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GENERATION OF MORE VALUE ADDITION IN CINNAMON EXPORTS: A STUDY BASED ON SOUTHERN SRI LANKA

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ABSTRACT
Sri Lanka is the largest supplier of quality cinnamon to the world spice market. Though cinnamon plays a key role in the spice sector, the performance of the overall sector in Sri Lanka has not been up to the expectations over the past years. Sri Lanka ranks well below other countries in value-added cinnamon exports to the world market. Other competitor countries make huge profits by adding value to cinnamon exported from Sri Lanka, while Sri Lanka is losing profit due to exporting mostly raw cinnamon. In this context, this research project is designed to explore the possibilities to generate more value addition through cinnamon exports based on a case study in southern Sri Lanka. The research methodology consists of situational analysis, focus group interviews, and an in-depth questionnaire survey. The survey was carried out to gather data from 130 sample respondents mainly covering the various actors and agents in the whole cinnamon supply chain in southern Sri Lanka. The findings of this study show that the main obstacles to generate more value addition in cinnamon exports are lack of proper policies, incentives and strategies in the areas of marketing, finance, quality, technology management and product innovation. The methodology used and the policies recommended can apply to other cinnamon exporting countries as well. The social and managerial implications of the findings and policies of this study may be important to many apex bodies and other players in the cinnamon supply chain.

Keywords: Cinnamon Industry, Value Addition, Technology Management, Economic Development, Sri Lanka

1. Introduction

Cinnamon was a precious spice in the west during 14th -15th centuries and its primary use was to preserve meat and to delay the growth of bacteria. The search for cinnamon was a major factor which led to the exploration of the

world in 15th century. At that time, real cinnamon was produced in only one place; namely in Ceylon or Sri Lanka.

At a global scale, the industry is developing rapidly with advanced technology and Sri Lanka should use these novel techniques to produce high quality value-added spice products. The development of new products which have high commercial value is important for the development of the spice sector. Value addition has been identified as the most fitting strategic action to be implemented to capture higher market share in the international spice trade. The time has come for Sri Lanka to diversify its production and export form. Bulk form exportation of spices limits the development of the overall spice industry due to the generation of few employment opportunities, poor technology transformation and low return to spice investments (Ministry of Minor Export Crop Promotion, 2017).

The demand for value-added cinnamon products such as cinnamon leaf oil, bark oil, crushed cinnamon and ground cinnamon for confectionery and other food related industries has increased in the world. Sri Lanka is planning to double cinnamon export earnings by increasing value addition of cinnamon (Sachitra, 2017).

Sri Lanka is yet to exploit the true potential of this value as the traditional system has been to market our products as bulk commodities rather than to offer value-added end products from the valuable spice crops. The newly emerging spice-producing countries as well as the traditional, large producers have been noted for adopting scientific agronomic practices as well as high yielding propagation techniques and have been able to produce a large volume of crops at a relatively lower cost. The bulk commodity prices of most spices have declined due to this reason (Ministry of Minor Export Crop Promotion, 2017). This research study focuses on why most of Sri Lankan Cinnamon reaches the world market in primary form without value addition and will help to determine significant factors affecting the value-added production in the cinnamon industry of Sri Lanka and identify the possible reasons for lack of value addition in the industry. The main objectives of this research are;

1. To identify the current value addition situation of the cinnamon industry in Sri Lanka.
2. Identify factors contributing to the creation of more value addition to the local economy through cinnamon exports.
3. To recommend policies and strategies to promote more value addition to the Sri Lankan economy through cinnamon related products exports.

The Research Problem

After evaluating the research problem, it was found that value-added Cinnamon products are more important for Sri Lanka to stand out as a nation in a market currently dominated by European and American countries. Sri Lanka exports only raw cinnamon to the world market and few value-added products. Ceylon cinnamon contains an insignificant amount of Coumarin (banned toxic chemical) compared to Cassia Cinnamon. But currently, those who manufacture the Cassia Cinnamon supply a large portion of worlds' requirements.

Those who manufacture value-added cinnamon products earn 20 times more than those exporting raw Cinnamon. The below mentioned countries, exported the highest US dollar value worth of cinnamon during 2016:

- Sri Lanka: $132,246,000 (30% of total Cinnamon exports)
- Indonesia: $107,110,000 (24.3%)
- China: $78,778,000 (17.9%)
- Vietnam: $62,299,000 (14.2%)

Sri Lanka has a good market position but the fastest-growing cinnamon exporters were Mexico (up 218.9% since 2010), Indonesia (up 121.2%), Viet Nam (up 112.6%) and Estonia (up 109.9%). This is because these countries manufacture value-added Cinnamon products.

