

SME's Perception of Product Liability on Product Innovation of Pre-packed Food Products in Tanzania

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Abstract

The Tanzanian food market is saturated with processed food. The study aimed at investigating the perception of product liability rules (i.e. manufacture, design, and failure to warn defects) on pre-packed food product innovation in Tanzania. A randomly selected sample size of 100 respondents was involved in the study. Data were analysed through Exploratory Factor Analysis. Four factors namely defective manufacturing, design defect, failure to warn and product liability costs emerged to be important. Thus, the three dimensions of product liability and one dimension of product innovation emerged from the data. In the end, the study concludes that the product liability-product innovation relationship is much stronger for design defects than the manufacturing and failure to warn (labelling) defects.

Keywords: Pre-packed food, product innovation, product liability, manufacture defect, design defect, labelling defect (failure to warn)

Introduction

Food is a necessary component of our daily life, we have to eat in order to survive. Food is defined under section 2 of the Standards Act, Cap 130 of 2009 as amended by the Finance Act, 2019 to mean any substance whether processes, semi-processed or raw that is intended for human consumption, and includes drinks, chewing gum and any substance that has been used in the manufacture, preparation or treatment of food. Respectively, pre-packed food is defined to mean processed food that is manufactured to extend its shelf life, packaged, and labeled ready for offer to the consumer for direct consumption.

Generally, it is accepted that always there has been some degree of trade-off between food we eat and various health problems that are inherent in them. Article 14 of the Constitution of the United Republic of Tanzania guarantees a right to life. Right to life has been defined to include right to a safe environment and right to health in the decisions of *Festo Balegele & 794 Others v Dar es Salaam City Council*, misc. civil cause No. 90 Of 1991, HCTZ at Dar es Salaam (unreported) together with *Felix Joseph Mavika v Dar es Salaam City Commission*,

civil case No. 316 of 2000, HCTZ at Dar es Salaam (unreported). On the other hand, right to health and safe food products is protected through the tort system of product liability law. A manufacturer who produces food product that causes injuries to a consumer is liable for an action for damages in tort under the common law principles of negligence, strict liability, and absolute liability as established in the case of *Donoghue v Stevenson* [1982] AC 532.

Damage awards that arises out of product liability has a ripple effect on the financial and non-financial incentives of a firm that can impact product innovation. It is in the interest of pre-packed food manufacturers, therefore, to establish and administer controls that ensure their products do indeed meet consumer and societal expectations of safety and quality. This work investigated on the perception of product liability on product innovation by the small and medium enterprises that are engaging themselves in pre-packed food products in Tanzania. Specifically, the study aimed at examining the perception of SMEs on the influence of the various dimensions of product liability, i.e. manufacture, design, and labelling defect, on product innovation.

The concept of product liability and product innovation

Product liability refers to the responsibility of a manufacturer, distributor, supplier, retailer, and others who make products available to the market to compensate for injury caused by defective products that it has placed into the hands of the consumer. On the other hand, product innovation refers to the introduction of new or improved products. Simply put, product innovation involves changes in the products that are offered by a firm that implies an improvement in the firm's offerings. Product innovation includes an array of changes from break through discoveries to incremental improvements in manufacture, design, and labelling of the product.

Product innovation involves risks that are always associated by the changes of technology and introduction of new ideas. These imminent risks inherent in the product innovation process are what forms the core purpose of product liability law. Product liability law has been designed to compensate victims on the one hand and to motivate manufacturers of goods to manufacture safe products on the other hand. Product liability law is one of the ways through which our societies enforce consumer protection.

Product liability law in Tanzania

The Law Reform (Fatal Accidents and Miscellaneous Provisions) Act, Cap 310 R.E. 2019 provides an avenue for consumers to sue manufacturers and suppliers of defective products for damages resulting from sustaining personal injuries. The court in *B.A. Minga v. Mwananchi Total Service Station, Shinyanga & Total (T) Limited*, [1972] HCD n241, the Court reiterated its position that for the claim of the negligence to sustain, the plaintiff is supposed to establish that the respondent owed a duty of care, there was breach of the duty of care, and as a consequence of the breach the plaintiff suffered harm or loss to his person or property. In *Coca Cola Kwanza Limited v. Bilson Mbeziwa*, civil appeal No. 33 of 1999, HCTZ at Dodoma (unreported), the High Court upheld the decision by the District Court that granted damages to the respondent who suffered injury

as a consequence of drinking a soft drink that was manufactured by the appellant. It was held that the appellant did negligently manufacture the drink that was consumed by the respondent quoting with approval the decision in *Donoghue v Stevenson* by Lord Atkin, who observed that a manufacture of products who sells the products in a form that he wishes to reach the ultimate consumer in the form that left his premises without any reasonable possibility of intermediate examination, and without any knowledge that his failure to exercise reasonable care in the manufacture of the product would result into harm or loss to consumers life or property, owes a duty to consumer to take all reasonable care in the manufacture of the product.

