



Seasonal Retail Price Analysis of some selected major Food Commodities to predict future prices in Colombo District: Case study from Retail Prices of Selected Food Items in Colombo Districts (2004-2019), Source Central Bank of Sri Lanka

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Abstract: A study was carried out during 2004- 2019 to analysis of seasonal retail prices of selected food commodities in Colombo district to predict future prices of them by using seasonal index of their prices and Confidence Level (95.0%) of month-to-month price difference. Price increase or decrease than previous month mentioned by considering Confidence Level (95.0%).

Samba rice retail price movement was marginally similar to its seasonal forecast trend and retail price decrease in March and increase in September, October, November and December. Kekulu rice retail price movement was marginally similar to its seasonal forecast trend and retail price decrease in March and increase in November and December.

Beans retail price movement was moderately similar to its seasonal forecast trend and retail price decrease in March and July and increase in May, October and November. Cabbage retail price movement was moderately similar to its seasonal forecast trend and retail price decrease in February and August and increase in May and June. Brinjal retail price movement was somewhat similar to its seasonal forecast trend and retail price decrease in July and increase in May, October and November. Pumpkins retail price movement was somewhat similar to its seasonal forecast trend and retail price increase in June and November.

Red Onion retail price movement was very similar to its seasonal forecast trend and retail price decrease in February, July and August and increase in May, October, November and December. Big Onion retail price movement was moderately similar to its seasonal forecast trend and retail price decrease in January and February and increase in June, August and November. Potatoes retail price movement was very similar to its seasonal forecast trend and retail price decrease in February, August and September and increase in April, May, June and November. Dried Chillies retail price movement was marginally similar to its seasonal forecast trend and retail price increase in June, July, September and October.

Kelawalla retail price movement was moderately similar to its seasonal forecast trend and retail price decrease in February and October and increase in April, May and June. Hurulla retail price movement was very similar to its seasonal forecast trend and retail price decrease in August, September and October and increase in January, April, May, June and December.

Eggs retail price movement was marginally similar to its seasonal forecast trend and retail price decrease in Ma and increase retail price in December. Coconut retail price movement was moderately similar to its seasonal forecast trend and retail price decrease in June and July and increase in October, November and December.

Index Terms - Food commodity, Colombo district, Seasonal index, Retail prices, Price difference, Confidence Level (95.0%).

I. INTRODUCTION

In Sri Lanka, today on average each one of us spends 52% of our income on food. This is a significant drain and reduces the disposable income of any individual. Consider the USA, the value is about 13% and for EU the value may be on average 17%. The overall benefits of reducing this value through meaningful action would have enormous benefits to society as per Ajith de Alwis (2020).

As the majority of commodity exchanges are volatile and complex, commodity prices are volatile. The domain of specific fields, such as agricultural economics, is affected. Commodity trading has become a significant way of gaining profit for many financial institutions globally. Commodities nowadays are a crucial component of many investors' portfolios. The price shifts of the most important commodities on the world's commodity exchange markets thus impact the prices of local producers.

1.1 MAIN REASONS FOR FOOD PRICES INCREASE

Prices of food can and do change throughout the year and over time. This may be due to a variety of reasons, including: Arable land limitation, climate and weather patterns, crop failure, crop disease, seasonality, consumer demand, agricultural costs increase, fuel prices go up and etc. Much lands and resources are needed to feed the ever-growing population. Same time, people demand land for housing, construction, and infrastructure. Therefore, the arable lands shrink day by day. This would lead to reduce the food production unless we do not increase the productivity of agricultural lands.

There are many factors that can cause food prices to change. Climate and weather patterns-Climate change has led to more severe extreme weather events, such as heat waves, drought and flooding. Such severe weather conditions can kill or harm crops, affect the quality of the soil, deplete grazing areas and cause livestock loss. This can damage stock levels and avoid exporting countries to other countries, contributing to a rise in food prices.

The failure of crops can have a big effect on farmers, customers and the economy. It can affect the income of the farmer, decrease the quantity of food available and, potentially, adversely affect a country's economy. A number of factors can cause crop failure: unfavorable climatic conditions; unforeseeable weather conditions; pests and disease; poor farming practices.

Seasonality Purchasing and consuming seasonal food means that it is: fresh; has the best taste, texture and color; has the optimal nutritional value. Seasonal food is readily available, which generally means that it is cheaper to purchase. Whether the food was grown or reared locally, it decreases transport and storage costs.

Consumer demand the price of a food, ingredient or piece of equipment can fluctuate depending on demand. The price of food items may be influenced by seasonality and special occasions, such as Xmas (in December) and the Sinhala & Tamil New Year (in April). Consumer demand for ingredients, as well as specialist cooking equipment, may also be influenced by TV programs and social media, contributing to decreased supply and potentially higher prices. At the point of purchase, the cost of processing the food and drink we consume will also affect the cost of the goods. Agricultural costs vary on the form and size of the farm, but also include: farm equipment, such as buying, repair and fuel; farm employees, such as employment, accommodation, food; fertilisers and sprays; livestock feed; livestock sheds/housing; seeds; vets. Increases in oil and energy prices raise the cost of processing and shipping farm goods and foodstuffs, which can contribute to higher food costs. If food prices increase, there are several potential implications. If people cannot afford higher food prices, they can eat less food or turn to lower quality, cheaper foods.

Many factors effect on food price changes as discussed in above but under this study mainly analyse monthly price changes by considering seasonality indexes of above-mentioned food commodities in Colombo district from 2004 to 2019.

1.2 SEASONAL VARIATIONS

Owing to the rhythmic forces that occur in a constant and periodic way within a span of less than one-year, seasonal variations occur in the time series. During a period of one-year, seasonal variations occur and have the same pattern year after year. The time span can be monthly, weekly or hourly in this case. But if the figure is given in annual terms, then there are no seasonal variations. Seasonal variations in a time series arise due to two variables. They are due to natural forces and manmade convention.

Climate changes in the climate and environmental conditions such as rain fall, humidity, heat etc. behave differently on various goods and industries, the most significant factor affecting seasonal variations. There is higher demand for woolen clothing, hot drinks, etc. during winter, for example. Where cold drinks have a higher sale, as in summer cotton clothing, and umbrellas and rain jackets have greater demand in the rainy season.

While nature is primarily responsible for seasonal change in time series, there is also an influence on customs, rituals and behaviors. In Sri Lanka, for example, there is a large demand for sweets and clothing etc. on occasions such as Sinhala Hindu New Year, Diwali, Christmas, etc., there is a large demand for books and stationery in the first few months of the opening of schools and colleges.

A seasonal index shows how, in a prolonged time, a periodic sum (typically a month) compares with the average of all times, such as a year. Since seasonal indexes calculate market fluctuations, they are widely used in sales forecasting, but any behavior that is affected by the season or particular time of year can be measured using seasonal indexes. An excellent method for calculating seasonal indexes is Microsoft Excel.

1.3 PRICE OF SELECTED FOOD COMMODITIES IN COLOMBO DISTRICT

Statistics Department (STD) of the Central Bank of Sri Lanka (CBSL) has been publishing "Economic and Social Statistics of Sri Lanka (ESS)" on an annual basis, with the objective of providing a single source of information that contains economic and social statistics related to Sri Lanka and neighboring countries.

Under this publication STD of CBSL has mentioned Retail Prices of Selected Food Items in Colombo District. Fourteen types of commodity are chosen to analyse in this paper. They are Samba Rice, Kekulu Rice, Beans, Cabbage, Brinjals, Pumpkins, Red Onion, Big Onion, Potatoes, Dried Chillies, Kelawalla, Hurulla, Eggs and Coconut.

Compiled data of selected food commodities from "Economic and Social Statistics of Sri Lanka (ESS)" of Central Bank of Sri Lanka 2006 to 2020 have been summarised in below tables.

1.3.1 PRICE CHANGES % YEAR TO YEAR OF SELECTED FOOD COMMODITIES IN COLOMBO DISTRICT

In Colombo district, Compare to previous year Ave. price change % of some selected major Food Commodities																
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Samba Rice (1kg)		0.90%	-7.63%	21.50%	45.86%	-0.94%	4.47%	-5.26%	-2.69%	1.99%	18.17%	10.30%	1.68%	5.50%	13.23%	-9.58%
Kekulu Rice (1kg)		-9.53%	-10.85%	41.23%	42.79%	14.71%	-15.82%	-1.67%	-1.33%	1.52%	20.73%	5.28%	-7.93%	22.31%	-3.25%	0.53%
Beans (1kg)		17.76%	19.98%	4.43%	27.54%	-11.76%	18.88%	29.53%	-15.11%	2.92%	1.57%	52.24%	-9.37%	5.08%	10.60%	-2.85%
Cabbage (1kg)		8.38%	47.55%	-3.02%	16.98%	-2.23%	15.52%	13.62%	-4.45%	6.66%	0.69%	32.07%	-0.20%	10.09%	10.10%	-4.41%
Brinjals (1kg)		3.61%	35.11%	2.47%	13.92%	-8.11%	5.75%	27.07%	-1.81%	-0.04%	11.66%	19.40%	0.04%	23.22%	5.78%	3.58%
Pumpkins (1kg)		13.21%	50.41%	12.73%	14.15%	0.40%	5.69%	17.00%	12.57%	-1.91%	5.26%	22.45%	10.06%	8.87%	-5.78%	19.20%
Red Onion (1kg)		20.04%	3.47%	19.57%	15.39%	5.52%	4.82%	37.05%	-24.79%	57.02%	-35.25%	15.72%	-4.36%	100.82%	-11.12%	2.87%
Big Onion (1kg)		16.42%	5.45%	29.05%	3.76%	10.52%	22.88%	-12.44%	7.30%	23.35%	-16.83%	26.20%	-19.36%	36.14%	-1.24%	21.07%
Potatoes (1kg)		10.62%	-0.62%	21.39%	6.96%	11.55%	2.97%	13.46%	4.59%	7.64%	5.80%	2.99%	-25.60%	59.45%	-3.35%	21.72%
Dried Chillies (1kg)		-10.00%	43.06%	7.09%	7.29%	1.20%	-7.49%	38.80%	-17.13%	-1.48%	3.84%	20.96%	26.73%	-24.34%	10.43%	28.68%
Kelawalla (1kg)		4.11%	56.35%	23.77%	16.12%	6.86%	9.64%	14.45%	13.69%	2.07%	1.54%	4.74%	4.00%	12.18%	1.95%	9.83%
Hurulla (1kg)		26.63%	30.24%	20.97%	18.73%	14.39%	2.45%	6.29%	5.43%	5.26%	-2.67%	5.91%	17.09%	6.28%	48.66%	-24.29%
Eggs (each)		23.08%	2.96%	26.68%	16.77%	14.79%	25.12%	-8.57%	-7.65%	22.89%	-6.45%	11.93%	9.07%	-13.01%	11.01%	24.11%
Coconut (each)		27.51%	-21.88%	45.02%	38.95%	-22.44%	27.51%	22.92%	-14.49%	22.36%	8.08%	10.00%	-8.06%	52.09%	3.88%	-29.42%
Total		10.91%	18.11%	19.49%	20.37%	2.46%	8.74%	13.73%	-3.28%	10.73%	1.15%	17.16%	-0.44%	21.76%	6.49%	4.36%

Figure 1. In Colombo district, Compare to previous year Ave. price change % of some selected major Food Commodities.

Source: Compiled from "Economic and Social Statistics of Sri Lanka (ESS)" of CBSL 2006 to 2020

1.3.2 PRICE OF SAMBA RICE IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Samba Rice-In Colombo district																		
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave.	Ave. Price % Change Month to Month
Jan	38.00	55.00	46.15	44.96	71.81	74.50	89.07	73.49	71.24	71.46	73.86	93.58	96.92	97.06	110.75	113.28	76.32	-3.36%
Feb	38.00	51.75	44.04	44.36	73.09	77.43	88.70	74.04	69.77	71.16	76.20	93.17	98.43	96.21	110.25	111.81	76.15	-0.22%
Mar	38.00	42.80	40.18	43.00	73.12	73.44	76.66	71.53	69.88	71.06	76.90	93.99	95.74	93.74	109.81	103.63	73.34	-3.69%
Apr	40.67	42.75	40.42	41.59	83.34	71.11	74.87	71.56	69.24	71.07	81.51	92.70	93.88	95.87	113.18	99.25	73.94	0.81%
May	42.40	42.00	39.45	42.04	72.62	70.57	77.22	72.43	68.88	71.79	81.33	92.42	93.61	96.50	113.63	97.88	73.42	-0.70%
Jun	42.00	41.60	39.11	43.01	72.57	70.79	76.28	72.57	68.50	70.15	81.70	92.56	94.47	97.97	112.83	98.80	73.43	0.01%
Jul	43.50	39.00	40.19	41.50	71.40	71.02	72.24	71.37	69.50	69.95	83.07	92.89	95.08	97.39	113.00	96.70	72.99	-0.61%
Aug	44.00	37.60	38.88	44.40	71.31	70.38	68.96	71.22	69.62	69.83	85.99	91.30	91.16	98.44	111.25	93.00	72.33	-0.90%
Sep	48.20	44.00	41.05	46.25	71.58	70.50	69.67	70.03	69.53	70.48	90.45	90.42	91.98	102.14	111.56	94.25	73.88	2.14%
Oct	48.00	45.50	39.90	51.12	72.39	71.40	69.34	70.49	69.64	71.93	91.81	91.70	91.53	105.13	114.30	100.33	75.28	1.90%
Nov	52.00	46.00	41.75	58.27	71.70	72.13	72.59	70.26	69.78	72.01	93.49	94.10	92.83	106.46	115.31	104.68	77.10	2.41%
Dec	54.20	48.00	43.94	65.13	72.29	77.22	71.05	71.76	71.35	73.37	92.65	94.71	96.00	108.53	114.88	108.47	78.97	2.43%
Year Ave.	44.27	44.67	41.26	50.13	73.12	72.43	75.67	71.69	69.76	71.15	84.08	92.74	94.30	99.49	112.65	101.86	74.95	
Ave. Price % Change Year to Year		0.90%	-7.63%	21.50%	45.86%	-0.94%	4.47%	-5.26%	-2.69%	1.99%	18.17%	10.30%	1.68%	5.50%	13.23%	-9.58%		
Ave. Price % Change 2004 to Year		0.90%	-6.80%	13.24%	65.17%	63.61%	70.93%	61.94%	57.58%	60.72%	89.93%	109.49%	113.01%	124.73%	154.46%	130.09%		

Figure 2. Price of Samba Rice-In Colombo district

Source: Compiled from "Economic and Social Statistics of Sri Lanka (ESS)" of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2007, 2008, 2014, 2015 and 2018.