Positioned as an aboriginal crop with a diversified product range, the cinnamon industry in Sri Lanka doesn't show a significant development. Cinnamon exporting was carried out for the wealth creation of the country from the past. Various countries incorporate cinnamon products as a raw material for manufacturing other diversified products, while others use the same raw form for final consumption. Being an inherited crop, it is not possible to grow it successfully in any foreign country, so the comparative advantage it could provide to Sri Lanka is very high. From Sri Lanka's perspective the industry is operating at the same traditional level and it seems that the value of the entire industry has not been properly understood by most of the stakeholders even in a knowledge intensive era.

At the same time the authorities pay more attention to improve other exports and this has become an indirect reason for the failure of the industry. It is not purely due to the open economic policies in the country but due to many other reasons. Lack of concentration, poor returns due to the lack of quality, lack of new technological applications and variations in the international market conditions are some of the main reasons. It is also noticeable that the cinnamon plantation sector is not properly maintained, is unproductive and the

stakeholders are not motivated to get involved in this industry considering the long term sustainability.

2. Literature Review

The true cinnamon originated in the central part of the country, which covers the Hill Country including Kandy, Matale, Belihul oya, Haputale, Horton Plains and the Sinharaja forest range. Presently cinnamon cultivation has expanded and most of the coastal areas are famous for cinnamon including the coastal belt from Negombo down to Matara, including in-land areas of Kalutara and Ratnapura. The best cinnamon is said to be grown in red yellow podzolic soils of the South-Western region, where the most appropriate temperatures are between 25 and 32 degrees Celsius. Normally two harvests can be reaped per year and they are peeled in the same harvested day. To gain high quality cinnamon, standard harvesting and peeling techniques are needed. The produced quills are kept for in-door drying for about 4-7 days after peeling. The below table illustrates the cultivation extent of crops.

Table 1: Cultivation extent

Crop	2010	2011	2012	2013	2014	2015	2016
Tea	221,969	221,969	221,969	221,969	221,969	221,969	216,515
Rubber	124,734	127,000	130,280	132,904	132,904	134,137	120,867
Coconut	394,836	394,836	394,836	394,836	394,836	394,836	440,453
Cinnamon	28,860	29,163	30,432	30,090	29,512	33,220	30,130
Coffee	8,540	8,686	8,458	8,740	8,340	7,440	7,534
Cocoa	2,730	2,548	2,534	2,257	2,170	2,490	2,240
Pepper	37,340	36,431	37,825	39,493	39,650	44,450	39,515
Cardamom	1,530	1,547	1,510	1,692	1,680	1,440	1,242

Source - Department of Census & Statistics, Sri Lanka, 2017

One key issue in the cinnamon industry is that the cinnamon quality produced in super grade has deteriorated heavily during the past few years. This has adversely affected exporters ability to achieve their expected commitments due to the lack of superior grade production. Therefore, more effective strategies and institutionalized policies are required to stay in line with the market demand and good quality standards.

Marketing has become a major tool in every business and leads to the success of every business. Sri Lankan industry players haven't got the adequate capability to supply for this demand; in addition, there is no value addition or product diversification that can be seen. Therefore, it is essential to consider the international market for cinnamon without seeking for a second option.

Technology has a significant influence on the plantation industry, especially for the plantation sectors such as the cinnamon industry. Technological benefits are derived in a number of ways, not only for plantation and manufacturing but to effectively launch sales and marketing activities. It is essential for the Sri Lankan cinnamon industry to engage with diversified products in a number of forms.

As per the recent export statistics, the last three years' turnover from spices and essential oil exports constitutes an average of 57 percent (with an average annual turnover of US$155.7million) of the total export value of the non-traditional crops. Amongst the spices, cinnamon is the single largest non-traditional export crop.