Court decisions in the cases of *Manager of Imara Guest House v Egnas Kaganda*, [1980] TLR 40, and the case of *Abdulahi Mohamed Isman (administrator of estate of Mariam Abdulahi Mohamed Isman) v KILEM Engineering Co. Ltd, Benitho Thadei Chengula, MEWA Consulting Engineering Co, and Ilala Municipal Council*, civil case No. 92 of 2014, HCTZ at Dar es Salaam (unreported), and *Wilfred Mkubwa v SBC Tanzania Limited*, civil appeal No. 150 of 2018, CAT at Mbeya (unreported), stresses on the liability for failure to exercise duty of care towards your neighbours (negligence).

Theoretical propositions of product liability law

Product liability law has been developed with the general idea of promoting efficient levels of product safety with the ultimate end of consumer protection. Product liability was expected to result into spurring of product innovation as a remedy of increasing product safety and minimizing lawsuits. Proponents of the theory assumed that product safety and product innovation would thrive under the developed product liability laws, that, with the new developments manufacturers would search for the newest and best technology and raw materials to mitigate the product liability problems (Steering Committee on Product Liability and Innovation, 1994). However, this has not happened; on the contrary, product

innovation has always been defeated, in many occasions, consumers are in a difficult situation as compared to the period before the beginning of the product liability revolution.

On the one hand, those who supports the current product liability regime asserts that product liability costs furnish incentives to manufacturers to produce safe products and discouraging unsafe products. Many consumers have praised the recent rapid growth of product liability court processes as an efficient mechanism for consumer protection. It is also claimed that product liability regime exposes information concerning hazards and discourages undesirable corporate social behavior including failure to disclose food contents. The law has shifted the liability from the buyer who was supposed to inspect and satisfy himself on the dangers that were imminent on products to the manufacturer who can subsequently be held accountable for unreasonably dangerous defects in a product.

Critics of the current liability regime insists that it is the well-being and safety of every consumer that is at stake. It is their argument that product liability costs decrease the potential of availability of products, escalate prices, depress innovation, and sabotage economic prosperity by stimulating product safety that fall short of the social costs. It is urged that efforts by firms to limit their product liability or eliminate it altogether may result to serious losses to consumers for shortage of vital food products following withdrawal of some of food products from the market. Critics further contend that the high number of monetary awards awarded by the courts may impact firms' willingness to manufacture new and riskier technologies without regard to the fact that the said technologies might be superior compared to the previous products (e.g. Parchmovsky and Stein (2008)).

SME's perception of product liability on product innovation in Tanzania

Although number of papers addressing the relationship between product liability and product innovation continues to grow, currently there is lack of sufficient empirical evidence to determine the perception of product liability on

product innovation by the SMEs engaging in pre-packed food products. The understanding of the perception of financial and non-financial implications of product liability on product innovation by SMEs engaging in pre-packed food production in Tanzania remains patchy. Robson *et al.* (2009) observed that there is a limited empirical evidence on the influence of product liability on product innovation especially in developing countries. Moreover, Nichter and Goldmark (2009) establishes that there is lack of enough empirical evidence about the link between product liability and product innovation by SMEs world over.

The study was conducted against this background. It follows therefore, that the subsequent study investigated and empirically examined perceptions of product liability on product innovation in Tanzania. The main purpose was to assess the effects of perceptions of liability arising out of product manufacture, design, and failure to warn defects on product innovation considering the variety of liabilities, their dynamic relationships, and their ambivalent impacts. The study focused on SMEs that are engaging in the production and processing of pre-packed food products in Tanzania because they are the manufacturers of most of pre-packed food products that are consumed in the Tanzanian food market.

Methodology

The general objective of the study was to examine perception of product liability on product innovation of Small and Medium Enterprises engaging in pre-packed food products in Tanzania. Specifically, the study intended to examine perception of defective manufacture on product innovation by SMEs, to examine perception of design defects on product innovation by SMEs, and to examine perception of warning defects on product innovation by SMEs.

