



# **Moderating Effect of Regulatory Framework on the Relationship Between Integrative Leadership and Performance of Fresh Tomato Agribusiness in Kenya Lake Region Economic Bloc**

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## **ABSTRACT**

The objective of this study was to examine moderating effect of regulatory framework (RF) on the relationship between Integrative Leadership and Performance of Fresh tomato agribusinesses in Kenya Lake Region Economic Bloc. The target population for the study was 297 consisting of 269 registered fresh tomato agribusinesses (suppliers, wholesalers and retailers), 14 county crops officers and 14 county trade officers in KLREB. A pilot study included 17 respondents from Kisumu County. Primary data was collected using a structured questionnaire. There was a negative moderator coefficient of -0.005 that implied that the moderating effect of regulatory framework was negative where it decreased the effect of integrative leadership on performance of fresh tomato agribusinesses by 0.5%. Overall, inappropriate packaging increased damages and food loss by between 79% and 90% and the 10 to 21% food saved from loss through appropriate packaging can be associated to regulation of packaging that reduce earned 0.5% reduced effect of integrative leadership by wholesalers who always demand the crates to be heaped. This study, established that damages caused by unregulated heaping are equivalent to the difference between damages incurred from inappropriate packaging and damages incurred from appropriate packaging along the supply chain adding up to 13.2% (14.7% from heaped 50kg crates minus 1.5% from 30kg flat crates). Farther, the study established that the regulation has unintended outcomes that enhanced regulatory framework increases the cost of transporting tomatoes (produce) by between 14% and 433%. To enhance performance of FTAs in the KLREB, the study recommends amendment of Crops regulations, 2019 crops ACT No.16 of 2013, regulation 36 sub-regulation 3. The study farther recommends concerted efforts to involve FTA owners in coming up with policy regulations concerning tomato packaging and formulate policies geared towards fostering collaborative partnerships to ensure adoption of appropriate packaging that optimise performance. The study provides useful information to guide policy formulation with regard to the preferred packaging and adds to existing literature to be used for further research.

Key words: Fresh Tomato Agribusinesses, Value System, heaped, Flat, Regulatory Framework

## **INTRODUCTION**

A number of factors influence performance of fresh tomato agribusinesses but this article presents the moderating effect of regulatory framework on the relationship between integrative leadership and performance of fresh tomato agribusiness in Kenya lake region economic bloc. Packaging materials are very vital for minimizing damage to horticultural materials resulting from impact and transport vibration (Bwade et al., 2019).

The East African regulation (East Africa Standards 8-EAS 38) has a code of packaging that requires labelling of the product, and EAS 39 that spells the hygiene standards of foods including tomatoes (EAC, 2000). Kenya regulate packaging of agricultural products weight per packaging of food crops to a maximum of fifty kilograms (Kenya Parliament, 2019) as public interest regulation to correct undesirable market results of competition. The current study focused on the regulation of packaging materials as per the act of parliament the Crops (Food Crops) Regulations, 2019, Regulation 36 sub-regulation 3 stating that the maximum weight for the packaging of each single unit of any food crop shall be fifty kilograms (Kenya Parliament, 2019). Integrative leadership determines the success of regulation, and value chain management of agribusinesses being regulated, which together lead to superior performance of the organizations in the network.

This study established that there is significant positive relationship between regulatory framework and performance of fresh tomato agribusiness in Kenya Lake Region economic bloc portrayed that regulatory framework enhanced performance to 21.4% at 5% level of significant above the 12.1% that was yield by integrative leadership and value chain management. Enhanced regulation through regulatory framework improved performance of fresh tomato agribusiness by 7.6% in Kenya Lake Region Economic Bloc KLREB by reducing the negative effect of integrative leadership by 0.5%.

The current study, affirmed that appropriate and proper packaging protects horticultural materials (tomatoes) from damages resulting from impact, handling, exposure and transport vibrations but this requires proper regulation and enforcement through regulatory framework. Between 30% and 50% of fruits and vegetables are lost when transported in traditional packaging in SSA (Mibulo et al., 2020) of which this study established that 79% to 90% of these losses can be reduced by using effective packaging. As established by this study, 82.2% of fresh tomato traders does not use packaging as recommended by Crops regulations, 2019 crops ACT No.16 of 2013, regulation 36 sub-regulation 3 hence they heap crates despite the fact that they generate higher damages and cause more food loss, with 30kg heap packaged crates being the most used at 31.7%, followed by 50kg heaped crates at 25.4% and lastly 100kgs heaped crates at 20.9%.