Table 2: Cinnamon export destinations

Market region	**Countries**
Europe	United Kingdom (UK), Italy, Germany*, Spain, Netherlands, Switzerland, France, Poland, Belgium, Sweden, Austria, Denmark, Norway, Czech Republic, Portugal, Ireland, Swaziland, Greece, Cyprus, Finland
Middle East	Lebanon, United Arab Emirates (UAE), Kuwait, Saudi Arab, Qatar, Israel, Egypt, Bahrain, Morocco, Jordan, Turkey, Oman
North America	United State of America (USA)*, Canada
South Asia	India*, Bangladesh, Maldives, Pakistan, Nepal
South and Central America	Mexico*, Colombia*, Peru*, Elsalvador, Guatemala, Bolivia, Argentina, Honduras, Ecuador, Chile, Nicaragua, Costa Rica, Guatemala, Panama
South-East Asia	Japan*, Singapore, South Korea, China, Hong-Kong, Philippines, Cambodia, Brunei, Malaysia, Taiwan
Others	Australia*, Nigeria, Latvia, Botswana, South Africa, Mauritius Islands, Zimbabwe, and un- specified

Source: Sri Lanka Customs Department, 2015

3. Methodology

This research is based on a descriptive study and this would be done only once and the data for this study will be collected at a single point of time. The primary data collection methods are a questionnaire which includes close ended (structured) questions and face to face interviews.

The secondary data includes research articles, papers, journals, and internet information. The data necessary for testing the hypotheses will be primary data

and the definitions and discussions of concepts will be on literature which includes periodical articles and books.

The target population for this research is the cinnamon value-added product manufacturers and potential cultivators who are looking to manufacture value-added products. The sample size of the research is 130 which includes farmers, peelers, processors, collectors and exporters. All the data analysis procedures will be accomplished with the assistance of SPSS software. Correlation, regression, and descriptive statistics are used to analyze the collected data.

The hypotheses derived from the conceptual framework are as below.

H1: Marketing activities significantly influence the value-added cinnamon products in the export market.

H2: Financial factors significantly influence the value-added cinnamon products in the export market.

H3: Product quality significantly influences the value-added cinnamon products in the export market.

H4: Technology significantly influences the value-added cinnamon products in the export market.

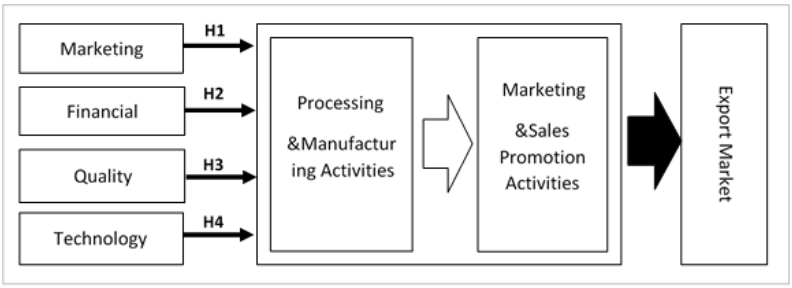

Figure 1: Conceptual model

Source: Author according to literature

4. Analysis and Results

At the very beginning, the researcher presented the findings of the pilot study in terms of reliability and validity statistics.

A. Reliability

According to the results in Table 3, Cronbach's Alpha for all variables represent a value greater than 0.7. Therefore, it is suitable to go for further analysis.

Table 3: Reliability analysis

Variable	Cronbach's Alpha
Marketing activities	0.947
Financial support	0.962
Quality	0.787

Technology	0 .970
Access to international market	0 .953

Source: Structured Questionnaire Survey

B. Validity

KMO Bartlett's test was carried out to measure validity and table 4 shows the statistics.

Table 4: Validity Assessment

Variable	Value
Marketing activities	0.744
Financial support	0.835
Quality	0.697
Technology	0.748
Access to international market	0.784

Source: Structured Questionnaire Survey

C. Regression Analysis

The researcher carried out multiple regression analysis to identify the determinants of the dependent variable, which is access to the international market. The independent variables included in the model include marketing activities, financial support, technology and quality. The standard multiple regression with a direct method entry has been applied within this research study to test the relationships existing among variables. Classical Assumption Tests are essential to check that the assumptions of multiple regression analysis hold. The following assumptions have been checked; linearity, multicollinearity, normality, and homoscedasticity.

The summary of the hypotheses testing is as below.