130.09% price increment can be identified in 2019 from 2004.

Positive Ave. price changes (Month to Month) can be identified in April, June, September, October, November and December and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.3 PRICE OF KEKULU RICE IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Kekulu Rice-In Colombo district																		
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave.	Ave. Price % Change Month to Month
Jan	33.25	45.50	32.22	37.70	62.02	74.50	72.81	59.90	60.71	60.98	61.61	85.35	72.83	89.31	83.85	82.31	63.43	-8.08%
Feb	33.00	44.00	30.79	41.93	62.84	77.43	71.79	62.56	61.35	61.02	64.49	82.78	69.33	87.35	80.58	81.00	63.27	-0.26%
Mar	34.00	34.60	29.58	41.07	60.93	73.44	64.26	60.87	59.12	59.81	64.02	82.86	66.03	81.22	84.60	76.31	60.80	-3.90%
Apr	34.33	35.00	30.47	39.60	66.72	71.11	61.69	61.99	57.67	60.14	67.17	81.96	65.53	82.77	86.24	77.05	61.22	0.69%
May	34.00	33.25	30.03	38.58	65.09	70.57	61.34	61.04	57.31	60.08	67.63	79.86	66.89	84.40	86.44	79.69	61.01	-0.33%
Jun	35.50	33.60	30.62	38.76	65.02	70.79	60.67	61.78	56.48	59.50	68.31	79.39	67.34	85.62	85.75	80.27	61.21	0.33%
Jul	39.50	32.00	30.17	38.00	63.66	71.02	56.58	59.94	58.12	59.48	68.05	72.96	66.30	85.32	83.05	77.30	60.09	-1.83%
Aug	41.00	32.00	30.06	39.67	63.37	70.38	55.16	57.81	57.48	59.59	73.98	73.32	67.97	85.18	85.94	78.75	60.73	1.06%
Sep	45.40	30.50	30.48	41.21	61.84	70.50	53.36	56.96	59.87	60.35	82.32	68.81	68.05	87.39	81.75	83.60	61.40	1.10%
Oct	42.50	32.00	30.63	43.08	61.09	71.40	55.66	57.23	60.12	59.68	83.10	67.12	73.13	87.60	79.80	89.60	62.11	1.16%
Nov	45.25	32.50	33.97	50.35	62.65	72.13	58.70	59.66	60.98	60.33	84.56	70.21	77.25	86.43	80.44	95.13	64.41	3.70%
Dec	46.00	36.50	36.73	56.63	63.24	77.22	59.36	60.80	60.88	60.13	85.23	71.51	83.84	88.70	114.88	102.37	69.00	7.13%
Ave.	38.82	35.12	31.31	44.22	63.14	72.43	60.97	59.95	59.15	60.05	72.50	76.33	70.28	85.96	83.17	83.61	62.31	
Ave. Price % Change Year to Year		-9.53%	-10.85%	41.23%	42.79%	14.71%	-15.82%	-1.67%	-1.33%	1.52%	20.73%	5.28%	-7.93%	22.31%	-3.25%	0.53%		
Ave. Price % Change 2004 to Year		-9.53%	-19.35%	13.91%	62.65%	86.58%	57.06%	54.43%	52.37%	54.69%	86.76%	96.63%	81.04%	121.43%	114.25%	115.38%		

Figure 3. Price of Kekulu Rice-In Colombo district

Source: Compiled from "Economic and Social Statistics of Sri Lanka (ESS)" of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2007, 2008, 2009, 2014 and 2017.

115.38% price increment can be identified in 2019 from 2004.

Positive Ave. price changes (Month to Month) can be identified in April, June, August, September, October, November and December and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.4 PRICE OF BEANS IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Beans-In Colombo district																	Ave. Price % Change Month to Month	
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mntly Ave.	
Jan	46.50	81.25	77.38	97.74	95.16	81.26	111.43	160.23	100.47	184.07	105.14	304.42	195.83	111.88	246.00	170.00	135.55	-13.94%
Feb	50.00	80.00	71.39	98.72	87.83	83.82	100.28	220.63	89.05	158.75	95.95	244.50	142.50	175.86	167.50	131.25	124.88	-7.87%
Mar	42.00	53.00	66.67	71.88	113.64	81.67	89.80	216.64	76.28	140.28	97.66	161.22	135.37	167.35	153.33	130.63	112.34	-10.04%
Apr	63.33	51.25	65.79	72.37	125.88	95.97	89.66	156.00	113.71	91.11	120.00	113.65	161.85	228.07	143.68	234.00	120.40	7.17%
May	59.00	63.75	88.04	80.27	122.28	89.07	129.88	111.14	130.19	102.97	153.11	149.91	226.94	220.27	191.88	263.75	136.40	13.30%
Jun	56.25	76.00	86.75	100.60	126.92	117.08	129.22	133.49	158.60	130.12	145.41	217.10	224.12	193.89	293.75	192.00	148.83	9.11%
Jul	57.50	75.00	70.95	92.50	103.95	110.29	112.72	129.67	117.08	121.88	120.57	183.08	180.53	161.33	275.00	160.00	129.50	-12.99%
Aug	60.00	71.00	70.09	80.50	102.15	91.43	112.36	123.21	118.10	129.27	107.83	142.72	147.19	165.28	217.81	197.50	121.03	-6.54%
Sep	67.00	62.50	73.41	86.13	97.35	78.66	103.40	109.56	116.76	107.88	112.57	138.65	147.00	175.83	131.88	237.00	115.35	-4.69%
Oct	70.00	57.50	76.34	83.89	101.33	90.98	118.32	109.88	151.07	113.09	160.68	175.85	182.75	180.75	200.50	206.67	128.88	12.68%
Nov	58.75	62.50	107.60	82.00	99.91	109.55	121.43	151.49	212.18	122.32	144.00	254.80	217.40	190.00	281.88	180.00	149.74	15.21%
Dec	55.00	70.00	109.85	80.64	105.11	110.86	121.76	160.35	126.24	129.00	190.54	287.57	180.94	283.75	199.00	309.47	157.51	5.19%
Ave.	56.88	66.98	80.36	83.92	107.03	94.44	112.27	145.42	123.45	127.05	129.04	196.45	178.04	187.09	206.92	201.02	131.02	
Ave. Price % Change Year to Year		17.76%	19.98%	4.43%	27.54%	-11.76%	18.88%	29.53%	-15.11%	2.92%	1.57%	52.24%	-9.37%	5.08%	10.60%	-2.85%		
Ave. Price % Change 2004 to Year		17.76%	41.28%	47.54%	88.17%	66.03%	97.38%	155.66%	117.04%	123.36%	126.86%	245.38%	213.01%	228.92%	263.78%	253.41%		

Figure 4. Price of Beans-In Colombo district

Source: Compiled from "Economic and Social Statistics of Sri Lanka (ESS)" of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2005, 2006, 2008, 2010, 2011, 2015 and 2018. 253.41% price increment can be identified in 2019 from 2004.

Positive Ave. price changes (Month to Month) can be identified in April, May, June, October, November and December and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.5 PRICE OF CABBAGE IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Cabbage-In Colombo district																	Ave. Price % Change Month to Month	
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mntly Ave.	
Jan	32.50	47.50	50.94	93.06	57.30	59.05	83.83	96.53	85.23	103.48	66.71	177.58	148.89	77.81	120.67	138.13	89.95	-14.30%
Feb	28.50	42.50	49.06	83.81	50.54	61.54	70.44	114.17	63.18	95.69	60.54	137.93	119.50	73.33	87.50	104.38	77.66	-13.66%
Mar	22.00	37.00	40.70	64.34	53.42	58.11	68.40	127.00	56.56	86.77	61.44	96.62	105.00	75.82	90.00	104.38	71.72	-7.65%
Apr	26.00	35.00	49.56	57.14	68.16	61.17	64.73	112.86	64.71	87.41	62.51	80.49	109.15	138.00	111.58	127.00	78.47	9.40%
May	40.00	37.50	55.40	54.89	100.28	64.31	74.82	100.50	75.19	90.15	83.97	93.02	148.61	179.00	111.88	138.75	90.52	15.36%
Jun	42.50	37.00	74.49	55.42	109.25	75.28	90.48	80.28	96.10	103.78	118.65	106.26	175.59	158.06	162.08	137.33	101.41	12.03%
Jul	50.00	32.50	66.08	37.00	74.48	76.70	80.00	70.33	82.07	101.09	121.62	99.74	144.21	157.00	200.00	115.00	94.24	-7.07%
Aug	48.75	36.00	66.31	47.03	67.21	75.96	78.92	60.57	90.71	93.38	96.47	92.23	112.81	114.44	171.44	105.00	84.83	-9.99%
Sep	37.00	42.50	63.50	51.51	59.15	64.06	73.26	57.57	80.33	85.15	81.89	87.08	97.75	123.61	155.00	135.79	80.95	-4.57%
Oct	35.00	45.00	59.99	52.96	58.68	70.03	78.30	63.26	92.30	75.85	90.68	93.59	93.30	151.25	142.50	160.00	85.17	5.21%
Nov	36.25	50.00	66.10	64.37	58.44	44.17	77.91	75.00	126.76	74.15	104.89	162.29	83.15	158.33	180.63	183.75	96.64	13.47%
Dec	49.00	45.00	77.31	58.89	61.84	80.70	78.79	105.83	102.97	72.77	129.32	202.57	84.33	169.38	169.00	191.58	104.96	8.61%
Ave.	37.49	40.63	59.95	58.14	68.01	66.49	76.81	87.27	83.39	88.94	89.55	118.27	118.03	129.94	143.07	136.76	87.67	
Ave. Price % Change Year to Year		8.38%	47.55%	-3.02%	16.98%	-2.23%	15.52%	13.62%	-4.45%	6.66%	0.69%	32.07%	-0.20%	10.09%	10.10%	-4.41%		
Ave. Price % Change 2004 to Year		8.38%	59.91%	55.08%	81.41%	77.35%	104.88%	132.78%	122.43%	137.24%	138.86%	215.47%	214.83%	246.60%	281.62%	264.79%		

Figure 5. Price of Cabbage-In Colombo district

Source: Compiled from "Economic and Social Statistics of Sri Lanka (ESS)" of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2006, 2008, 2010, 2011, 2015, 2017 and 2018. 264.79% price increment can be identified in 2019 from 2004.

Positive Ave. price changes (Month to Month) can be identified in April, May, June, October, November and December and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.6 PRICE OF BRINJALS IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Brinjals-In Colombo district																		
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mnthly Ave.	Ave. Price % Change Month to Month
Jan	35.00	50.00	55.58	81.22	77.94	62.55	84.07	107.50	75.70	143.46	76.53	207.21	134.72	85.63	178.67	151.25	100.44	-5.95%
Feb	31.25	47.50	46.98	52.05	51.86	51.85	53.53	129.20	48.09	93.69	72.57	101.46	98.85	95.00	103.13	100.00	73.56	-26.76%
Mar	25.80	34.00	39.61	45.23	60.84	45.88	57.72	115.58	51.03	83.63	66.79	83.92	105.00	75.29	108.00	125.00	70.21	-4.56%
Apr	30.00	40.00	55.35	48.25	84.50	56.64	58.31	84.32	65.64	70.58	79.58	74.59	100.00	104.00	103.16	112.50	72.96	3.93%
May	35.00	38.75	56.46	54.10	80.34	57.50	70.33	82.07	79.97	73.03	89.56	89.23	145.28	136.73	116.25	151.88	84.78	16.19%
Jun	35.00	37.00	62.55	56.28	75.05	69.72	71.39	70.56	87.07	81.95	105.73	88.71	144.12	136.94	158.33	121.33	87.61	3.34%
Jul	37.50	38.75	49.16	50.00	57.23	59.46	54.33	58.00	82.48	66.19	91.89	82.43	107.47	140.00	142.00	121.00	77.37	-11.69%
Aug	29.25	39.00	49.81	50.40	56.05	56.55	53.58	64.86	82.08	75.49	76.02	88.96	89.69	138.89	138.13	123.75	75.78	-2.05%
Sep	39.00	37.50	52.48	56.98	56.71	54.28	58.83	63.75	83.56	67.27	79.16	89.03	86.75	147.65	129.38	145.00	77.96	2.87%
Oct	50.00	42.50	56.68	60.33	56.59	62.40	64.10	56.25	92.04	73.56	94.51	87.43	92.75	162.19	140.00	153.33	84.04	7.80%
Nov	65.00	45.00	70.47	63.80	58.94	68.03	59.73	80.19	135.00	71.34	100.67	129.86	92.40	167.67	190.00	167.50	97.85	16.43%
Dec	66.00	50.00	80.41	59.76	71.68	83.45	77.56	83.21	102.03	68.39	140.81	147.71	81.88	187.50	160.00	248.33	106.80	9.14%
Ave.	40.22	41.67	56.30	57.69	65.72	60.39	63.86	81.15	79.68	79.65	88.94	106.19	106.23	130.90	138.46	143.41	83.78	
Ave. Price % Change Year to Year		3.61%	35.11%	2.47%	13.92%	-8.11%	5.75%	27.07%	-1.81%	-0.04%	11.66%	19.40%	0.04%	23.22%	5.78%	3.58%		
Ave. Price % Change 2004 to Year		3.61%	39.98%	43.44%	63.40%	50.15%	58.78%	101.77%	98.11%	98.04%	121.13%	164.02%	164.12%	225.46%	244.26%	256.56%		

Figure 6. Price of Brinjals-In Colombo district**Source:** Compiled from "Economic and Social Statistics of Sri Lanka (ESS)" of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2006, 2008, 2011, 2014, 2015 and 2017. 256.56% price increment can be identified in 2019 from 2004.