Regulatory framework (RF) is a legal mechanism that exist for reforming and enacting rules in an effective and logical way, and includes laws, rules, regulations, policies, sanctions, organizations, individuals, whistle-blowers, contractual obligations, institutions that implement and enforce regulations, integrity, pacts, and code of conduct of the actors in the regulated industry (DCAP, 2023). Regulation intervene to control the functioning of individuals and group of entities to make social interactivities and undertakings foreseeable, and to reduce unpredictability by setting expectations such as rules and consequences (Heijden, 2019), which is the intention of Kenya Government in the formulation of Crops Act, 2019 section 36, subsection 3 which provides packaging guide to agribusinesses. Grade and standards include crates and weights (World Bank, 2008) and level of filling, and in this regard, the researcher investigated crates and weights (level of filling) as grades and standards in fresh tomato agribusinesses in KLREB.

Key performance indicators (KPIs) contribute more than proportionally to success or failure in the market (Van, 2000) and for the current study; KPIs for each variable were identified and operationalized. The five KPIs used in these study are evident improvement in efficiency of operations of regulated businesses, Minimized probability of unintended negative impacts on entities regulated, minimise the potential for unintended negative impacts of regulatory activities on regulated entities, effective communication within regulated entities and to the regulating authority, evidence of coordinated monitoring approaches by integrative leaders in the network to ensure that the regulated businesses adhere to the stipulated legal requirements, processes and procedure and continuous improvement of the general legal requirements, processes and procedures is a key performance.

The specific objective for this study was to examine the moderating effect of regulatory framework on the relationship between integrative leadership and performance of fresh tomato agribusiness in Kenya Lake Region economic bloc. The study was conducted between April and September 2024 in the fourteen counties of Kenya Lake Region Economic Bloc, namely; Migori, Kisumu, Homa bay, Kericho, Siaya, Busia, Bungoma, Vihiga, Nandi, Trans-Nzoia, Kakamega Nyamira, Kisii and Bomet.

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## LITERATURE REVIEW

### Theoretical Framework

A theory of regulation is a set of propositions or hypotheses about why regulation emerges, which actors contribute to that emergence and typical patterns of interaction between regulatory actors (Bronwen & Karen, 2007). French economists Michel Aglietta, Alain Lipetz, and Robert Boyer pioneered regulation theory, during the Fordism accumulation regime in the early/mid-twentieth-century (Oxford Reference, 2023). George Stigler's "Theory of Economic Regulation," states that regulation arises solely to advance the overall public interest by correcting market failures and "regulation is acquired by the industry and is designed and operated primarily for its benefit" (Stigler, 1971). George Stigler's theory of regulatory capture received criticism because some believe that he exaggerated the power of firms on regulatory agencies (Weinstein & Kosciński, 2023).

Economic regulations in the market are mainly structural regulation and conduct regulation (Heijden, 2019). The word "conduct" means how you behave, so this is what we now call behavioural regulation (Roger, 2012). Conduct regulation is controlling behaviour in the market through control of prices, packaging materials, rules against advertising and minimum quality standards (Heijden, 2019). Conduct regulation includes public interest theory of regulation that is involved in control of unsound competition, skewed market operation, not present markets, and correction of unpleasant market results (Johan, 1999), such as overfilling crates by fresh tomato agribusinesses in KLREB, packaging crates likely to result in food quality degradation and post-harvest losses due to absence or inadequate enforcement of the regulating laws.

Economic regulation proved necessary in preventing monopolies setting market entry and price controls as a means of ensuring that consumers have sufficient access to good quality and affordable goods and services (Heijden, 2019) and regulation of packaging will reduce food loss and waste, increase income among the actors and make food affordable and accessible. A Conduct regulator typically looks at abusive treatment of customers, such as hidden penalties in products, rewarding staff for mis-selling and dishonest marketing, and drill into the psychology behind them: what makes managers and teams behave badly (Roger, 2012).