Three hypothesis were developed from the reviewed literature and tested in this study, H1: manufacturing defects are perceived to undermine product innovation by SMEs engaging in pre-packed food products. H2: design defects are perceived to undermine product innovation by SMEs engaging in pre-

packed food products. H3: Warning defects are perceived to undermine product innovation by SMEs engaging in pre-packed food products.

The study conceptualized that the dependent variables of product liability that are defective manufacture, defective design, and defective warning impacts product innovation intensity of SMEs. Product liability costs arising out of SMEs compliance with food and health laws and regulations, compensation to injured consumers, and damages awarded by the courts undermines the SMEs decisions to produce pre-packed food products thus a direct impact on the SMEs product innovation intensity.

The study involved a total of 100 SMEs in Morogoro. SMEs were randomly selected

product liability and one dimension of product innovation were extracted from the data. The analysis shows that all factors had a midpoint scale mean value score of more than 4. The implication is that there is an increase of SMEs that are encountering pre-packed food product liability in their efforts to innovate pre-packed food products. The significance of mean values was checked through Analysis of Variance (ANOVA). Each of the four factors that are the defective manufacturing, defective designing, failure to warn and product innovation were subjected to ANOVA. The results depicted no any significant difference among the factors, this indicated a very good reliable measurement of the study constructs for analysis.

Table 1: Average inter-item correlation

Factor	DM1	DD1	FW1	PD1
Defective manufacturing	0.592			
Defective design	0.268	0.619		
Failure to warn	0.183	0.199	0.670	
Product innovation	0.123	0.291	0.204	0.711

Note: Diagonal elements in bold represent the Average Variance Extracted (AVE)

from each fifth pre-packed food product that was found to be displayed in super markets and mini markets in Morogoro. Snow balling technique was also used to identify pre-packed food manufacturing SMEs whose products were not immediately found in the selected markets. Sampling adequacy of data was then performed to determine its relevancy in permitting EFA to be executed. To affect the same, sampling adequacy was measured through sphericity tests of Kaiser-Meyer-Olkin and the Bartlett's test. Adequacy of the data was confirmed to allow EFA to be conducted with the scores of KMO statistic=7.55; Approx. Chi-Square=2389.685; Degree of freedom=231; $p < 0.0001$. According to Field, (2005), the KMO static close to 1 indicates an adequate sample while the Bartlett's test should be significant for factor analysis to be executed.

Defective manufacturing, design defect, failure to warn and product innovation are the four factors that were extracted from the data. Consequently, three dimensions of

The relationship of the dependent variables that are the manufacture defect, design defect, and failure to warn defect shows that the regression line had the ability to account for the total variation of the variables. The total variance of the dependent variables was between 0 and 1 as symbolized by the significance value (R Square). The standardized coefficients of the variables in had a significance value ranging between 0.25 and 0.30 which means that 25 to 30 percent of the total variance in pre-packed food product liability has been explained to have a strong relationship.

Research hypotheses H_1 , H_2 , and H_3 were tested using regression analyses. The results are presented in the table below.

As presented in the above table, manufacturing defect positively predicts product innovation ($\beta=0.451$, $t=7.111$, $p < 0.001$). H_1 is therefore supported. Design defect was found to positively predict product innovation of the firm ($\beta=0.216$, $t=2.745$, $p=0.007$). H_2 is, therefore supported. Although positive, the prediction of

Table 2: ANOVA Table

Type of liability	Under standardized Coefficients		Standardized Coefficients			
	Model	B	Std. Error	Beta	t	Sig.
<i>Manufacture Defect</i>	1 (Constant)	12.906	5.034		2.564	.012
	DM1	.157	.147	.107	1.068	.288
	DM2	.226	.214	.114	1.052	.295
	DM3	.942	.287	.343	3.280	.001
	DM4	.882	.422	.208	2.090	.039
<i>Design Defect</i>	1 (Constant)	22.103	4.879		4.530	.000
	DD1	.491	.224	.340	2.195	.031
	DD2	.251	.217	.151	1.153	.252
	DD3	.006	.321	.002	.018	.986
	DD4	.121	.468	.031	.259	.796
<i>Failure to Warn</i>	1 (Constant)	51.369	14.632		3.511	.008
	FW1	.602	.347	.459	1.737	.121
	FW2	-2.619	1.201	-1.332	-2.182	.061
	FW3	1.588	1.618	.476	.982	.355
	FW4	2.531	1.216	.756	2.082	.071

Dependent variables: *Manufacture defect, design defect, and failure to warn*

failure to warn defect on product innovation was found to be insignificant ($\beta=0.087$, $t=1.028$, $p=0.305$). H_3 is, therefore, not supported. This means that labelling defects have a small impact on product innovation as compared to manufacturing and design defects.