Positive Ave. price changes (Month to Month) can be identified in April, May, June, September, October, November and December and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.7 PRICE OF PUMPKINS IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Pumpkins-In Colombo district																		
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mnthly Ave.	Ave. Price % Change Month to Month
Jan	25.00	17.00	35.21	43.54	42.38	47.39	53.12	53.38	67.17	67.78	58.82	94.35	84.41	91.06	n.a.	85.33	57.73	-13.54%
Feb	21.25	18.75	37.74	47.63	39.36	52.88	40.61	67.81	52.61	61.11	57.77	135.77	108.68	95.11	n.a.	75.00	60.81	5.33%
Mar	20.00	27.60	37.41	40.15	41.12	56.15	44.70	80.09	50.28	78.25	57.19	109.72	80.26	100.00	n.a.	76.25	59.94	-1.42%
Apr	20.00	26.00	35.49	35.33	43.47	50.86	42.76	65.59	51.50	65.39	57.64	82.57	73.75	108.00	81.43	77.37	57.32	-4.38%
May	20.80	27.75	34.73	37.90	57.27	47.43	47.59	53.90	54.12	66.91	75.71	66.49	91.67	102.67	66.88	108.75	60.04	4.73%
Jun	21.00	28.60	34.33	40.54	64.04	51.42	47.10	48.26	78.19	69.42	97.03	59.19	116.47	128.24	82.50	140.00	69.15	15.17%
Jul	23.75	25.00	31.35	33.50	57.03	49.46	54.09	45.46	77.45	67.03	86.35	64.13	141.84	135.67	90.00	170.00	72.01	4.14%
Aug	26.25	22.00	30.80	38.42	48.56	43.17	46.97	44.79	69.64	60.00	62.43	75.33	99.67	92.22	108.75	125.33	62.15	-13.69%
Sep	21.40	20.00	34.65	41.34	43.43	35.45	55.25	50.83	72.22	61.67	54.32	74.03	83.95	81.76	96.25	114.50	58.82	-5.36%
Oct	20.00	25.00	38.38	43.29	44.99	39.33	59.02	59.62	76.20	60.15	64.32	77.33	71.75	88.75	94.25	138.00	62.52	6.30%
Nov	21.25	30.00	49.57	43.08	44.95	47.61	55.88	70.00	90.38	61.95	71.78	92.34	80.00	95.67	114.38	128.75	68.60	9.72%
Dec	20.60	27.50	44.38	44.40	45.97	55.16	53.37	77.38	73.47	61.45	83.89	77.43	82.81	94.06	107.50	118.95	66.77	-2.67%
Ave.	21.73	24.60	37.00	41.71	47.61	47.80	50.52	59.11	66.54	65.27	68.70	84.12	92.58	100.79	94.96	113.19	63.51	
Ave. Price % Change Year to Year		13.21%	50.41%	12.73%	14.15%	0.40%	5.69%	17.00%	12.57%	-1.91%	5.26%	22.45%	10.06%	8.87%	-5.78%	19.20%		
Ave. Price % Change 2004 to Year		13.21%	70.27%	91.95%	119.10%	119.97%	132.49%	172.02%	206.21%	200.37%	216.15%	287.11%	326.05%	363.83%	337.00%	420.89%		

Figure 7. Price of Pumpkins-In Colombo district**Source:** Compiled from "Economic and Social Statistics of Sri Lanka (ESS)" of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2005, 2006, 2007, 2008, 2011, 2012, 2015, 2016 and 2019. 420.89% price increment can be identified in 2019 when compare to 2004.

Positive Ave. price changes (Month to Month) can be identified in February, May, June, July, October and November and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.8 PRICE OF RED ONION IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Red Onion-In Colombo district																		
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mnthly Ave.	Ave. Price % Change Month to Month
Jan	66.00	70.00	91.10	65.24	110.73	113.96	124.11	326.97	115.86	163.04	122.17	137.12	127.78	165.00	356.67	184.00	146.23	-19.99%
Feb	54.00	57.50	66.10	61.62	81.72	108.57	95.60	318.29	100.15	132.73	104.14	116.73	103.89	148.50	307.14	197.14	128.36	-12.22%
Mar	41.60	59.00	60.68	61.18	88.34	105.31	82.65	124.07	95.67	127.83	99.79	107.16	101.39	147.27	257.14	162.00	107.57	-16.20%
Apr	48.33	62.75	63.30	71.30	118.75	107.81	74.71	133.68	107.45	137.22	111.57	112.26	113.33	199.67	237.14	155.33	115.91	7.76%
May	62.80	66.25	67.61	66.54	113.93	117.02	93.59	147.08	108.24	146.45	125.00	125.32	158.89	285.00	226.67	174.17	130.29	12.40%
Jun	66.25	67.00	78.70	71.47	91.63	117.64	99.19	150.07	131.55	192.00	115.21	148.33	155.00	293.89	216.25	208.00	137.64	5.64%
Jul	48.75	65.00	63.23	75.50	90.26	95.67	95.94	124.77	112.50	182.63	100.48	160.25	145.50	252.86	204.67	228.00	127.88	-7.09%
Aug	40.00	52.00	59.53	75.38	85.07	79.88	85.47	94.10	95.10	186.50	98.13	125.93	111.00	220.00	177.50	181.25	110.42	-13.65%
Sep	48.00	60.00	67.35	72.32	88.97	83.56	89.73	104.49	93.14	188.39	106.90	114.31	115.00	280.83	168.33	190.00	116.96	5.93%
Oct	57.50	70.00	73.05	79.53	99.26	82.23	108.01	108.50	96.25	200.54	111.45	134.71	124.00	293.75	157.65	284.00	130.03	11.17%
Nov	77.50	80.00	83.19	111.55	96.91	114.55	147.37	119.19	130.89	224.83	129.36	161.60	143.21	364.38	187.50	382.50	159.66	22.79%
Dec	78.00	120.00	84.49	130.68	120.23	127.67	197.17	120.23	170.60	214.09	150.96	182.22	126.88	463.75	194.62	442.73	182.77	14.48%
Ave.	57.59	69.13	71.53	85.53	98.69	104.14	109.16	149.60	112.51	176.66	114.38	132.36	126.59	254.22	225.95	232.43	132.53	
Ave. Price % Change Year to Year		20.04%	3.47%	19.57%	15.39%	5.52%	4.82%	37.05%	-24.79%	57.02%	-35.25%	15.72%	-4.36%	100.82%	-11.12%	2.87%		
Ave. Price % Change 2004 to Year		20.04%	24.21%	48.52%	71.37%	80.83%	89.55%	159.77%	95.36%	206.75%	98.61%	129.83%	119.81%	341.43%	292.34%	303.59%		

Figure 8. Price of Red Onion-In Colombo district**Source:** Compiled from "Economic and Social Statistics of Sri Lanka (ESS)" of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2005, 2007, 2008, 2011, 2013, 2015, and 2017. 303.59% price increment can be identified in 2019 when compare to 2004.

Positive Ave. price changes (Month to Month) can be identified in April, May, June, September, October, November and December and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.9 PRICE OF BIG ONION IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Big Onion-In Colombo district																		
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mnly Ave.	Ave. Price % Change Month to Month
Jan	53.00	43.75	47.32	55.10	60.88	83.89	98.50	126.98	78.07	88.12	85.00	105.37	87.76	97.31	136.17	94.29	83.84	-20.06%
Feb	47.75	36.25	45.25	58.25	60.38	79.19	76.94	80.71	79.38	89.78	70.19	82.97	64.79	98.13	124.48	89.31	73.98	-11.76%
Mar	34.20	38.20	40.82	62.19	62.53	79.84	76.36	72.50	77.32	82.87	70.46	86.22	80.55	99.81	127.50	85.84	73.58	-0.55%
Apr	34.67	51.25	42.21	59.95	62.19	70.72	69.78	62.28	81.41	78.34	76.00	87.10	92.72	101.73	95.39	99.08	72.80	-1.05%
May	30.00	41.25	41.31	53.35	62.20	72.82	63.75	66.02	79.24	76.19	84.24	108.85	91.42	99.43	109.48	96.56	73.51	0.97%
Jun	31.50	39.00	62.44	59.15	62.67	76.88	70.96	64.88	91.88	81.68	85.48	108.23	86.00	101.02	115.00	117.92	78.42	6.68%
Jul	32.25	45.75	45.47	72.00	64.62	71.67	65.90	64.25	84.89	99.29	93.09	107.40	85.38	108.81	121.75	127.94	80.65	2.85%
Aug	38.00	48.80	44.58	54.96	70.20	67.14	78.41	76.79	82.79	122.87	100.26	119.65	89.84	129.40	118.75	134.38	86.05	6.69%
Sep	36.33	55.00	42.11	49.70	62.64	59.81	77.92	75.43	76.18	104.76	85.55	114.09	88.88	135.19	112.66	168.40	84.04	-2.34%
Oct	45.00	56.50	44.68	62.81	64.02	68.38	88.93	76.15	73.75	100.93	82.68	123.71	87.26	141.82	115.58	266.88	93.69	11.48%
Nov	49.67		58.35	91.32	69.73	70.83	125.43	81.59	84.20	174.23	89.21	144.96	96.99	160.98	127.19	234.69	110.62	18.07%
Dec	52.00	56.00	74.17	68.50	82.35	93.75	162.39	81.67	117.07	109.11	112.52	101.41	97.09	161.74	114.53	193.86	104.89	-5.19%
Ave.	39.96		49.06	63.31	65.69	72.60	89.21	78.11	83.81	103.38	85.98	108.51	87.50	119.12	117.64	142.43	87.09	
Ave. Price % Change Year to Year				29.05%	3.76%	10.52%	22.88%	-12.44%	7.30%	-23.35%	-16.83%	26.20%	-19.36%	36.14%	-1.24%	21.07%		
Ave. Price % Change 2004 to Year				29.05%	33.90%	47.98%	81.84%	59.21%	70.83%	110.72%	75.25%	121.18%	78.35%	142.80%	139.79%	190.32%		

Figure 9. Price of Big Onion-In Colombo district

Source: Compiled from “Economic and Social Statistics of Sri Lanka (ESS)” of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2007, 2009, 2010, 2013, 2015, 2017 and 2019. 190.32% price increment can be identified in 2019 when compare to 2004.

Positive Ave. price changes (Month to Month) can be identified in May, June, July, August, October and November and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.10 PRICE OF POTATOES IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Potatoes-In Colombo district																		
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mnly Ave.	Ave. Price % Change Month to Month
Jan	55.00	65.75	63.37	64.03	83.29	82.48	92.38	98.31	100.97	124.27	115.88	120.76	109.57	155.83	125.33	162.50	101.23	-14.37%
Feb	50.00	60.00	61.38	62.17	75.59	79.54	79.45	81.39	94.34	113.92	106.41	112.93	103.77	151.67	116.25	157.50	94.14	-7.00%
Mar	48.60	61.00	57.21	69.01	77.53	80.63	78.89	89.30	100.67	104.20	110.89	120.14	92.63	138.00	129.33	143.13	93.82	-0.34%
Apr	53.00	64.25	61.80	77.96	79.83	90.71	84.86	109.05	107.61	106.15	132.78	125.28	86.88	171.67	140.00	177.00	104.30	11.17%
May	57.80	67.00	63.06	77.89	83.33	93.59	91.08	107.23	109.34	103.64	141.00	133.88	118.47	173.18	152.50	192.00	110.31	5.76%
Jun	63.75	67.00	66.12	87.50	88.57	104.70	99.91	111.08	130.87	123.25	156.49	142.17	130.29	166.43	168.33	192.67	118.70	7.60%
Jul	61.25	67.50	70.29	79.00	87.87	108.56	97.82	119.65	128.80	134.88	161.81	147.73	124.66	171.54	183.50	219.47	122.77	3.43%
Aug	58.50	65.00	70.36	82.05	85.60	90.57	93.43	117.15	119.57	137.38	133.94	140.60	94.68	169.69	179.38	201.25	114.95	-6.37%
Sep	54.00	55.00	58.80	78.60	79.83	76.74	93.11	117.46	110.30	126.82	106.35	131.67	85.35	160.00	155.63	207.00	106.04	-7.75%
Oct	-	na.	66.81	75.94	79.23	84.07	100.52	103.18	103.93	124.56	116.35	135.32	82.25	148.93	144.50	170.67	109.73	3.48%
Nov	80.00	70.00	72.21	77.99	88.26	116.52	113.26	113.68	124.92	139.76	131.44	151.61	86.20	143.08	174.69	202.67	117.89	7.44%
Dec	72.60	70.00	61.01	82.82	93.40	117.81	114.33	117.68	144.02	120.34	140.77	142.29	82.34	156.43	164.21	211.58	118.23	0.28%
Ave.	58.55	64.77	64.37	78.14	83.58	93.23	96.00	108.92	113.92	122.62	129.73	133.61	99.40	158.49	153.18	186.45	109.06	
Ave. Price % Change Year to Year		10.62%	-0.62%	21.39%	6.96%	11.55%	2.97%	13.46%	4.59%	7.64%	5.80%	2.99%	-25.60%	59.45%	-3.35%	21.72%		
Ave. Price % Change 2004 to Year		10.62%	9.94%	33.46%	42.75%	59.23%	63.96%	86.03%	94.57%	109.43%	121.57%	128.20%	69.77%	170.69%	161.62%	218.45%		

Figure 10. Price of Potatoes-In Colombo district

Source: Compiled from “Economic and Social Statistics of Sri Lanka (ESS)” of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2005, 2007, 2009, 2011, 2017 and 2019. 218.45% price increment can be identified in 2019 when compare to 2004.