### Empirical Literature Review

External forces like regulatory framework influence performance of agribusiness (FAO; Science Agriculture, 2021). Packaging is any material used to contain a product for the purpose of protection, transport, storage (Tapsoba et al., 2022), presentation, preservation, effective handling and as unit of measure. Main causes of food losses in Sub Saharan Africa are poor handling, inadequate storage, transport processes, and poor packaging (Tapsoba et al., 2022) and poor regulation by staff in regulatory framework (LaGra et al., 2016) (Salami et al., 2019) (Kitinoja L. et al., 2019). Regulatory stakeholders such as chiefs and community leaders lack engagement with the tomato value chain actors to sensitise them on post-harvest regulations including packaging regulations (Kitinoja L. et al., 2019). Poor administration of regulations in SSA negatively affects engagements between integrative leaders in a supply chain and other value chain stakeholder (Kitinoja L. et al., 2019).

Kenya government has a law to regulate packaging materials used to transport vegetables in an act of Parliament: The Crops (Food Crops) Regulations, 2019, Regulation 36 sub-regulation 3 of this act states that the maximum weight for the packaging of each single unit of any food crop shall be fifty kilograms but still not enforced (Kenya Parliament, 2019). Creating sustainable mechanisms to ensure the packaging law does not have negative impact and is observed by fresh tomato agribusinesses could lead to improved quality of tomatoes, reduce post-harvest losses, improved handling, increase profitability to the agribusinesses through reduced economic losses.

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## RESEARCH METHODOLOGY

When response rate is above the threshold of 80% then the data collected is desirable, acceptable and adequate to give analysis results that leads to valid conclusions with respect to existing relationships among the variables of interest (Sivo et al., 2006) hence the data for this research was desirable, acceptable and adequate with the study's response rate of 93.3% (sample size was 165 respondents and total responses were 154). Validity is the extent to which the research instrument correctly measures the ideas under study (Mohajan, 2017). Construct validity of the instrument was tested based on Kaiser – Mayer – Olkin (KMO), and Bartlett's test of Sphericity through factor analysis. Keiser-Mayer-Olkin KMO and Bartlett's test of Sphericity helps to understand if the correlation matrix for items under each construct is identity i.e. items under each construct are unrelated. When KMO values greater than 0.50 hence an indication that the questions under each construct were correlated (Shrestha, 2021) and Keiser-Mayer-Olkin KMO Test results for this study indicated that the constructs of integrative leadership, regulatory framework and performance were correlated with 79.7%, 72.6% and 79.6% of questions for integrative leadership, regulatory framework and performance of fresh tomato agribusinesses respectively. All average variance extracted values greater than 0.5 are considered acceptable since 80.0% in pilot study and 92.3% of the items explained the variance in the constructs of regulatory framework an indication that the respondents understanding and interpretation of the instruments content was over 80.0% way above the threshold of 50%. For pilot studies, a sample size of 10% of the sample for final study is sufficient (Chong, 2008) hence the pilot for this study was 17 (10% of 165) participants. To avoid response biasness participants in the pilot study were not involved in the main research study (Saunders et al., 2019). Cronbach value of 0.7 is a strong measure hence reliable as consistency of a tool (Creswell, 2017) and this was adopted as the thresh hold for main study where the results were 0.862 (86.2%) hence the questionnaire was consistent, reliable and sufficient. Regression analysis (process analysis method) was used to establish the moderating effect (Baron & Kenny, 1986) of regulatory framework on relationship between value chain management and performance of fresh tomato agribusinesses in Kenya Lake Region Economic Bloc. The model checked the prediction of the dependent variable; "P" if it differed across levels of a third variable "RF". Since the moderating variable affects the strength and direction of the relationship between the independent and dependent variable, the test involved determination of the statistical significance of the interaction term (Whisman, 2005).

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## FINDINGS OF THE STUDY

The results indicated that 71% of traders in KLREB does not understand packaging requirements as per the law, 73.3% disagreed that the organization, suppliers and customers understand and minimize unintended negative impact of using crates of less or equal to 50kg, enhanced regulation and enforcement through regulatory framework increased the cost of transporting tomatoes to the market by between 14% and 433%. This means that the cost of transporting products in crates that are equal or less than 50kgs increased the cost of transporting tomatoes by up to 5 times the cost when larger crates were used. Farther findings of the study established that enhanced RF reduces performance of wholesalers by 15%. Crops regulations, 2019 crops ACT No.16 of 2013, regulation 36 sub-regulation 3 (Kenya Parliament, 2019) intended to make the business better and not to cause losses to the regulated entities hence increase of the cost of transporting and handling products due to introduction of this regulation is an intended outcome that needs to be addresses by Kenyan Parliament.