Table 5: Validity Assessment

	Hypotheses	Correlation Analysis	Result
01	H1:	Correlation value = 0. 942** Significance of p = 0.000	**Accepted – H1** .
02	H2:	Correlation value = 0.979** Significance of p = 0.000	**Accepted – H2**
03	H3:	Correlation value = 0.868** Significance of p = 0.000	**Accepted – H3**
04	H4:	Correlation value = 0.956** Significance of p = 0.000	**Accepted – H4**

Source: Structured Questionnaire Survey

D. Testing normality

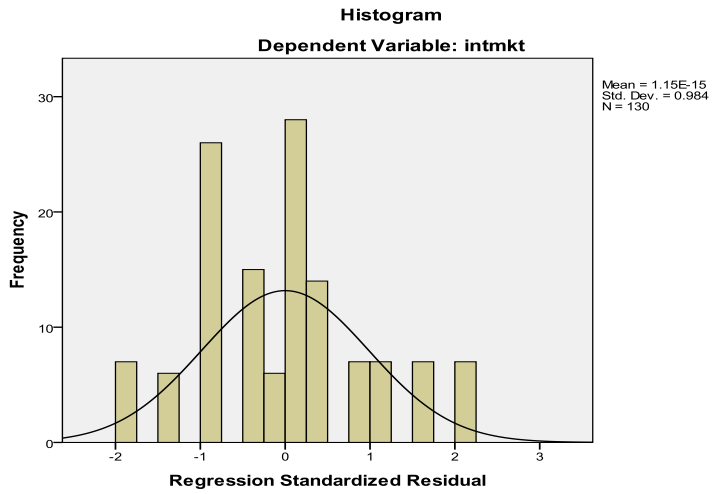

Figure 2: Histogram of residual

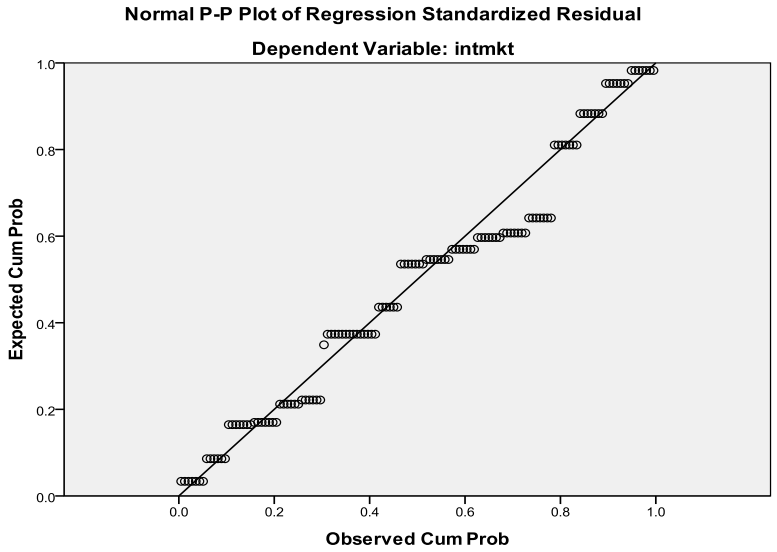

Figure 3: Normal probability plot

The above histogram shows that the curve is idealized normal. The curve shape indicates that the residual is normally distributed. From the Normal Probability Plot, it can be said to be normal since the points are near the diagonal line.

E. Linearity

Table 6: ANOVA results

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1145.009	4	286.252	1177.669	.000a
	Residual	30.383	125	.243		
	Total	1175.392	129			
a. Predictors: (Constant), Technology, marketing, quality, financing						
b. Dependent Variable: Access to the international market						

The *F*-ratio in the ANOVA table tests whether the overall regression model is a good fit for the data. The table shows that the independent variables significantly predict the dependent variable because the p-value is 0.000, which is less than 0.05. i.e., the regression model is a good fit of the data. Furthermore, the test statistic was significant at the .01 level of significance ($F = 1177.669$ $p<0.01$) as shown in above Table.

F. Multicollinearity

Multicollinearity test is used to check whether there is correlation between independent variables. According to the research findings, tolerance is greater than 0.10 and VIF index less than 10. It can be concluded that there is no multicollinearity problem.

Table 7: VIF

Model		Tolerance	VIF
1	(Constant)		
	Financing	0.531	1.883
	Marketing	0.717	1.396
	Quality	0.418	2.390
	Technology	0.786	1.273

G. Homoscedasticity Test

Homoscedasticity test is used for identifying whether the variance of Y is equal (homogeneous) for each variable X. According to the derived scatter plot, the data were randomly scattered between X and Y axes, indicating that the heteroscedasticity problem does not exist.