Positive Ave. price changes (Month to Month) can be identified in April, May, June, July, October, November and December and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.11 PRICE OF DRIED CHILIES IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Dried Chillies-In Colombo district																	Mntly Ave.	Ave. Price % Change Month to Month
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Jan	170.00	142.50	138.47	249.65	205.14	213.10	213.49	230.18	249.33	222.32	220.53	249.77	341.67	301.72	249.33	333.75	233.18	-8.51%
Feb	163.75	130.00	131.88	234.39	201.14	208.53	209.23	261.20	251.49	237.32	225.34	259.88	348.29	282.06	250.63	335.63	233.59	0.18%
Mar	140.00	120.00	144.64	188.98	199.43	210.43	200.29	265.33	231.18	234.88	225.69	261.62	350.00	287.17	256.67	328.75	227.82	-2.47%
Apr	138.33	120.00	149.01	185.51	205.71	209.03	193.11	271.01	220.44	235.63	229.17	256.76	356.58	267.00	293.16	348.00	229.90	0.92%
May	130.00	118.75	167.86	188.31	204.02	207.93	191.25	278.63	210.07	229.38	225.00	257.33	366.11	259.33	290.63	344.38	229.31	-0.26%
Jun	133.75	123.00	178.12	192.32	209.19	207.92	191.56	283.66	212.33	226.10	222.43	261.94	367.06	261.11	288.33	348.00	231.68	1.03%
Jul	136.25	127.50	180.93	183.75	219.17	209.66	195.38	286.36	222.84	219.22	227.57	274.74	370.25	263.14	298.50	352.00	235.45	1.63%
Aug	133.75	120.00	185.68	190.25	218.69	214.87	193.83	283.61	224.05	217.68	228.70	275.11	359.33	249.41	315.31	372.50	236.42	0.41%
Sep	139.00	122.50	203.24	190.33	218.09	216.88	186.81	288.93	221.29	215.15	233.78	285.95	365.88	263.24	311.56	392.63	240.95	1.92%
Oct	138.75	130.00	218.25	191.43	217.18	223.37	190.45	287.32	217.59	211.47	236.69	316.41	360.75	270.36	324.50	436.00	248.16	2.99%
Nov	140.00	140.00	231.47	193.42	214.02	220.23	195.83	274.86	222.50	214.02	246.63	327.21	345.25	257.67	318.13	491.25	252.03	1.56%
Dec	144.00	140.00	258.55	196.57	212.03	207.93	198.70	266.58	225.20	216.29	256.62	339.57	322.97	260.33	337.00	495.79	254.88	1.13%
Ave.	142.06	127.85	182.90	195.86	210.14	212.66	196.73	273.07	226.29	222.94	231.49	280.02	354.88	268.51	296.52	381.56	237.72	
Ave. Price % Change Year to Year		-10.00%	43.06%	7.09%	7.29%	1.20%	-7.49%	38.80%	-17.13%	-1.48%	3.84%	20.96%	26.73%	-24.34%	10.43%	28.68%		
Ave. Price % Change 2004 to Year		-10.00%	28.75%	37.87%	47.92%	49.70%	38.48%	92.22%	59.29%	56.93%	62.95%	97.11%	149.81%	89.01%	108.73%	168.59%		

Figure 11. Price of Dried Chillies-In Colombo district

Source: Compiled from "Economic and Social Statistics of Sri Lanka (ESS)" of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2006, 2011, 2015, 2016, 2018 and 2019. 168.59% price increment can be identified in 2019 when compare to 2004.

Positive Ave. price changes (Month to Month) can be identified in February, April, June, July, August, September, October, November and December and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.12 PRICE OF KELAWALLA IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Kelawalla-In Colombo district																	Mntly Ave.	Ave. Price % Change Month to Month
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Jan	227.50	196.67	331.73	381.04	431.67	505.00	546.13	628.10	674.40	841.80	776.25	787.50	819.17	856.33	935.87	986.25	620.34	-5.88%
Feb	197.50	182.50	311.88	397.46	386.18	495.89	509.86	657.00	643.19	774.82	744.86	784.88	816.39	865.33	947.33	974.00	605.57	-2.38%
Mar	172.00	194.00	297.51	387.41	424.94	468.09	513.13	582.17	659.43	713.90	710.43	786.76	806.84	853.24	952.00	938.13	591.25	-2.36%
Apr	200.00	255.00	298.52	432.12	465.61	500.29	542.27	619.53	715.30	705.19	758.33	814.44	873.75	918.67	945.26	992.50	627.30	6.10%
May	244.00	270.00	346.97	434.12	519.38	544.90	617.56	653.87	761.76	769.52	766.25	850.35	862.33	989.33	1,010.71	1,077.86	669.93	6.80%
Jun	222.50	252.00	368.48	457.42	537.14	576.43	597.02	674.49	765.73	843.66	795.28	838.67	873.75	990.28	1,033.33	1,108.33	683.41	2.01%
Jul	207.50	217.50	360.04	360.00	542.86	529.50	579.65	694.88	812.59	764.38	803.65	836.97	877.50	985.67	1,102.35	1,140.59	675.98	-1.09%
Aug	237.50	206.00	369.82	433.59	571.53	542.30	581.88	678.43	839.81	744.25	815.56	828.52	861.67	1,039.12	1,020.00	1,118.57	680.53	0.67%
Sep	222.00	190.00	358.47	425.80	533.25	533.16	584.86	662.65	828.13	756.36	827.78	801.62	858.50	1,009.71	953.75	1,164.74	669.42	-1.63%
Oct	187.50	195.00	367.97	416.86	510.34	537.50	608.56	651.39	724.81	757.21	742.16	789.30	855.50	940.63	872.00	1,042.86	637.47	-4.77%
Nov	185.00	215.00	315.30	413.87	472.13	517.42	597.23	668.48	814.63	738.71	771.78	807.57	835.00	904.67	952.50	1,095.00	643.89	1.01%
Dec	207.50	245.00	367.53	439.57	508.47	531.25	593.59	699.75	820.76	759.84	794.72	814.71	772.31	993.57	915.79	1,081.33	659.11	2.36%
Ave.	209.60	218.22	341.19	422.29	490.37	523.99	574.51	657.52	747.54	762.99	774.72	811.45	843.87	946.67	965.12	1,060.01	646.88	
Ave. Price % Change Year to Year		4.11%	56.35%	23.77%	16.12%	6.86%	9.64%	14.45%	13.69%	2.07%	1.54%	4.74%	4.00%	12.18%	1.95%	9.83%		
Ave. Price % Change 2004 to Year		4.11%	62.78%	101.47%	133.96%	150.00%	174.10%	213.70%	256.65%	264.02%	269.62%	287.14%	302.61%	351.66%	360.46%	405.73%		

Figure 12. Price of Kelawalla-In Colombo district

Source: Compiled from "Economic and Social Statistics of Sri Lanka (ESS)" of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2006, 2007, 2008, 2011, 2012 and 2017. 405.73% price increment can be identified in 2019 when compare to 2004.

Positive Ave. price changes (Month to Month) can be identified in April, May, June, August, November and December and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.13 PRICE OF HURULLA IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Hurulla-In Colombo district																	Mntly Ave.	Ave. Price % Change Month to Month
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019		
Jan	105.00	80.00	147.75	196.52	185.15	269.21	276.10	296.22	303.19	340.77	326.71	333.49	376.56	437.00	450.40	425.00	284.32	-5.99%
Feb	97.50	112.50	146.67	212.05	181.56	278.96	277.12	305.00	307.76	326.25	307.42	320.53	385.31	430.00	453.75	424.00	285.40	0.38%
Mar	98.00	130.00	141.39	209.51	203.82	261.61	264.09	269.81	308.42	321.79	302.39	335.56	402.00	434.71	438.67	412.50	283.39	-0.70%
Apr	113.33	160.00	150.57	234.47	227.78	303.00	270.16	291.50	317.33	328.40	299.56	341.38	430.56	459.33	406.11	456.00	299.34	5.63%
May	122.00	177.50	176.99	240.32	275.76	330.00	295.48	294.17	337.67	352.58	315.60	368.75	429.29	453.33	454.00	533.08	322.28	7.66%
Jun	117.50	164.00	192.11	234.57	281.72	336.25	300.43	313.38	335.54	398.00	358.04	382.41	454.29	482.65	476.36	542.86	335.63	4.14%
Jul	117.50	152.50	200.18	240.00	270.96	300.34	301.95	329.02	342.88	358.18	385.16	375.69	436.25	415.71	523.00	556.50	331.61	-1.20%
Aug	107.50	127.50	180.97	223.23	285.79	275.59	302.67	313.83	351.35	329.36	343.33	362.24	393.75	427.35	519.29	537.14	317.56	-4.24%
Sep	104.00	90.00	163.25	203.18	245.33	264.62	278.64	306.67	332.34	319.09	330.00	347.00	415.59	427.78	513.75	539.44	305.04	-3.94%
Oct	77.50	105.00	183.56	190.44	251.91	235.75	279.52	305.63	271.40	314.67	324.55	314.42	378.53	393.33	360.00	472.14	278.65	-8.65%
Nov	85.00	110.00	154.48	184.86	251.00	227.42	272.07	286.21	281.88	310.00	312.86	346.55	377.89	385.77	341.33	395.38	270.17	-3.04%
Dec	85.00	150.00	192.57	191.00	258.13	261.30	295.00	307.79	330.81	320.83	338.47	357.08	393.57	415.00	415.00	527.14	302.42	11.94%
Ave.	102.60	129.92	169.21	204.70	243.05	278.03	284.84	302.75	319.19	333.96	327.00	346.33	405.51	430.98	640.70	485.10	312.87	
Ave. Price % Change Year to Year		26.63%	30.24%	20.97%	18.73%	14.39%	2.45%	6.29%	5.43%	5.26%	-2.67%	5.91%	17.09%	6.28%	48.66%	-24.29%		
Ave. Price % Change 2004 to Year		26.63%	64.92%	99.51%	136.89%	170.98%	177.62%	195.08%	211.10%	227.47%	218.71%	237.55%	295.23%	320.06%	524.46%	372.81%		

Figure 13. Price of Hurulla-In Colombo district

Source: Compiled from "Economic and Social Statistics of Sri Lanka (ESS)" of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2005, 2006, 2007, 2008, 2009, 2016 and 2018. 372.81% price increment can be identified in 2019 when compare to 2004.

Positive Ave. price changes (Month to Month) can be identified in February, April, May, June, and December and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.14 PRICE OF EGGS (EACH) IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Eggs (each)-In Colombo district																		
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mntly Ave.	Ave. Price % Change Month to Month
Jan	4.10	5.40	6.60	8.36	8.78	10.42	12.58	14.07	11.29	12.60	13.85	14.35	16.28	13.94	12.80	20.31	11.61	-8.34%
Feb	3.35	7.18	6.23	7.46	8.12	9.07	12.22	14.04	9.88	15.48	13.57	14.11	16.05	14.66	13.16	19.97	11.53	-0.64%
Mar	3.70	6.40	4.76	7.54	7.81	8.11	14.10	12.95	10.22	14.64	14.40	14.14	16.50	14.59	13.33	17.78	11.31	-1.94%
Apr	4.23	6.60	5.57	8.07	9.12	8.39	13.19	15.63	10.90	13.55	14.36	14.14	17.15	14.39	13.34	19.18	11.74	3.78%
May	4.82	6.68	5.50	7.17	8.62	9.82	13.29	11.65	9.11	12.48	11.94	13.93	14.97	12.37	13.56	16.56	10.78	-8.17%
Jun	5.50	6.60	6.11	6.86	9.32	11.55	12.95	10.85	12.44	14.80	11.83	14.03	14.60	13.17	14.67	16.23	11.34	5.24%
Jul	5.50	5.50	6.18	7.75	9.51	11.30	12.36	11.70	10.90	14.11	13.99	14.70	16.63	14.31	17.13	18.20	11.86	4.55%
Aug	5.20	6.28	5.57	7.92	8.92	9.70	12.53	11.93	10.03	12.84	13.00	15.76	17.53	13.25	17.94	19.25	11.73	-1.12%
Sep	5.30	6.35	6.23	7.84	10.08	11.16	14.55	11.33	13.06	13.31	11.89	14.49	16.18	13.25	16.94	19.48	11.97	2.02%
Oct	5.15	5.10	7.06	7.79	10.65	12.86	13.89	11.28	11.90	13.60	11.50	14.23	13.81	12.47	14.55	19.80	11.60	-3.03%
Nov	5.35	5.10	7.49	8.34	10.18	11.49	13.37	10.34	11.34	13.74	12.06	14.08	14.34	14.22	15.06	20.00	11.66	0.46%
Dec	6.72	5.10	7.81	8.39	10.38	13.99	15.31	11.07	14.11	14.21	12.59	15.34	14.72	14.06	18.93	19.89	12.66	8.64%
Ave.	4.94	6.08	6.26	7.93	9.26	10.63	13.30	12.16	11.23	13.80	12.91	14.45	15.76	13.71	15.22	18.89	11.66	
Ave. Price % Change Year to Year		23.08%	2.96%	26.68%	16.77%	14.79%	25.12%	-8.57%	-7.65%	22.89%	-6.45%	11.93%	9.07%	-13.01%	11.01%	24.11%		
Ave. Price % Change 2004 to Year		23.08%	26.72%	60.53%	87.45%	115.18%	169.23%	146.15%	127.33%	179.35%	161.34%	192.51%	219.03%	177.53%	208.10%	282.39%		

Figure 14. Price of Eggs (each)-In Colombo district

Source: Compiled from “Economic and Social Statistics of Sri Lanka (ESS)” of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2005, 2007, 2008, 2009, 2010, 2013, 2015, 2018 and 2019. 282.39% price increment can be identified in 2019 when compare to 2004.