The third question under RF measured on a 5-point likert scale was to gauge if the organization understand and communicates to suppliers and buyers clearly and effectively about appropriate packaging and results indicated that 53.3% agreed or strongly agreed that the organizations communicates to suppliers and buyers clearly and effectively on appropriate packaging in the KLREB. Surprisingly, when they were asked in the first question (above) what they understand with appropriate packaging 71% said they don't understand legal requirements in packaging hence the response to this question does not indicate that they support what the law requires but instead they were supporting what they practice and the crates that save them cost particular in transportation.

The fourth question under RF measured on a 5-point Likert scale gauged if the organization, suppliers and customers coordinate monitoring of appropriate packaging. Results showed that a majority at 77.9% disagreed that the organization, suppliers and customers coordinate monitoring of appropriate packaging in the KLREB.

The fifth question under regulatory framework measured on a 5-point Likert scale was to gauge if the organization, suppliers and customers participate in continuous improvement of general legal requirements, processes and procedures in packaging (e.g. having centralized crates making). Results indicated that majority at 93.5% disagreed that the organization, suppliers and customers participate in continuous improvement of general legal requirements, processes and procedures in packaging in the KLREB.

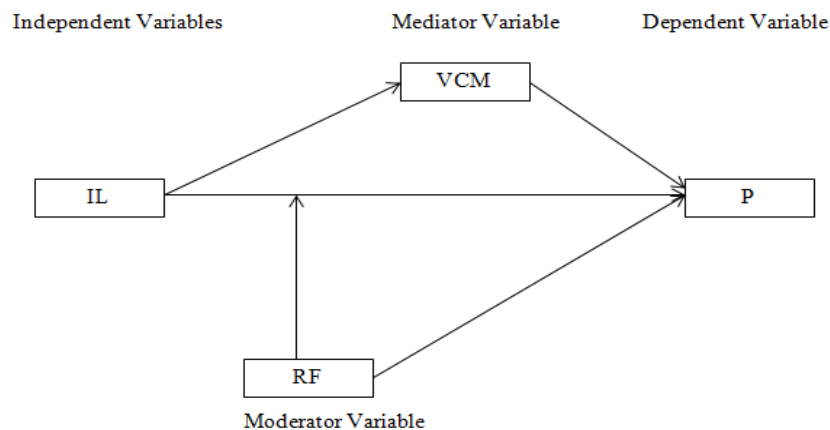
The study results indicated that 31.0% of traders use heaped 30kg crates, 24.8% use heaped 50kg crates, 20.9% use heaped 100kg crates, 4% use 30kg flat crates, 15.5% use flat 50kg crates and 5.5 of traders use flat 100kg crates. In summary 76.7% of traders use heaped crates in their business while only 23.3% of flat filled crates.

Before conducting regression analysis, diagnostic tests of multicollinearity, autocorrelation, residual normality and heteroscedasticity were done to establish if the assumptions of classical linear regression analysis are satisfied. The satisfaction of the assumptions indicated that the analysis results were reliable and valid for purposes of forecasting and policy making. The study established that enhanced regulatory framework improved performance of fresh tomato agribusinesses in the KLREB by 21.4% but reduced the effect of integrative leadership on performance of fresh tomato agribusinesses in the KLREB by 0.5%. Enhanced RF reduced performance of fresh tomato wholesalers in KLREB by 15.3%, increased performance of supplier farmers by 6.6%, supplier to wholesalers by 1.6%, retailers by 6.8% and supplier to retailers by 1.3%. The regulatory intervention influence was evident in some of the counties such as Transzoia where the county government's fresh tomato packaging requirements are standardized with organised and government-controlled crate making centres.