Results

Data analysis considered three distinct measures of the expected effects of product liability on product innovation: manufacturing defect, design defects, and failure to warn or labelling defects. The premium variables constitute more meaningful product liability measures of the product innovation intensity faced by firms. Efforts by firms in avoiding product liability through improving product safety and quality increases production costs

thus making it difficult for SMEs to compete in the market. On the other hand, financial compensation resulting out of injuries caused by defective products adds to the load of costs that impacts SMEs innovation intensity.

Manufacture defect was found to positively predict product innovation of SMEs. Manufacture defect primarily focuses on defective products that deviates from the production line and the way the products are manufactured as compared to design defects that focus on the idealization and perfection of the product. The relationship between these two variables has been found to be nonlinear. The nonlinearity of this effect is exhibited by the coefficient on the squared product liability safety, quality, defects, and liability costs variables, that is negative and significant (at the

Table 3: Results of regression analysis

	Prediction	β	t	p	Hypothesis
H_1	Manufacturing defect \rightarrow product innovation	0.451	7.111	0.000*	H_1 is supported
H_2	Design defect \rightarrow product innovation	0.216	2.75	0.007	H_2 is supported
H_3	Failure to warn defect \rightarrow product innovation	0.087	1.028	3.05	H_3 Not supported

β = standardized Beta coefficient, t = T statistic, p = probability, * = p value less than 0.001

0.5 confidence level) in three of the four cases at low risk levels. Thus, empirically, it is very clear that manufacture defects are perceived to undermine product innovation by SMEs engaging in pre-packed food products.

Design defect was also found to positively predict pre-packed product innovation of SMEs involved in the study. SMEs have incentives to invest in new or improved pre-packed food products at a very low level of design liability costs. This is the result of the design safety incentives in which the increase in design liability costs has a net effect on a decrease on innovation of pre-packed food products. Perception of the impacts of design liability on product innovation were found to be much stronger as compared to manufacture defect and failure to warn defect. As differentiated with manufacture liability, design liability of pre-packed food products is directly linked with the manufacture of the product. Innovation properties of a new or improved food product like the taste, aroma, texture, ingredients and raw materials to be used in the pre-packed food product are largely decided and controlled by the manufacture of the product.

The prediction of failure to warn defect on product innovation was found to be insignificant although it is positive. This means that SMEs perceives that consumers are not interested with labelling of the pre-packed food products and instructions that are contained in the labels such as the ingredients, chemical contents, preservatives, shelf life of the product, instructions on the use and the like. Most SMEs are thus not investing much of their funds in labelling of the products and provision of sufficient information to the consumers on the risks that are inherent in the products.

The empirical magnitude of product liability on product innovation can be depicted from the regression of product innovation and losses occasioned to consumers as analyzed in Table 2. A fall of product liability costs from their mean of 0.6 percent to zero would lead to a reduction of product innovation intensity of 0.19 that approximates to 12 percent of the innovation intensity of the SMEs. Practical effects of pre-packed food product liability are indicated by this linear extrapolation.

Discussion

SMEs are of overwhelming importance in Tanzania on several economic and social grounds. SMEs are the biggest source of employment in pre-packed food business in the country that provides food and livelihood to the country's workforce. Efforts to push the support of SMEs competitiveness and growth, moreover, is an avoidable option. The subsequent policy shift has been highly influenced by the 5th round governmental focus and initiatives on trade and investments that foresees a rapid growth of small-scale industries across the country. Much of these small-scale industries that are run by SMEs are thought to invest in pre-packed food business basing on the country's historical background of promoting agriculture as the backbone of the economy since its independence in 1964. A reorientation of the perception of SMEs of pre-packed food product liability and pre-packed food product innovation to underpin the ongoing social economic developments within the country to enable the development of SMEs and innovation of pre-packed food products is wanting.

Generally, SMEs involved in the study perceives that product liability undermines their product innovation process and is one among their growth challenges. They are concerned that the same liability rules that are applicable to large business establishments are applicable to them with the same legal force. They urge that large business establishments have financial muscles to address for product liability costs through various mechanisms such as insurance covers, outsourcing of some of their operations, price setting, and healthy financial budgets for settlements out of the court together with payment of compensations and damages award by the courts.