Positive Ave. price changes (Month to Month) can be identified in April, June, July, September, November and December and Negative Ave. price changes (Month to Month) can be identified in other months.

1.3.15 PRICE OF COCONUT (EACH) IN COLOMBO DISTRICT (1KG) MONTH TO MONTH FROM 2004 TO 2019

Price of Coconut (each)-In Colombo district																		
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mntly Ave.	Ave. Price % Change Month to Month
Jan	13.75	24.25	16.92	17.56	32.86	26.16	29.92	47.81	33.98	36.59	46.05	54.05	45.72	55.13	78.00	55.94	38.42	-4.14%
Feb	13.75	23.75	16.68	17.62	35.34	24.60	30.32	51.34	32.08	37.73	44.96	49.50	45.05	59.50	74.38	52.81	38.09	-0.86%
Mar	14.00	22.60	16.10	17.75	36.42	24.80	29.25	48.27	32.57	39.83	41.13	50.13	43.86	61.00	72.33	50.31	37.52	-1.49%
Apr	14.00	20.25	15.51	17.57	37.96	23.40	26.05	43.14	33.77	39.57	41.65	50.18	43.90	64.50	74.47	54.00	37.50	-0.07%
May	14.00	19.25	15.70	17.53	34.61	23.73	26.12	41.54	32.92	38.48	41.60	48.62	43.53	64.00	75.94	53.44	36.94	-1.49%
Jun	13.75	18.20	14.63	17.51	30.84	23.60	25.83	36.96	31.21	37.99	41.44	46.37	42.68	61.03	75.42	46.33	35.24	-4.61%
Jul	13.00	18.00	13.46	18.75	27.38	22.11	25.89	31.01	30.95	36.75	40.55	42.73	39.53	56.93	71.05	43.15	33.20	-5.77%
Aug	13.50	17.00	13.41	18.87	26.82	21.31	26.04	31.03	29.14	35.23	39.62	42.39	39.56	59.68	63.75	38.75	32.26	-2.85%
Sep	14.60	17.00	13.92	20.50	26.25	22.50	28.66	30.46	30.00	36.20	38.63	41.62	38.10	66.92	59.38	40.00	32.80	1.67%
Oct	16.75	17.00	14.35	23.59	26.75	22.92	34.21	31.54	30.83	41.18	41.50	41.85	41.18	77.50	57.75	43.33	35.14	7.14%
Nov	19.50	18.50	16.41	28.22	27.66	25.63	40.07	32.01	31.98	45.37	44.03	47.21	44.10	81.83	60.00	46.25	38.05	8.28%
Dec	23.00	20.00	17.11	28.91	27.31	28.13	45.61	33.57	34.83	46.47	49.76	47.06	50.31	79.64	58.50	51.05	40.08	5.34%
Ave.	15.41	19.65	15.35	22.26	30.93	23.99	30.59	37.60	32.15	39.34	42.52	46.77	43.00	65.40	67.94	47.95	36.30	
Ave. Price % Change Year to Year		27.51%	-21.88%	45.02%	38.95%	-22.44%	27.51%	22.92%	-14.49%	22.36%	8.08%	10.00%	-8.06%	52.09%	3.88%	-29.42%		
Ave. Price % Change 2004 to Year		27.51%	-0.39%	44.45%	100.71%	55.68%	98.51%	144.00%	108.63%	155.29%	175.92%	203.50%	179.04%	324.40%	340.88%	211.16%		

Figure 15. Price of Coconut (each)-In Colombo district

Source: Compiled from “Economic and Social Statistics of Sri Lanka (ESS)” of CBSL 2006 to 2020.

More than 10% price increment can be identified than previous year in 2005, 2007, 2008, 2010, 2011, 2013 and 2017. 211.16% price increment can be identified in 2019 when compare to 2004.

Positive Ave. price changes (Month to Month) can be identified in September, October, November and December and Negative Ave. price changes (Month to Month) can be identified in other months.

II. RESOURCES AND METHODS

Statistics Department (STD) of the Central Bank of Sri Lanka (CBSL) published annual reports of “Economic and Social Statistics of Sri Lanka (ESS)” were downloaded for obtaining the relevant data. Fourteen types of food commodities have been chosen to price analyse under this study. Selected food commodities were Samba Rice, Kekulu Rice, Beans, Cabbage, Brinjals, Pumpkins, Red Onion, Big Onion, Potatoes, Dried Chillies, Kelawalla, Hurulla, Eggs and Coconut from 2004 to 2019.

The aim of the research is to analyses the influence of seasonality index to predict monthly price and to analyse the Confidence Level (95.0%) to predict price change lowest and highest value of selected food commodities in Colombo district. Most economic and business phenomena reflect a seasonal pattern. There is no seasonal variance when the data is expressed annually. Monthly or quarterly data, however, also shows strong seasonal movements. In seasonal index words, seasonal variation is measured. Seasonal indices are called the measurements of seasonal variation and are given as percentages of their averages. For computing an index of seasonal variations, there are several methods available.

The seasonal pattern is analyzed by construction of seasonality index number. In this study used the Excel Formulas and Functions to find out seasonality indexes. A formula is an expression which calculates the value of a cell. Functions are predefined formulas and are already available in Excel.

For one selected commodity from 2004 to 2019, Firstly arrange price data with period, year and month wise. Secondly found out intercept and slope for prices and periods. Thirdly found out Linear trend forecast and Fourthly found out Seasonal Forecast with Trend. Do the same for other selected food commodities data. To analyse the Confidence Level (95.0%) of price changes firstly compiled price changes month to month (Price of relevant month-price of immediate previous month) in each year. In this study data analysing was done by using Excel Analysis ToolPak. The Analysis ToolPak is an Excel add-in program that provides data analysis tools for financial, statistical and engineering data analysis. By using Descriptive statistic tool of Data Analysis Toolpak found out the mean and Confidence Level (95.0%) to predict price change highest and lowest value.

The syntax for the INTERCEPT function in Microsoft Excel is: $\text{INTERCEPT}(\text{known_y_values}, \text{known_x_values})$

The syntax for the SLOPE function in Microsoft Excel is: $\text{SLOPE}(\text{known_y_values}, \text{known_x_values})$

The formula for the Linear trend forecast in Microsoft Excel is: $\text{=(Intercept + slope)*known_x_value}$

The formula for the Seasonal index in Microsoft Excel is: $\text{=AVERAGEIF}(\text{month}, \text{known_Month_format}, \text{Price}) / \text{AVERAGE}(\text{Price})$
month is name of the month cell range, Price is the name of the price cell range & Month is relevant month (Jan to Dec)

The formula for the Seasonal

-forecast with trend in Microsoft Excel is: $\text{=VLOOKUP}(\text{known_Month_format}, \text{index}, 2, \text{FALSE}) * \text{known_y_value}$

index is name of the Month and seasonal index cell range, Month is relevant month (Jan to Dec) of month cell range & y is the relevant value of linear trend forecast)

III. OBSERVATIONS AND ANALYSIS

Fourteen food commodities price variations and Confidence Level (95.0%) of prices changes from 2004 to 2019 to predict their month prices in 2020. This was useful to understand the seasonal upward and downward swings in the prices of these commodities.

3.1 SAMBA RICE (1KG) IN COLOMBO DISTRICT

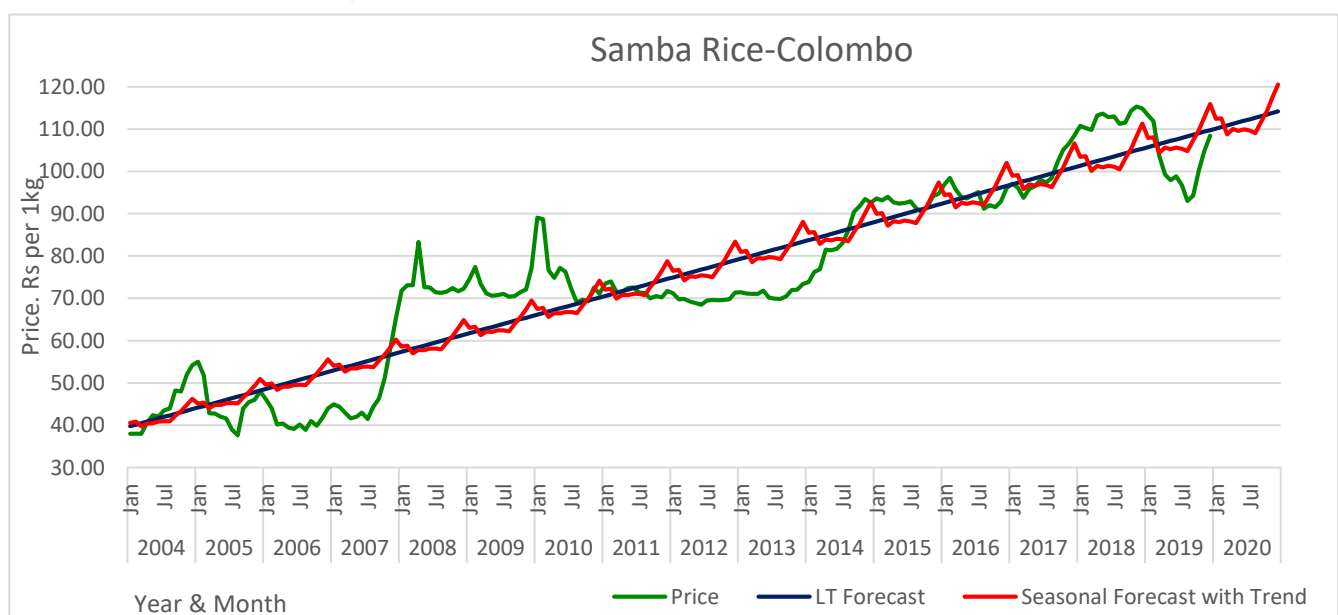


Figure 16. Retail prices of Samba rice with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Samba rice (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	112.42	112.54	108.75	109.99	109.59	109.96	109.65	109.02	111.72	114.21	117.34	120.58

Figure 17. Predicted prices of Samba rice in 2020 in Colombo district by considering seasonal forecast trend.

Samba Rice (1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave.	Mean	Confidence Level(95.0%)	Lower	Higher
Jan-Dec		0.80	-1.85	1.02	6.68	2.21	11.85	2.44	-0.52	0.11	0.49	0.93	2.21	1.06	2.22	-1.60	1.87	1.87	1.89	-0.02	3.76
Feb-Jan	0.00	-3.25	-2.11	-0.60	1.28	2.93	-0.37	0.55	-1.47	-0.30	2.34	-0.41	1.51	-0.85	-0.50	-1.47	-0.17	-0.17	0.86	-1.03	0.69
Mar-Feb	0.00	-8.95	-3.86	-1.36	0.03	-3.99	-12.04	-2.51	0.11	-0.10	0.70	0.82	-2.69	-2.47	-0.44	-8.18	-2.81	-2.81	2.04	-4.85	-0.77
Apr-Mar	2.67	-0.05	0.24	-1.41	10.22	-2.33	-1.79	0.03	-0.64	0.01	4.61	-1.29	-1.86	2.13	3.37	-4.38	0.60	0.60	1.84	-1.24	2.43
May-Apr	1.73	-0.75	-0.97	0.45	-10.72	-0.54	2.35	0.87	-0.36	0.72	-0.18	-0.28	-0.27	0.63	0.45	-1.37	-0.52	-0.52	1.54	-2.05	1.02
Jun-May	-0.40	-0.40	-0.34	0.97	-0.05	0.22	-0.94	0.14	-0.38	-1.64	0.37	0.14	0.86	1.47	-0.80	0.92	0.01	0.01	0.43	-0.42	0.44
Jul-Jun	1.50	-2.60	1.08	-1.51	-1.17	0.23	-4.04	-1.20	1.00	-0.20	1.37	0.33	0.61	-0.58	0.17	-2.10	-0.44	-0.44	0.83	-1.28	0.39
Aug-Jul	0.50	-1.40	-1.31	2.90	-0.09	-0.64	-3.28	-0.15	0.12	-0.12	2.92	-1.59	-3.92	1.05	-1.75	-3.70	-0.65	-0.65	1.07	-1.73	0.42
Sep-Aug	4.20	6.40	2.17	1.85	0.27	0.12	0.71	-1.19	-0.09	0.65	4.46	-0.88	0.82	3.70	0.31	1.25	1.55	1.55	1.13	0.42	2.68
Oct-Sep	-0.20	1.50	-1.15	4.87	0.81	0.90	-0.33	0.46	0.11	1.45	1.36	1.28	-0.45	2.99	2.74	6.08	1.40	1.40	1.04	0.36	2.44
Nov-Oct	4.00	0.50	1.85	7.15	-0.69	0.73	3.25	-0.23	0.14	0.08	1.68	2.40	1.30	1.33	1.01	4.55	1.82	1.82	1.10	0.72	2.91
Dec-Nov	2.20	2.00	2.19	6.86	0.59	5.09	-1.54	1.50	1.57	1.36	-0.84	0.61	3.17	2.07	-0.43	3.59	1.87	1.87	1.14	0.74	3.01
Ave	1.47	-0.64	-0.20	1.83	0.04	0.25	-1.64	-0.16	0.01	0.17	1.71	0.10	-0.08	1.04	0.38	-0.44	0.24	0.24	0.48	-0.24	0.72

Figure 18. Month to month retail price changes of Samba rice in Colombo district from 2004 to 2019.

Retail price of Samba rice has increased dramatically in 2007(by 21.5%), 2008(by 45.86%) and that continue up to 2010. The global food prices are sky rocketing from 2006 to 2011. The World Bank food price index rose to its highest in 2008 affirming a “food price crisis” in year 2008 (Ivanic et al. 2011). As per Demeke et al. (2008) the world food prices has increased by 40% in 2007 demarcating the highest food prices within recent past. Real retail price movement was marginally similar to seasonal forecast trend. Samba rice real retail price movement fluctuated widely than seasonal forecast trend in some occasions.