## RESULTS DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

### Moderating Effect of Regulatory Framework on Integrative Leadership & Performance of Fresh Tomato Agribusinesses in Kenya Lake Region Economic Bloc

Results of the study established that there was a significant positive association between integrative leadership (IL), regulatory framework (RF) and performance of tomato agribusiness (P) at 5% level of significance given p-value less than 0.05. Results for wholesalers shown that there was a significant positive association between integrative leadership and performance of tomato wholesalers' agribusiness (P) at 5% level of significance while there was a significant negative association between regulatory framework and performance of fresh tomato wholesalers where enhanced regulatory framework reduced their performance. There was significant positive association between regulatory framework and the other variables for supplier farmers, retailers, suppliers to wholesalers and suppliers to retailers at 5% level of significance given p-values are less than 0.05 for supplier to farmer.



VCM mediating and RF moderating effect conceptual framework on relationship between IL & P

## CONCLUSIONS

Given the study findings, it was concluded that;

Although regulatory framework had a positive relationship with performance, it had a significant negative moderation on the relationship between IL and performance of fresh tomato agribusiness in the Kenya Lake Region Economic Bloc. This means that RF makes efforts to reduce deviation away from regulatory requirements in packaging. Regulatory framework has positive effect of 21.4% on performance since it moderates the effect of using inappropriate packaging.

Conclusions culminated into the inferences of rejecting null hypotheses per study's specific

The null hypothesis that No significant moderating effect of regulatory framework on the relationship between integrative leadership and performance of fresh tomato agribusiness in Kenya Lake Region economic bloc is rejected at 95% level of confidence.

## RECOMMENDATIONS

The study makes recommendations as follows;

### Contribution to Policy Development

To minimise the potential for unintended negative impacts of regulatory activities on regulated entities, the entities give feedback to regulating agency to ensure clarity, regulatory activities co-designed by regulatory agencies to ensure clarity, initiate amendments and minimise compliance costs (WGEA, 2018). Periodical amendments of the regulations regarding effective communication to reflect stakeholders' feedback should be available (WGEA, 2018) and this study recommends amendment of the Crops regulations, 2019 crops ACT No.16 of 2013, regulation 36 sub-regulation 3 (Kenya Parliament,

2019), that regulate the packaging materials for agricultural produce with consideration of crate size preferred by traders in relation to cost effectiveness and reduced food waste. It was evident that 100kgs flat crates work very well for fresh tomato agribusinesses where food wastage through damaged tomatoes generated from these crates were less than 1.8%. Tomatoes packaged in 100kg crate generated low cost of transport saving hence increasing their revenue and profit margins. The study established that packaging less than 50kg increase the cost of transport by up to 433% mainly affecting traders. Regulations, laws, rules and polices are made to serve those who are regulated, end undesirable market outcomes and protect those who are at risk of exploitation hence very important to conduct review of the law to better serve the regulated entities and alleviate undesired market outcomes such as food waste, nutritional loss, unfair competition through heaping, high cost compliance cost, economic losses and loss of investment. Regulation in agribusiness is important diversely, including food safety, grades and standards, (World Bank, 2008) including regulation of packaging boxes regarding size, internal surface smoothness and level of filling. The study covered 14 counties in the KLREB which gets fresh tomatoes from other 13 counties (27 in total) hence a good representative to inform the amendment. In the amendment, the crate size should be specific for uniformity across the country. The study recommends three crates namely 30kg, 50kg and 100kg crates. This will also enable crates/boxes to be used as units of measure.

There should be concerted efforts to engage and involve fresh tomato agribusiness owners in coming up with policy regulations concerning tomato packaging. The move will lead to awareness creation, guide packaging policy by taking into account agribusiness owners' sentiments for the sake of ownership, and coming up with a cost-effective fresh tomato packaging crate thus promoting IL that shall in turn enhance performance of fresh tomato agribusinesses.

Adoption of crates that has internal surfaces that are smooth and ethics of filling crates below the upper edge are some of the decisions that needs to be made in value chain management and enforced to ensure reduced food and economic losses.

The national and county governments, as well as other development partners to roll out programs that will not only enhance public participation, but also sensitize agribusiness owners and other stakeholders on the general packaging legal requirements. This is meant to improve level of participation in continuous improvement of packaging legal requirements, processes and procedures which will in turn make regulatory framework serve regulated entities by reducing food damage and wastage, and improve performance of fresh tomato agribusinesses.