It is the perception of the SMEs that product liability costs arising out of compliances with food, health and environmental standards and compensations out of damages awarded by the courts positively affect their product innovation intensity. Local government authorities and regulatory authorities such as the Tanzania Bureau of Standards (TBS), Occupational Health and Safety Authority (OSHA), and responsible line Ministries are imposing extra

costs on the SMEs in pre-packed food production for testing, certification, accreditation, and licensing of pre-packed food products. These costs add to the huddle of obstacles that impends the SMEs decisions to pre-packed food product innovation. This perception may reflect a product withdrawal effect on pre-packed food product innovation or a strong negative influence of the unfortunate effects of product liability on product innovation at elevated levels of product liability.

SMEs perceives pre-packed food product liability as a barrier that posits??? chilling effects on their product innovation process. The SMEs are afraid of introducing to the market new and improved pre-packed food products with different and improved composition of ingredients, taste, aroma, texture, and different uses as compared to the traditionally offered products. This withdrawal effect from the market option to a large extent affects the SMEs on the one hand, and to a larger extent, the consumers who are deprived from pre-packed food essentials of their daily life. In the final analysis, the pre-packed food product liability rules are perceived by the SMEs to retard the innovation process and undermine the consumer food product needs and wants at the same time.

Thus, pre-packed food product innovation intensity is likely to rapidly develop in the country if a policy and legal reform has to be put in place to balance the needs of the SMEs to develop their product innovation intensity alongside with the need to protect the safety of consumers.

Policy reforms has to consider our local business environment and the level of technology in handling a manufacturer liable for defective pre-packed food product. A strict adherence to the standards of pre-packed food product liability that are applicable in the developed world like the United States and the European Union are likely to retard our technological development, industrial revolution, and trade of essential pre-packed food products.

Conclusion and Recomendations

The study had the general objective of obtaining empirical evidence of the perception of product liability on product innovation

considering the case of SMEs that are engaging in the manufacture of pre-packed food in Tanzania. Specifically, the study aimed at gathering empirical evidence of the perception of SMEs on defective manufacture, design, and labelling or failure to warn on the dangers that are imminent in their products. Three research questions and hypothesis were formulated to that effect. The gathered evidence suggests that of all the three variables of product liability, i.e. manufacture, design, and failure to warn defects, liability arising out of the design defect negatively influences pre-packed food product innovation of SMEs. The study shows that liability costs incurred by the SMEs in respect design defects are much higher as compared to the liability costs arising out of the manufacture and failure to warn defects. This implies that, in one way or the other, the consumers of food products in Tanzania are not very much aware of the other grounds of manufacturer's liability on manufacture defects and failure to warn defects. The extent and the effect of product liability on product innovation is predicted to grow significantly as soon as the society will be aware of these other grounds of liability.

The evidence shows that product liability costs incurred by SMEs positively impacts product innovation of the SMEs. These SMEs have a potential of increasing their product innovation intensity in the event that their product liability burden is lowered. Thus, product intensity of the SMEs can substantially be increased by a reduction of the product liability costs. This calls for a realignment of the product liability laws and policies in our country so as to spur product innovation of pre-packed food products alongside the main objective of consumer protection. The relationship between product liability and product innovation is much powerful for design defects than the manufacturing and labelling defects. This relationship adds into the recent literature that points to the direction of hailing the expansion of the design defect liability as compared to the manufacture and warning defects. The theory has increased the role of the principles of product liability in the safeguard of the interest of consumers against defective products.

The researcher's analysis underpins the

contention that pre-packed food product liability deters pre-packed food product innovation by the SMEs. The pre-packed food product liability system and its developments impacts the speed and direction of innovation of pre-packed food products. This signals an indication that the pre-packed food product liability policies pose notable dynamic impacts on pre-packed food product innovation incentives that exceeds the short-term impacts and objectives of consumer protection and others. Thus, it is crucial to recognize and estimate the effects of pre-packed food product liability on pre-packed food product innovation in evaluating the costs and benefits of product liability policy reforms and their impacts to SMEs.

There are several limitations to this study although it makes notable empirical contribution to the current literature on the empirical evidence of SMEs perception of pre-packed food product liability on pre-packed food product innovation. The study was conducted in Morogoro only, that is a single region within Tanzania. The researcher recommends for more similar studies to be conducted in other regions within the country and other developing countries so as to map the extent and direction of the impacts of product liability on product innovation. Although the results mesmerize on the theory that product liability predicts product innovation of SMEs, yet, the results have not focused into the factors that impacts the adoption of product liability concept in pre-packed food value chains. It is further suggested that future studies should also focus on the factors that influence the adoption of product liability at the level of the SMEs. An understanding of these influencing factors will enable to inform the direction of policy and legal reforms that will balance the interests of SMEs to innovate and develop on the one hand and consumer protection through food safety on the other.

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