When consider month to month Samba price change, There was Confidence Level(95.0%) for decreasing retail price in March than February and there was Confidence Level(95.0%) for increasing retail price in September, October, November and December than previous month. Lowest monthly average retail price was identified in August and highest monthly average retail price was identified in December from 2004 to 2019. Total paddy production in Maha season is (Sep to March) nearly 2 times of Yala season (March to Sep). Paddy Harvesting of Maha in February and Yala in August.

3.2 KEKULU RICE (1KG) IN COLOMBO DISTRICT

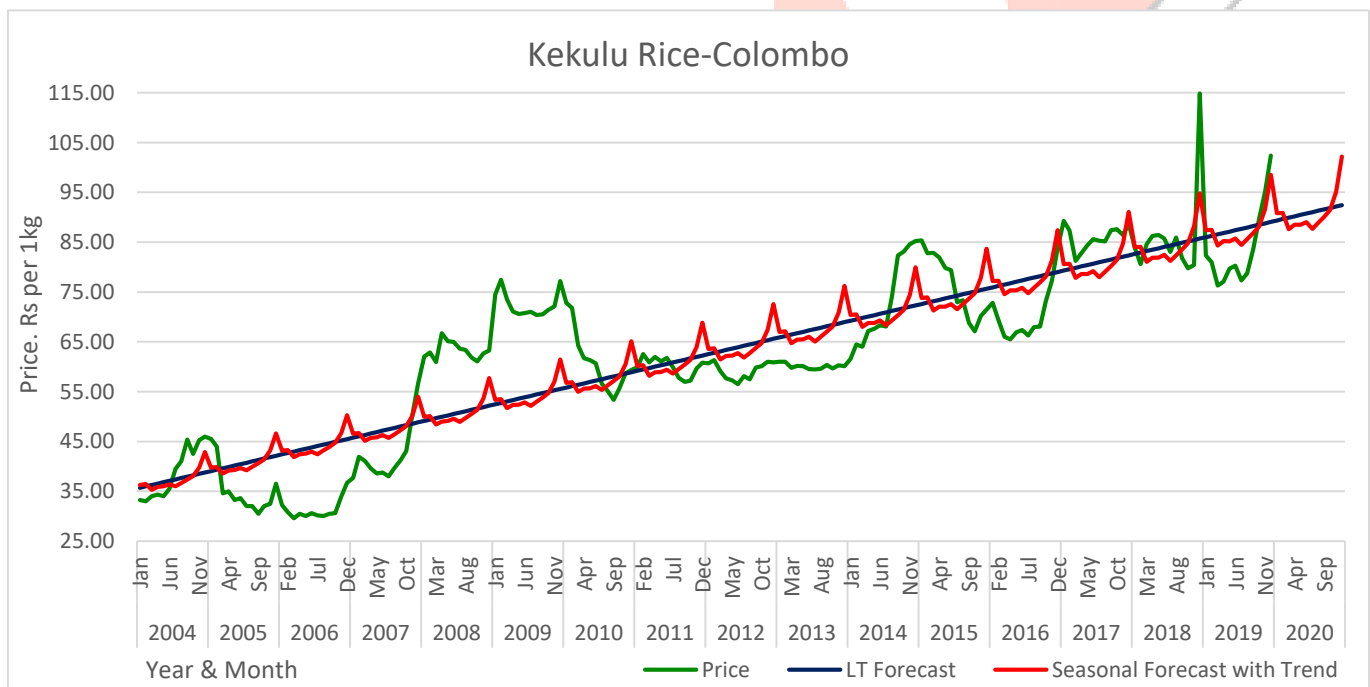


Figure 19. Retail prices of Kekulu rice with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Kekulu rice (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	90.84	90.89	87.62	88.50	88.48	89.04	87.68	88.88	90.14	91.46	95.13	102.23

Figure 20. Predicted prices of Kekulu rice in 2020 in Colombo district by considering seasonal forecast trend.

Kekulu Rice (1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave	Mean	Confidence Level(95.0%)	Lower	Higher
Jan-Dec		-0.50	-4.28	0.97	5.39	11.26	-4.41	0.54	-0.09	0.10	1.48	0.12	1.32	5.47	-4.85	-32.57	-1.34	-1.34	5.31	-6.65	3.97
Feb-Jan	-0.25	-1.50	-1.43	4.23	0.82	2.93	-1.02	2.66	0.64	0.04	2.88	-2.57	-3.50	-1.96	-3.27	-1.31	-0.16	-0.16	1.25	-1.42	1.09
Mar-Feb	1.00	-9.40	-1.21	-0.86	-1.91	-3.99	-7.53	-1.69	-2.23	-1.21	-0.47	0.08	-3.30	-6.13	4.02	-4.69	-2.47	-2.47	1.77	-4.24	-0.70
Apr-Mar	0.33	0.40	0.89	-1.47	5.79	-2.33	-2.57	1.12	-1.45	0.33	3.15	-0.90	-0.50	1.55	1.64	0.74	0.42	0.42	1.12	-0.70	1.54
May-Apr	-0.33	-1.75	-0.44	-1.02	-1.63	-0.54	-0.35	-0.95	-0.36	-0.06	0.46	-2.10	1.36	1.63	0.20	2.64	-0.20	-0.20	0.67	-0.88	0.47
Jun-May	1.50	0.35	0.59	0.18	-0.07	0.22	-0.67	0.74	-0.83	-0.58	0.68	-0.47	0.45	1.22	-0.69	0.58	0.20	0.20	0.37	-0.17	0.57
Jul-Jun	4.00	-1.60	-0.45	-0.76	-1.36	0.23	-4.09	-1.84	1.64	-0.02	-0.26	-6.43	-1.04	-0.30	-2.70	-2.97	-1.12	-1.12	1.25	-2.37	0.13
Aug-Jul	1.50	0.00	-0.11	1.67	-0.29	-0.64	-1.42	-2.13	-0.64	0.11	5.93	0.36	1.67	-0.14	2.89	1.45	0.64	0.64	1.02	-0.38	1.65
Sep-Aug	4.40	-1.50	0.42	1.54	-1.53	0.12	-1.80	-0.85	2.39	0.76	8.34	-4.51	0.08	2.21	-4.19	4.85	0.67	0.67	1.77	-1.10	2.44
Oct-Sep	-2.90	1.50	0.15	1.87	-0.75	0.90	2.30	0.27	0.25	-0.67	0.78	-1.69	5.08	0.21	-1.95	6.00	0.71	0.71	1.25	-0.54	1.96
Nov-Oct	2.75	0.50	3.34	7.27	1.56	0.73	3.04	2.43	0.86	0.65	1.46	3.09	4.12	-1.17	0.64	5.53	2.30	2.30	1.13	1.17	3.43
Dec-Nov	0.75	4.00	2.76	6.28	0.59	5.09	0.66	1.14	-0.10	-0.20	0.67	1.30	6.59	2.27	34.44	7.24	4.59	4.59	4.44	0.15	9.04
Ave	1.16	-0.79	0.02	1.66	0.55	1.17	-1.49	0.12	0.01	-0.06	2.09	-1.14	1.03	0.41	2.18	-1.04	0.37	0.37	0.60	-0.24	0.97

Figure 21. Month to month retail price changes of Kekulu rice in Colombo district from 2004 to 2019.

Retail price of Kekulu rice has increased dramatically in 2007(by 41.23%), 2008(by 42.79%) and that continue up to 2010. The global food prices are sky rocketing from 2006 to 2011. The World Bank food price index rose to its highest in 2008 affirming a “food price crisis” in year 2008 (Ivanic et al. 2011). As per Demeke et al. (2008) the world food prices has increased by 40% in 2007 demarcating the highest food prices within recent past. Kekulu rice real retail price movement was marginally similar to seasonal forecast trend. Real retail price movement fluctuated widely than seasonal forecast trend in some occasions.

When consider month to month Kekulu rice price change, There was Confidence Level(95.0%) for decreasing retail price in March than February and there was Confidence Level(95.0%) for increasing retail price in November and December than previous month. Lowest monthly average retail price was identified in July and highest monthly average retail price was identified in December from 2004 to 2019. Total paddy production in Maha season is (Sep to March) nearly 2 times of Yala season (March to Sep). Paddy Harvesting of Maha in February and Yala in August.

3.3 BEANS (1KG) IN COLOMBO DISTRICT

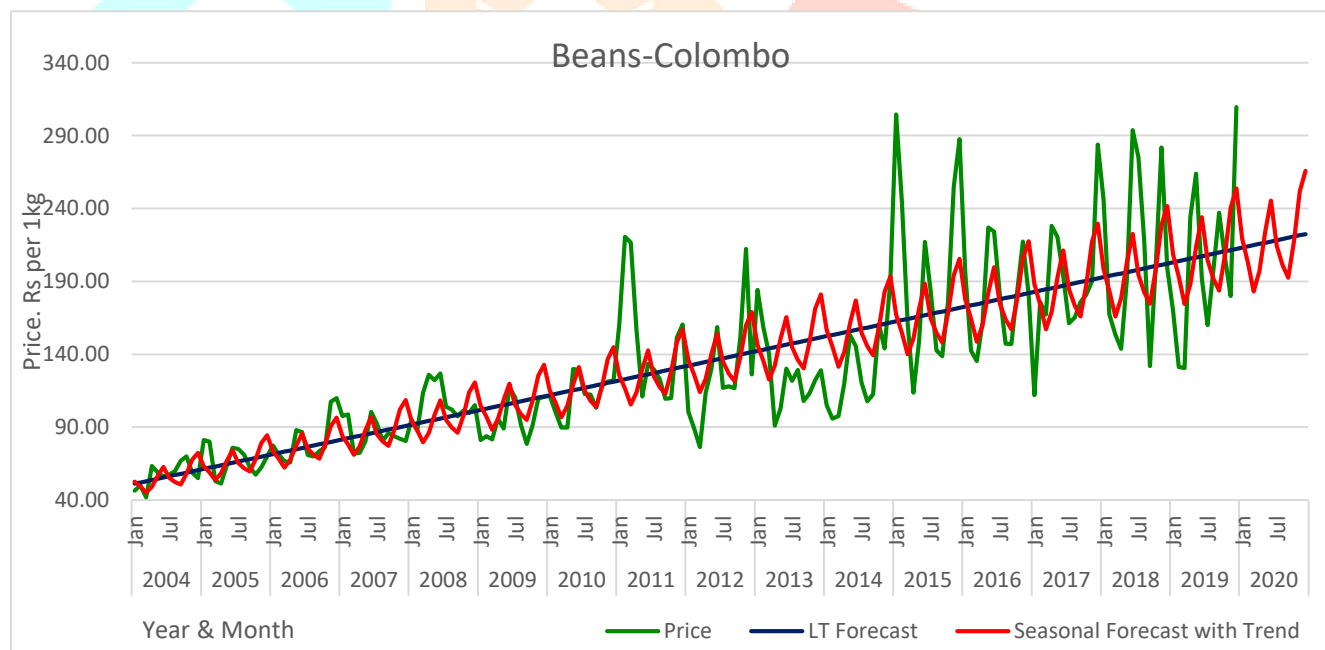


Figure 22. Retail prices of Beans with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Beans (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	219.23	202.77	183.13	197.03	224.10	245.47	214.42	201.17	192.46	217.70	251.76	265.83

Figure 23. Predicted prices of Beans in 2020 in Colombo district by considering seasonal forecast trend.

Beans (1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave.	Mean	Confidence Level(95.0%)	Lower	Higher
Jan-Dec		26.25	7.38	-12.11	14.52	-23.85	0.57	38.47	-59.88	57.83	-23.86	113.88	-91.74	-69.06	-37.75	-29.00	-5.89	-5.89	29.06	-34.95	23.17
Feb-Jan	3.50	-1.25	-5.99	0.98	-7.33	2.56	-11.15	60.40	-11.42	-25.32	-9.19	-59.92	-53.33	63.98	-78.50	-38.75	-10.67	-10.67	19.99	-30.66	9.32
Mar-Feb	-8.00	-27.00	-4.72	-26.84	25.81	-2.15	-10.48	-3.99	-12.77	-18.47	1.71	-83.28	-7.13	-8.51	-14.17	-0.62	-12.54	-12.54	11.98	-24.52	-0.56
Apr-Mar	21.33	-1.75	-0.88	0.49	12.24	14.30	-0.14	-60.64	37.43	-49.17	22.34	-47.57	26.48	60.72	-9.65	103.37	8.06	8.06	21.84	-13.78	29.90
May-Apr	-4.33	12.50	22.25	7.90	-3.60	-6.90	40.22	-44.86	16.48	11.86	33.11	36.26	65.09	-7.80	48.20	29.75	16.01	16.01	14.20	1.81	30.21
Jun-May	-2.75	12.25	-1.29	20.33	4.64	28.01	-0.66	22.35	28.41	27.15	-7.70	67.19	-2.82	-26.38	101.87	-71.75	12.43	12.43	20.29	-7.86	32.72
Jul-Jun	1.25	-1.00	-15.80	-8.10	-22.97	-6.79	-16.50	-3.82	-41.52	-8.24	-24.84	-34.02	-43.59	-32.56	-18.75	-32.00	-19.33	-19.33	7.66	-26.99	-11.66
Aug-Jul	2.50	-4.00	-0.86	-12.00	-1.80	-18.86	-0.36	-6.46	1.02	7.39	-12.74	-40.36	-33.34	3.95	-57.19	37.50	-8.48	-8.48	11.57	-20.04	3.09
Sep-Aug	7.00	-8.50	3.32	5.63	-4.80	-12.77	-8.96	-13.65	-1.34	-21.39	4.74	-4.07	-0.19	10.55	-85.93	39.50	-5.68	-5.68	13.52	-19.20	7.84
Oct-Sep	3.00	-5.00	2.93	-2.24	3.98	12.32	14.92	0.32	34.31	5.21	48.11	37.20	35.75	4.92	68.62	-30.33	14.63	14.63	12.94	1.68	27.57
Nov-Oct	-11.25	5.00	31.26	-1.89	-1.42	18.57	3.11	41.61	61.11	9.23	-16.68	78.95	34.65	9.25	81.38	-26.67	19.76	19.76	17.36	2.40	37.12
Dec-Nov	-3.75	7.50	2.25	-1.36	5.20	1.31	0.33	8.86	-85.94	6.68	46.54	32.77	-36.46	93.75	-82.88	129.47	7.77	7.77	28.74	-20.97	36.51
Ave.	0.77	1.25	3.32	-2.43	2.04	0.48	0.91	3.22	-2.84	0.23	5.13	8.09	-8.89	8.57	-7.06	9.21	1.37	1.37	2.72	-1.35	4.10

Figure 24. Month to month retail price changes of Beans in Colombo district from 2004 to 2019.