The national and county governments, as well as other development partners in collaboration with the fresh tomato agribusiness owners and other stakeholders to formulate policies and roll out programs geared towards fostering collaborative partnerships to enhance public participation and sensitization regarding the packaging regulatory requirements. This will ensure packaging policy ownership that is cost effective, reduce food wastage and enhances performance.

County governments in Kenya Lake Region Economic Bloc and behold can establish centralized crate making centres and guidelines concerning the dimensions of the packaging crates to be followed by carpenters and ensure all traders source their packaging crate from those establishments. This will enable eliminate inappropriate crates and make regulation of fresh tomato packages more convenient for regulating authorities and traders. This will also make crates uniform and have them used as units of measure. The artisans who make these crates can plane timber facing inside of the wooden crates to reduce damage due to roughness since plastic crates shown reduced damage of fruits mainly due to smoothness of their inner surface.

#### **Practice in Packaging of Fresh Tomato Agribusinesses.**

The current study established that by use of appropriate packaging, food loss (wastage) can be significantly reduced from 13% for 30 Kgs heaped wooden crate to 2.2% when packaged in 30 Kgs wooden crate and 1.5 % in 30 Kg flat plastic crates, 14.7% in 50 Kgs heaped crates to 2.0% in 50 Kgs flat crates, and 12.1% in 100kgs heaped to 1.8% in 100 Kgs flat crates. Overall outcome show that food loss can be reduced by between 79% and 90% if efficient/appropriate packaging is done in packaging Fresh Tomato Agribusiness. Considering the many reasons for reducing food wastage and making it more available and accessible to the population, the county governments in Kenya Lake Region Economic Bloc and behold should move swiftly and end the culture of heaping fresh tomatoes on packaging crates/boxes.

Adoption of crates that has internal surfaces that are smooth and adherence to ethics of filling crates below the upper edge are some of the decisions that needs to be made in Value Chain Management and enforced to ensure reduced food and economic losses. This will ensure that appropriate packaging that promotes efficient inbound and outbound logistics hence improving performance of Fresh Tomato Agribusiness.

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#### **Contribution to Theory**

##### **Regulatory Theory**

"Theory of Economic Regulation," states that regulation arises solely to advance the overall public interest by correcting market failures and "regulation is acquired by the industry and is designed and operated primarily for its benefit" (Stigler, 1971). The findings of this study, has established that if regulation is done without evaluation of any unintended results of regulation, the regulated entities suffer from regulation. Wholesalers, Suppliers and

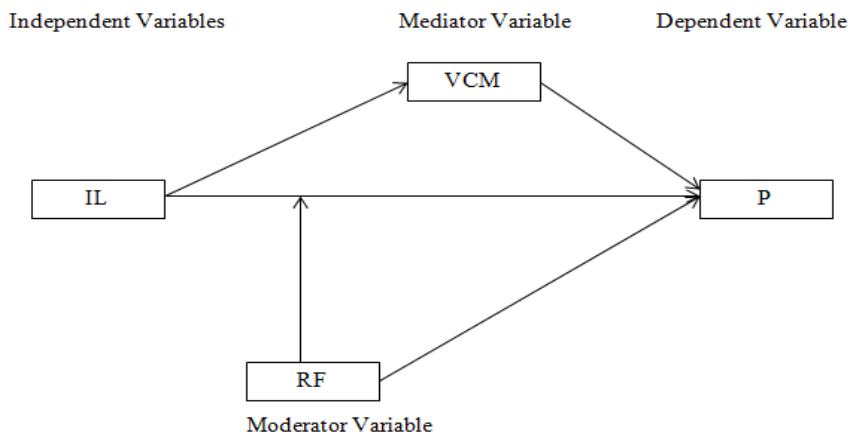
retailers reported that smaller crates generate more costs in handling and when heaped they generate more damaged tomatoes all amounting to reduced profit or economic losses. The Study recommends the improvement of the **Theory of Economics Regulation** as follows:

” Regulation advance the overall public interest by correcting market failures and “regulation is acquired by the industry and is designed and operated primarily for regulated entities”, and with Constant Scanning and elimination of any aspects of unintended results of regulation.

#### Contribution to Research Methodology

#### Moderating Effect of Regulatory Framework on Integrative Leadership & Performance

Rwanda and Nigeria that regulatory framework is a moderator on the relationship between IL and performance.



