quality standards. The result may increase domestic demand and may pay a better premium price than meat export abattoirs.

Least ranked benefit from coordination among meat export abattoirs was noted. It might be due to poor linkage among meat export abattoirs. Institutional problems are mainly associated with regulatory constraints. The presence of poor coordination among meat export abattoirs might lead to the existence of stiff competition among the export abattoirs instead of allying to create a network to foster business growth in the sector. Lack of coordination among meat export abattoirs might lead them to hardly exploit the great

potential. Thus, the existence of stiff competition among firms is a major factor affecting the performance of the existed Ethiopian meat export abattoirs. Stiff competition among export abattoirs might exist across the value system, it may exist on the backward linkage for meat animal supply as a result of the absence of backward vertical integration (own source of raw materials), and absence of market-oriented animal husbandry like ranches. As far as almost all Ethiopian export abattoirs sell their meat products in the same market the competition may exist on forwarding linkage as a result of limited integrated forward vertical integration and lack of assessment of new market segments and/or destinations. The coordinated and smooth functioning of the market enhances the volume of trade and the benefit that different participants and the economy can drive from the market [12].

Lack of meat animal supply resulting from high domestic consumption was scored least, which might be due to the low-income economic status of the majority of the population in Ethiopia. People with a higher social or economic status demand a greater amount of high-quality meat products. As cited by [11] from [2] noted that Ethiopians remained slightly below the meat intake of all low-income countries and consumed 9 kg per capita annually. Thus, the shortage of meat animal supply to export abattoirs might hardly be resulting from high domestic consumption.

Conclusion and Recommendations

Constraints in getting qualified and trained labor from domestic and limited technology transferred from support institutions were the major internal factors determining the performance of Ethiopian meat export abattoirs. The existence of electric power supply and interruption, involvement and act of intermediary, the entrant of new investment in the sector, and presence of illegal cross-border trade of live animals were the most important pressing external determinants faced by Ethiopian abattoirs that hampering their meat export performance. Ethiopian meat export abattoirs' performances are mostly influenced by electric power supply interruption, involvement and act of intermediary, the entrant of new investment in the sector, and the presence of illegal cross-border trade of live animals. Strongly works to stop illegal meat animal export by Government, the existence of a premium price scheme for quality meat animals, poor coordination among meat export abattoirs, presence of high domestic consumption, and shortage of capital was found to be negligible in determining meat export abattoirs performances. There is an urgent need to revise legal and regulate illegal cross-border live animal trade by Government to ensure adequate and quality live animals supply for export abattoirs to meet their slaughter and processing needs to improve their meat export performance. Further market-related development is required to solve the fundamental constraints of the shortage of live animals to improve meat export abattoirs' efficiency and competitiveness. Annual off-take, productivity, and consumption levels of meat have to be adequately studied.

Acknowledgment

None.

Conflict of Interest

No conflict of interest.

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