A predominant feature of the supply chain for fresh vegetables in Sri Lanka is the wide seasonal fluctuations in vegetable production, with a peak in January to March and a trough in May to June. During the harvest cycle and severe shortages during the off-season, insufficient storage facilities contribute to surpluses. Therefore, the system exhibits large seasonal price fluctuations. The fresh fruit and vegetable supply system usually reports waste of about 30 to 40 percent during the peak supply season (HARTI, 2005).

Beans real retail price movement was moderately similar to seasonal forecast trend but some negative correlation was shown in some months. Beans real retail price movement fluctuated often widely than seasonal forecast trend in some occasions. More than 10% of beans monthly average retail price difference had increased in May, October and November than previous month from 2004 to 2019 and less than 10% of beans monthly average retail price difference had decreased in January, March and July than previous month from 2004 to 2019.

When consider month to month beans price change, There was Confidence Level (95.0%) for decreasing retail price in March and July than previous month and there was Confidence Level(95.0%) for increasing retail price in May, October and November than previous month. Generally, beans are planted after heavy rains of both Maha and Yala seasons. Lowest monthly average retail price was identified in March and highest monthly average retail price was identified in December from 2004 to 2019.

3.4 CABBAGE (1KG) IN COLOMBO DISTRICT

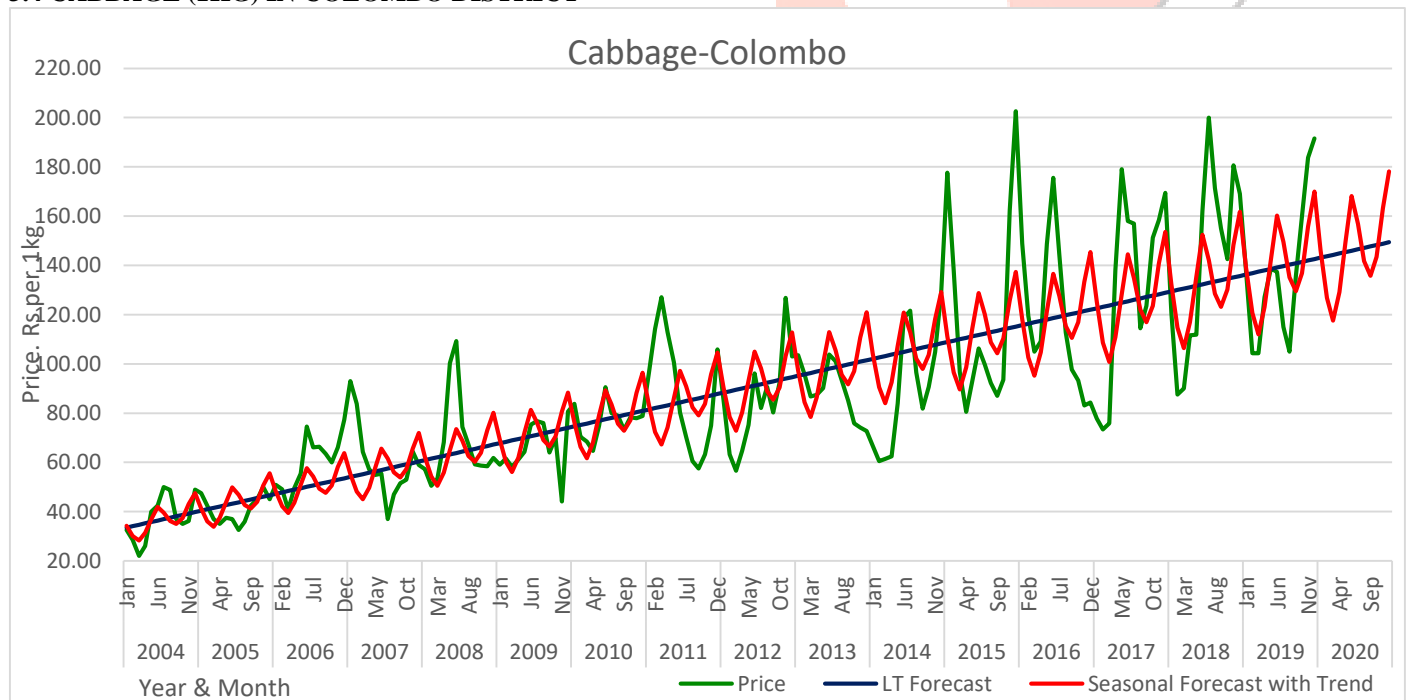


Figure 25. Retail prices of Cabbage with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Cabbage (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	146.22	126.75	117.52	129.08	149.49	168.14	156.86	141.74	135.79	143.42	163.36	178.10

Figure 26. Predicted prices of Cabbage in 2020 in Colombo district by considering seasonal forecast trend.

Cabbage (1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave	Mean	Confidence Level(95.0%)	Lower	Higher
Jan-Dec		-1.50	5.94	15.75	-1.59	-2.79	3.13	17.74	-20.60	0.51	-6.06	48.26	-53.68	-6.52	-48.71	-30.87	-5.40	-5.40	14.21	-19.61	8.81
Feb-Jan	-4.00	-5.00	-1.88	-9.25	-6.76	2.49	-13.39	17.64	-22.05	-7.79	-6.17	-39.65	-29.39	-4.48	-33.17	-33.75	-12.29	-12.29	8.18	-20.47	-4.11
Mar-Feb	-6.50	-5.50	-8.36	-19.47	2.88	-3.43	-2.04	12.83	-6.62	-8.92	0.90	-41.31	-14.50	2.49	2.50	0.00	-5.94	-5.94	6.45	-12.39	0.51
Apr-Mar	4.00	-2.00	8.86	-7.20	14.74	3.06	-3.67	-14.14	8.15	0.64	1.07	-16.13	4.15	62.18	21.58	22.62	6.74	6.74	9.78	-3.03	16.52
May-Apr	14.00	2.50	5.84	-2.25	32.12	3.14	10.09	-12.36	10.48	2.74	21.46	12.53	39.46	41.00	0.30	11.75	12.05	12.05	7.93	4.12	19.98
Jun-May	2.50	-0.50	19.09	0.53	8.97	10.97	15.66	-20.22	20.91	13.63	34.68	13.24	26.98	-20.94	50.20	-1.42	10.89	10.89	9.75	1.15	20.64
Jul-Jun	7.50	-4.50	-8.41	-18.42	-34.77	1.42	-10.48	-9.95	-14.03	-2.69	2.97	-6.52	-31.38	-1.06	37.92	-22.33	-7.17	-7.17	8.98	-16.15	1.81
Aug-Jul	-1.25	3.50	0.23	10.03	-7.27	-0.74	-1.08	-9.76	8.64	-7.71	-25.15	-7.51	-31.40	-42.56	-28.56	-10.00	-9.41	-9.41	8.00	-17.41	-1.41
Sep-Aug	-11.75	6.50	-2.81	4.48	-8.06	-11.90	-5.66	-3.00	-10.38	-8.23	-14.58	-5.15	-15.06	9.17	-16.44	30.79	-3.88	-3.88	6.39	-10.27	2.51
Oct-Sep	-2.00	2.50	-3.51	1.45	-0.47	5.97	5.04	5.69	11.97	-9.30	8.79	6.51	-4.45	27.64	-12.50	24.21	4.22	4.22	5.69	-1.47	9.91
Nov-Oct	1.25	5.00	6.11	11.41	-0.24	-25.86	-0.39	11.74	34.46	-1.70	14.21	68.70	-10.15	7.08	38.13	23.75	11.47	11.47	11.66	-0.19	23.13
Dec-Nov	12.75	-5.00	11.21	-5.48	3.40	36.53	0.88	30.83	-23.79	-1.38	24.43	40.28	1.18	11.05	-11.63	7.83	8.32	8.32	9.37	-1.05	17.69
Ave.	1.50	-0.33	2.69	-1.54	0.25	1.57	-0.16	2.25	-0.24	-2.52	4.71	6.10	-9.85	7.09	-0.03	1.88	0.84	0.84	2.06	-1.23	2.90

Figure 27. Month to month retail price changes of Cabbage in Colombo district from 2004 to 2019.

Cabbage real retail price movement was moderately similar to seasonal forecast trend but some negative correlation was shown in some months. Cabbage real retail price movement fluctuated often widely than seasonal forecast trend in some occasions. More than 10% of cabbage monthly average retail price difference had increased in May, June and November than previous month from 2004 to 2019 and less than 10% of cabbage monthly average retail price difference had decreased in January and February than previous month from 2004 to 2019.

When consider month to month cabbage price change, There was Confidence Level(95.0%) for decreasing retail price in February and August than previous month and there was Confidence Level(95.0%) for increasing retail price in May and June than previous month. Lowest monthly average retail price was identified in March and highest monthly average retail price was identified in December from 2004 to 2019 as similar to beans price.

3.5 BRINJALS (1KG) IN COLOMBO DISTRICT

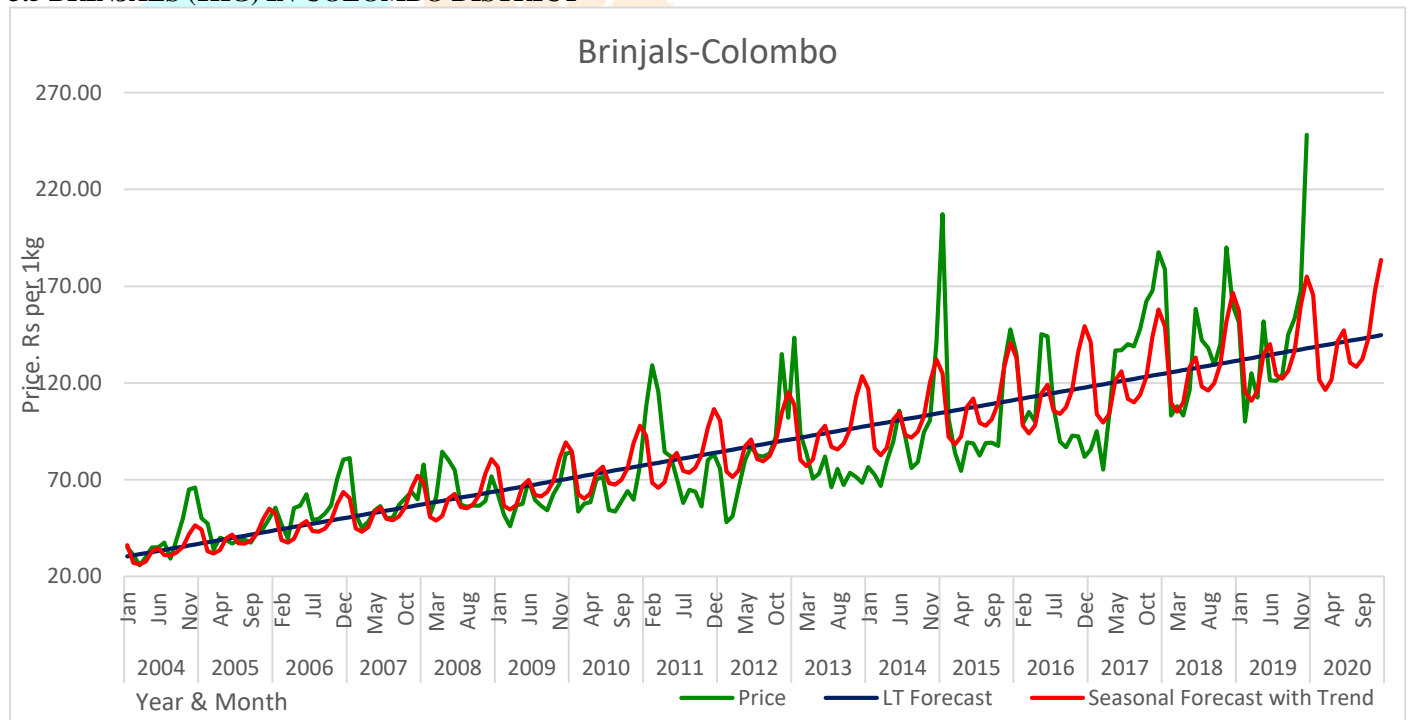


Figure 28. Retail prices of Brinjal with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Brinjals (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	165.31	121.57	116.49	121.55	141.80	147.12	130.44	128.28	132.48	143.38	167.59	183.63

Figure 29. Predicted prices of Brinjal in 2020 in Colombo district by considering seasonal forecast trend.