VCM mediating and RF moderating effect conceptual framework on relationship between IL & P

#### Study Limitations

The study focused on 14 counties out of the 47 counties in Kenya hence the results might slightly differ with what is experienced in the other counties.

#### Areas of Further Research

The study findings showed that the act of parliament that was developed to end negative outcomes and unfair trade in the market has unintended negative outcome hence its recommended that the Government needs to have a budget for research about 2 to 5 years after a regulatory law has been passes and put in practice to identify any unintended negative impacts on regulated entities.

#### REFERENCES

- Bhandari, P. (2023, 6 22). Data collection, definition, methods & examples. <https://doi.org/https://www.scribbr.com/citation-generator/folders/wQtmxALjPNIDRaXWruyjl/lists/4RSolhkLmyX4tSc1THgQuy/>
- Bronwen, M., & Karen, Y. (2007). An introduction to law and regulation: Text and materials. Cambridge University Press. <https://doi.org/http://dx.doi.org/10.1017/CBO9780511801112>
- Bwade, E., Umar, B., & Abba, M. (2019). Tomato post-harvest losses and mitigation measures: A Review. *International Journal of Engineering, Business and Enterprise Applications (IJEBA)*, 2279(39), 9-15. <https://doi.org/http://www.iasir.net/>
- Chong, M. (2008). Considerations in determining the sample size for pilot studies. *Research In Nursing and Health*, 181-291.
- Creswell, J. &. (2017). *Designing and conduction mixed methods research*. New York: Sage publication.
- DCAP. (2023). The Geneva centre for security sector governance. DCAP.
- EAC . (2000). <https://law.resource.org/pub/eac/ibr/eas.66.12006.html>. Retrieved from law.resource.org: <https://law.resource.org/pub/eac/ibr/eas.66.12006.html>
- FAO; Science Agriculture. (2021, 11 24). The Science Agriculture. Retrieved from <https://scienceagri.com>: <https://scienceagri.com/top-10-worlds-biggest-tomato-producing-countries/>
- Fincham, J. E. (2008). Response Rates and Responsiveness for Surveys, Standards, and the Journal. *American Journal of Pharmaceutical Education*, 72(2), 1-3. <https://doi.org/http://dx.doi.org/10.5688/aj720243>
- Gulati, A., Wardhan, H., & Sharma, P. (2022). *Agricultural value chain in India*. Springer Singapore.
- Heijden, J. v. (2019). *Regulatory phylosophy, theory and practice. State of the Art in Regulatory Governance*.

