

**Price Volatility of Vegetable Farming in Sri Lanka: With special  
reference in up country Vegetable Farming in Nuwara Eliya  
District in Sri Lanka:**

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**Introduction**

Price fluctuations and changes in farm income becomes one of the core issues for sustaining small farmers in developing countries. Gravity of the issue varies from countries to country as the nature of production and the remedies followed to mitigate the issue. As the agro based economy that cultivate almost all the food requirements i.e. paddy and vegetables, Sri Lanka is also seriously affected by price fluctuations for long period. It has greatly influenced in livelihood of small farmers as well as the domestic food consumption leading to make macro-economic imbalances. Nearly 700,000 farmers in Sri Lanka were engaged in paddy and vegetable farming in 2015 and the median monthly income of rural sector was Rs, 23,126 in 2012. On the other hand, nearly 40 percent of consumers' monthly income is spending for food consumption especially for food items i.e. rice and vegetables (Department of Census and Statistics, 2012/13). Thus any effect of change in prices of food crops were badly influenced on income and living pattern of producers and the consumers of the country.

The factors influenced in price variation of food crops were mainly related with physical and climatic factors, and decisions taken by growers accordingly (Lekhi, R. K. and Singh, J. 2004). The literature of price behavior and supply response for food crop agriculture showed that prices of agricultural commodities determined on the variation of supply pattern, which occurred due to production gap associated with seasonality and time lag existed for producing agricultural commodities (Ellis, F. 1994). Cobweb theorem is one of the diagnostic tool used for analyzing price fluctuation in agricultural commodities. The theory explains price instability under three scenarios i.e. convergent fluctuations, divergent fluctuations and constant fluctuations. Though theory provide sufficient coverage to explain the kinked output path of agricultural commodities, the empirical evidences with respect to the price and supply variations in paddy and vegetable farming in Sri Lanka reflects that convergent and constant fluctuations exist in vegetable and paddy farming despite technological innovations initiated by policy makers (Gunawardena, P. J., and

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Chandrasiri, A. 1980). Hence the price instability has negatively affected for deteriorating farm income and sustainable farming.

### **Objectives**

The main objective of the study is to examine the oscillation pattern of vegetable farming in Sri Lanka in view of reviewing factors influenced for the price volatility and its impact on vegetable supply to the market. The analysis was focused on examine Cob –Web theorem presented by Nicholas Kaldor in 1934 and exploring the issues that affected for sustainable farming.

### **Methodology**

The methodology of the study was based on the deductive method in relation to statistical analysis centered on primary and secondary sources of information. Primary data were collected from 70 farmers who cultivated vegetable crops in Kandapola Divisional secretariat area of Nuwara Eliya District. Non random sampling method Used for selecting sample and a questionnaire was used for collecting primary data. Secondary data were collected from the annual reports of Central Bank and the reports of Census and Statistics department. Bar chart, pie chart and line chart were used for represent the data. Descriptive statistics and SPSS software were used to analysis data.

### **Analysis**

The linear regression model were developed to examine to objective of this study. The model is,

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + U_i$$

$Y_i$  = Sale Price of vegetable that cultivated as the main crop in the respective season

$X_{1i}$  = Sale Price of vegetable that cultivated as the main crop in the last season

$X_{2i}$  = Main vegetable cultivated in the respective season

$X_{3i}$  = Market Price of vegetable that cultivated as the main crop in the respective season

$X_{4i}$  = Total cost of production of vegetables cultivated in the respective season

$X_{5i}$  = Number of cultivated crops

$U_i$  = Error term

In the model, there are five independent variables in the right-hand side of the equation against the sale Price of the crop that cultivated as the main vegetable crop in respective season, which is the depend variable used to archive the objective of the study.

Table 1: Model Summary

Change Statistics					
R	R Square	F Change	df1	df2	Sig. F Change
.929 <sup>a</sup>	.864	81.167	5	64	.000

The model summary in table 1 indicates that change of F statistic (0.000) is statically significant at 5% significant Level. It means that fitness of the model is statistically significant at highest Level. The Value of R Square is 0.864 it implies that total variation of dependent variable adequately explained by the independent variables included in the model.

Table 2: coefficient

Model	Coefficients		
	B	t	Sig.
(Constant)	.946	.137	.892
Sale Price of main vegetable in the last season	.445	7.142	.000
Main vegetable cultivated in the respective season	-1.684	-1.348	.183
Market Price of vegetable that cultivated as the main crop in the respective season	.408	4.344	.000
Total cost of production of vegetables cultivated in the respective season	1.20	.721	.474
Number of cultivated crops	-1.787	-0.814	.419

According to the Table 2 the model is,

$$Y = 0.946 + 0.445X_1 - 1.684X_2 + 0.408X_3 + 1.204X_4 - 1.787X_5$$

Table 2 represent that  $\beta_1$  and  $\beta_2$  are statistically significant at 5% significant level and  $\beta_3$ ,  $\beta_4$ ,  $\beta_5$  are not statistically significant at 5% significant level. Therefore the Sale Price of vegetable that cultivated as the main crop in the last season is more affected to Sale Price of vegetable that cultivated as the main crop in the respective season than the other independent variables.

### **Findings**

The results empirically proved the cobweb theorem indicating that present market prices of up country vegetables were determined on the sale prices of previous season. It also revealed that majority of farmers are small producers that behave as price takers rather than price determinants. Cultivation is featured with mixed cropping system determine on harvesting time and quick return rather than organized and planned cultivation. It also found that such type of mixed cropping pattern minimized the risk of cultivation in very small farms.

***Key words: Price volatility, vegetable farming, small Farmers, Supply and demand***

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