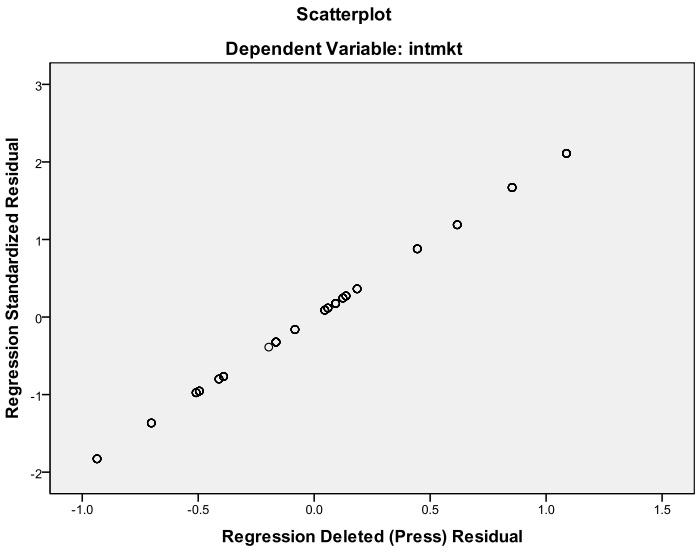

Figure 4: Heteroscedasticity plot

H. Model summary

The "**R Square**" column represents the R^2 value (also called the coefficient of determination), which is the proportion of variance in the dependent variable that can be explained by the independent variables (technically, it is the proportion of variation accounted for by the regression model above and beyond the mean). The table denotes the R^2 value of 0.974 that the independent variables explain 97.4% of the variability of access to the international market. Therefore, it is proven that marketing activities, financial support, quality and technology significantly influence access of value-added Cinnamon products to the export market.

As per the coefficient table, all four variables are shown to have a significant impact since all the p-values are less than 0.05. Therefore, the researcher can further conclude that marketing activities, financial support, quality and technology significantly influence the value-added cinnamon products' access to the export market.

Table 8: Model Summary

Model Summary					
Model		R	R Square	Adjusted R Square	Std. Error of the Estimate
	1	.987a	.974	.973	.49302
a. Predictors: (Constant), Technology, marketing, quality, financing					
b. Dependent Variable: Access to the international market					

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Finance	.498	.048	.684	10.402	.000
Marketing	.203	.027	.308	7.442	.000
Quality	.316	.045	.015	.361	.019
Technology	.401	.041	.002	.025	.000

5. Conclusion and Implications

A. Summary and Conclusion

This research is conducted to investigate the current value adding situation of the cinnamon industry in Sri Lanka and to identify the factors contributing to create more value addition to local economy through cinnamon exports. Sri Lanka is the only country exporting true cinnamon to the entire world, but there are no significant value-added cinnamon products manufactured at local level.

As per the results of the correlation and regression analysis, all hypotheses were accepted and the researcher found that marketing skills, financial support, product quality and technology significantly influence the increase of value-added cinnamon products in the international market.

As per the correlation analysis carried out, marketing activities have a correlation coefficient of 0.942, financial factors of 0.979, product quality of 0.868 and technology of 0.956 with the value-added cinnamon products into the international market. Apart from that, regression analysis also proves that these factors have a significant influence on value-added cinnamon products in the international market.

B. Implications

Research is based on the “deductive approach”. Deductive research approach means the application of logic or a theory to generate prepositions or hypotheses that can be tested. Due to the convenience of the researcher and time constraints, the researcher did not go for a probability sampling technique. Therefore, convenience sampling is used as the sampling method for the study.

C. Agenda for Future Research

The research was conducted in a limited time frame; therefore, the target population is limited to small number of respondents. Therefore, the future researchers are recommended to target larger population to increase the reliability of the results.

In this research study, the researcher has used only four elements which affect access to the international market as marketing skills, financial support, quality and technology support. But it is recommended to future researchers to explore more literature and find more factors that affect value-added cinnamon products.

D. Limitations of the Study

This research has encountered a number of practical difficulties and limitations of obtaining validated data. Apart from that, although the researcher collected data from questionnaire surveys, these responses may not be reliable. Personal bias may influence filling the questionnaires. Therefore, it is better to allocate more time to collect data and to stay for an adequate time period within the relevant sector to gather more insights. This may lead to correct findings as well as correct decisions. These may help to enhance the reliability and validity of the research output.

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