- Johan, D. H. (1999). *General theories of regulation*. Edward Elgar.
- Kenya Parliament. (2019). *Crops regulations, 2019 crops ACT No.16 of 2013, regulation 36 sub-regulation 3*. Nairobi: Kenya Gazette Supplement No. 211.
- Kenya Parliament. (2019). *Crops regulations, 2019 crops ACT No.16 of 2013, regulation 36 sub-regulation 3*. Nairobi: Kenya Gazette Supplement No. 211.
- Kitinoja, L., Motunrayo, O., Dubey, N., Musanase, S., & Gill, G. (2019). *Commodity System Assessment Studies on the Postharvest Handling and Marketing of Tomatoes in Naigeria, Rwanda and Maharashtra*. *India J. Hortic. Postharvest Res*, 2(Special Issue), 1-14. <https://doi.org/https://doi.org/10.22077/jhpr.2019.2060.1040>
- Kitinoja, L., Motunrayo, O., Dubey, N., Musanase, S., & Gill, G. (2019). *Commodity System Assessment Studies on the Postharvest Handling and Marketing of Tomatoes in Naigeria, Rwanda and Maharashtra*. *India J. Hortic. Postharvest Res*, 2(Special Issue), 1-14. <https://doi.org/https://doi.org/10.22077/jhpr.2019.2060.1040>
- Kubai, E. (2019). *Reliability and validity of research instruments*. NMK Ministry of Education Conference (pp. 1-15). Lusaka: UNICAF University. [https://doi.org/https://www.researchgate.net/publication/335827941\\_Reliability\\_and\\_Validity\\_of\\_Research\\_Instruments\\_Correspondence\\_to\\_kubaied\\_winyahoocom#:~:text=...,for%2020%20items.%20...](https://doi.org/https://www.researchgate.net/publication/335827941_Reliability_and_Validity_of_Research_Instruments_Correspondence_to_kubaied_winyahoocom#:~:text=...,for%2020%20items.%20...)
- LaGra, J., Kitinoja, L., & Alpizar, K. (2016). *Commodity systems assessment methodology for value chain problems and project identification: A step in food loss reduction*. Inter-American Institute for Cooperation on Agriculture.
- Mibulo, T., Banadda, N., & Kiggundu, N. (2020). *A Re-View of Packaging Option for Tomato Smallholder Farmers in Sub-Saharan Africa*. *Open Journal of Organic Polymer Materials*, 10, 35–48.
- Mohajan, H. K. (2017). *Two criteria for good measurements in research: Validity and reliability*. *Munich Personal RePEc Archive*, 17(4), 59-82. <https://doi.org/10.26458/1746>
- OECD; Coglianesi. (2012). *Measuring regulatory performance: Evaluating the impact of regulation and regulatory policy*. Brussels: Secretary-General of the OECD.
- Oxford Reference. (2023). *Oxford reference*. Retrieved from <https://www.oxfordreference.com>: <https://www.oxfordreference.com/display/10.1093/oi/authority.20110803100411580>
- Roger, M. (2012). <https://financeunlocked.com>. Retrieved from Finance Unlocked: <https://financeunlocked.com/videos/conduct-1-6-101>
- Salami, K., Kodish, s., & Brieger, W. (2019). *Patent medicine vending: Small and medium scale businesses and health enterprises: Constructing a Business Model-AJHE 8(2): 12-24 Patent Medicine Vending: Small and Medium Scale Businesses and Health Enterprises: Constructing a Business Model*. *African Journal of Health Economics*, 8(2), 12-24. <https://doi.org/http://doi.org/10.35202/AJHE.2019.821224>
- Saunders, M. N., Lewis, P., & Thornhill, A. (2019). *Research methods for business students chapter 4: Understanding research philosophy and approaches to theory development*. In M. N. Saunders, P. Lewis, & A. Thornhill, *Research Methods for Business Students* (pp. 128-171). Pearson Education.
- Sivo, S. A., Sanders, C., Chiang, Q., & Jiang, J. J. (2006). *How low should you go? low response rates and the validity of inference in IS questionnaire research*. *Journal of the Association for information Systems*, 7(6), 351-414.
- Stigler, G. J. (1971). *The theory of economic regulation*. *The Bell Journal of Economics and Management Science*, 2(1), 3-21. <https://doi.org/https://doi.org/10.2307/3003160>
- Straub, D., Boudreau, M.-C., & Gefen, D. (2004). *Validation guidelines for IS positivist research*. *Communications of the Association for Information Systems*, *Communications-of-the-Association-for-Information-Systems*, 3(1), 1-70. <https://doi.org/10.17705/1CAIS.01324>
- Tapsoba, Kiemde, S., Lamond, B., & Lepine, J. (2022). *Potential of packaging for reduced fruit and vegetable losses in Sub-Saharan Africa*. <https://doi.org/10.3390/foods11070952>, 11(7), 1-12. <https://doi.org/http://dx.doi.org/10.3390/foods11070952>
- TGA. (2019, 5 2). *Therapeutic Goods Administration*. Retrieved from <https://www.tga.gov.au>: <https://www.tga.gov.au/sites/default/files/tga-key-performance-indicators-and-measures-regulator-performance-framework.pdf>
- Van, d. V. (2000). *Effective food supply chain: Generating, modeling and evaluating supply chain scenarios*. Wageningen: Wageningen University Research. [https://doi.org/ISBN 90 5808 26 -X](https://doi.org/ISBN%2090%205808%2026%20-X)
- Weinstein, S., & Kosinski, M. (2023, 11 21). *study.com*. Retrieved from <https://study.com>: <https://study.com/academy/lesson/regulatory-capture-definition-theory.html>
- WGEA. (2018, 9 17). *Workplace gender equality agency*. <https://doi.org/https://www.wgea.gov.au/sites/default/files/documents/RPF-Key-Performance-Indicators.pdf>
- World Bank. (2008). *Agriculture for development*. World Bank Group.