Brinjals (1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave	Mean	Confidence Level(95.0%)	Lower	Higher
Jan*Dec		-16.00	5.58	0.81	18.18	-9.13	0.62	29.94	-7.51	41.43	8.14	66.40	-12.99	3.75	-8.83	-8.75	7.44	7.44	12.69	-5.25	20.13
Feb-Jan	-3.75	-2.50	-8.60	-29.17	-26.08	-10.70	-30.54	21.70	-27.61	-49.77	-3.96	-105.75	-35.87	9.37	-75.54	-51.25	-26.88	-26.88	17.26	-44.13	-9.62
Mar-Feb	-5.45	-13.50	-7.37	-6.82	8.98	-5.97	4.19	-13.62	2.94	-10.06	-5.78	-17.54	6.15	-19.71	4.87	25.00	-3.36	-3.36	6.12	-9.47	2.76
Apr-Mar	4.20	6.00	15.74	3.02	23.66	10.76	0.59	-31.26	14.61	-13.05	12.79	-9.33	-5.00	28.71	-4.84	-12.50	2.76	2.76	8.15	-5.39	10.90
May-Apr	5.00	-1.25	1.11	5.85	-4.16	0.86	12.02	-2.25	14.33	2.45	9.98	14.64	45.28	32.73	13.09	39.38	11.82	11.82	7.98	3.84	19.80
Jun-May	0.00	-1.75	6.09	2.18	-5.29	12.22	1.06	-11.51	7.10	8.92	16.17	-0.52	-1.16	0.21	42.08	-30.55	2.83	2.83	7.93	-5.11	10.76
Jul-Jun	2.50	1.75	-13.39	-6.28	-17.82	-10.26	-17.06	-12.56	-4.59	-15.76	-13.84	-6.28	-36.65	3.06	-16.33	-0.33	-10.24	-10.24	5.40	-15.64	-4.84
Aug-Jul	-8.25	0.25	0.65	0.40	-1.18	-2.91	-0.75	6.86	-0.40	9.30	-15.87	6.53	-17.78	-1.11	-3.87	2.75	-1.59	-1.59	3.91	-5.49	2.32
Sep-Aug	9.75	-1.50	2.67	6.58	0.66	-2.27	5.25	-1.11	1.48	-8.22	3.14	0.07	-2.94	8.76	-8.75	21.25	2.18	2.18	3.89	-1.71	6.07
Oct-Sep	11.00	5.00	4.20	3.35	-0.12	8.12	5.27	-7.50	8.48	6.29	15.35	-1.60	6.00	14.54	10.62	8.33	6.08	6.08	3.11	2.97	9.20
Nov-Oct	15.00	2.50	13.79	3.47	2.35	5.63	-4.37	23.94	42.96	-2.22	6.16	42.43	-0.35	5.48	50.00	14.17	13.81	13.81	9.16	4.65	22.97
Dec-Nov	1.00	5.00	9.94	-4.04	12.74	15.42	17.83	3.02	-32.97	-2.95	40.14	17.85	-10.52	19.83	-30.00	80.83	8.95	8.95	14.13	-5.19	23.08
Ave	2.82	-1.33	2.53	-1.72	0.99	0.98	-0.49	0.47	1.57	-2.80	6.04	0.58	-5.49	8.80	-2.29	7.36	1.13	1.13	2.02	-0.89	3.14

Figure 30. Month to month retail price changes of Brinjal in Colombo district from 2004 to 2019.

Brinjal real retail price movement was somewhat similar to seasonal forecast trend but some negative correlation was shown in some months. Brinjal real retail price movement fluctuated widely than seasonal forecast trend in some occasions. More than 10% of brinjal monthly average retail price difference had increased in May and November than previous month from 2004 to 2019 and less than 10% of brinjals monthly average retail price difference had decreased in February and July than previous month from 2004 to 2019.

When consider month to month brinjal price change, There was Confidence Level(95.0%) for decreasing retail price in July than June and there was Confidence Level(95.0%) for increasing retail price in May, October and November than previous month. Lowest monthly average retail price was identified in March and highest monthly average retail price was identified in December from 2004 to 2019 as similar to beans price.

3.6 PUMPKINS (1KG) IN COLOMBO DISTRICT

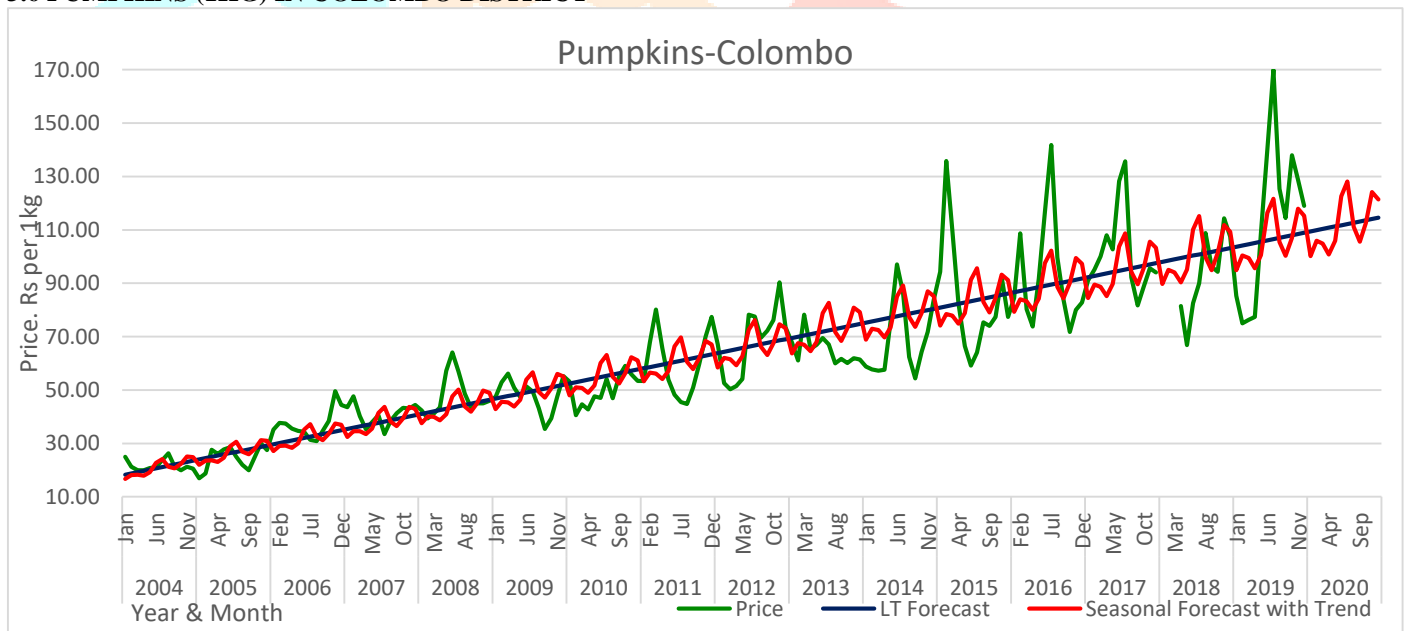


Figure 31. Retail prices of Pumpkins with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Pumpkins (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	100.15	105.95	104.90	100.74	105.96	122.56	128.17	111.09	105.58	112.70	124.17	121.36

Figure 32. Predicted prices of Pumpkins in 2020 in Colombo district by considering seasonal forecast trend.

Pumpkins(1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave.	Mean	Confidence Level(95.0%)	Lower	Higher
Jan*Dec		-3.60	7.71	-0.84	-2.02	1.42	-2.04	0.01	-10.21	-5.69	-2.63	10.46	6.98	8.25		-22.17	-1.03	-1.03	4.88	-5.91	3.86
Feb-Jan	-3.75	1.75	2.53	4.09	-3.02	5.49	-12.51	14.43	-14.56	-6.67	-1.05	41.42	24.27	4.05		-10.33	3.08	3.08	8.09	-5.01	11.17
Mar-Feb	-1.25	8.85	-0.33	-7.48	1.76	3.27	4.09	12.28	-2.33	17.14	-0.58	-26.05	-28.42	4.89		1.25	-0.86	-0.86	6.81	-7.67	5.95
Apr-Mar	0.00	-1.60	-1.92	-4.82	2.35	-5.29	-1.94	-14.50	1.22	-12.86	0.45	-27.15	-6.51	8.00		1.12	-4.23	-4.23	4.73	-8.96	0.50
May-Apr	0.80	1.75	-0.76	2.57	13.80	-3.43	4.83	-11.69	2.62	1.52	18.07	-16.08	17.92	-5.33	-14.55	31.38	2.71	2.71	6.73	-4.02	9.45
Jun-May	0.20	0.85	-0.40	2.64	6.77	3.99	-0.49	-5.64	24.07	2.51	21.32	-7.30	24.80	25.57	15.62	31.25	9.11	9.11	6.68	2.43	15.79
Jul-Jun	2.75	-3.60	-2.98	-7.04	-7.01	-1.96	6.99	-2.80	-0.74	-2.39	-10.68	4.94	25.37	7.43	7.50	30.00	2.86	2.86	5.93	-3.07	8.79
Aug-Jul	2.50	-3.00	-0.55	4.92	-8.47	-6.29	-7.12	-0.67	-7.81	-7.03	-23.92	11.20	-42.17	-43.45	18.75	-44.67	-9.86	-9.86	10.17	-20.03	0.31
Sep-Aug	-4.85	-2.00	3.85	2.92	-5.13	-7.72	8.28	6.04	2.58	1.67	-8.11	-1.30	-15.72	-10.46	-12.50	-10.83	-3.33	-3.33	3.82	-7.15	0.49
Oct-Sep	-1.40	5.00	3.73	1.95	1.56	3.88	3.77	8.79	3.98	-1.52	10.00	3.30	-12.20	6.99	-2.00	23.50	3.71	3.71	3.93	-0.22	7.64
Nov-Oct	1.25	5.00	11.19	-0.21	-0.04	8.28	-3.14	10.38	14.18	1.80	7.46	15.01	8.25	6.92	20.13	-9.25	6.08	6.08	3.99	2.09	10.06
Dec-Nov	-0.65	-2.50	-5.19	1.32	1.02	7.55	-2.51	7.38	-16.91	-0.50	12.11	-14.91	2.81	-1.61	-6.88	-9.80	-1.83	-1.83	4.15	-5.98	2.32
Ave.	-0.40	0.58	1.41	0.00	0.13	0.77	-0.15	2.00	-0.33	-1.00	1.87	-0.54	0.45	0.94	3.26	0.95	0.62	0.62	0.59	0.03	1.21

Figure 33. Month to month retail price changes of Pumpkins in Colombo district from 2004 to 2019.

Pumpkins real retail price movement was somewhat similar to seasonal forecast trend but some negative correlation was shown in some months. Pumpkins real retail price movement fluctuated widely than seasonal forecast trend in some occasions. More than 10% of pumpkins monthly average retail price difference had increased in June than May from 2004 to 2019 and less than 10% of pumpkins monthly average retail price difference had decreased in January and August than previous month from 2004 to 2019.

When consider month to month pumpkins price change, There was not Confidence Level(95.0%) for decreasing retail price in any month than previous month and there was Confidence Level(95.0%) for increasing retail price in June and November than previous month. Lowest monthly average retail price was identified in April and highest monthly average retail price was identified in July from 2004 to 2019.

3.7 RED ONION (1KG) IN COLOMBO DISTRICT

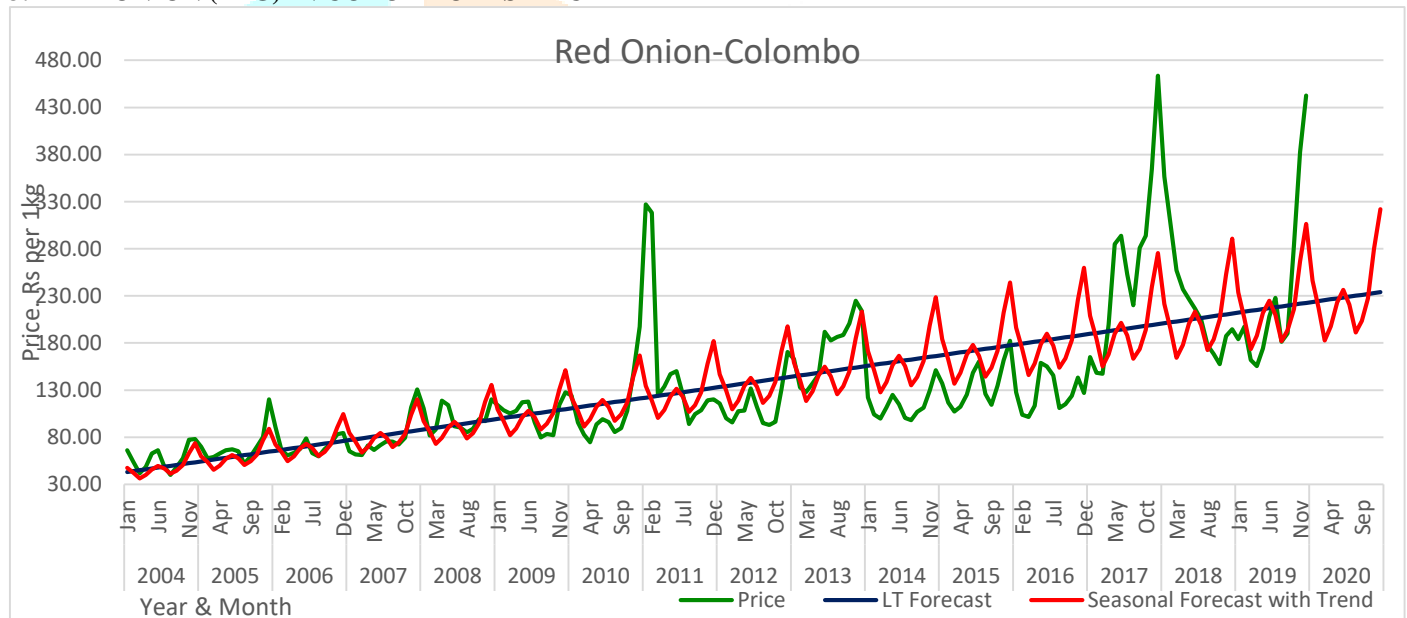


Figure 34. Retail prices of Red Onion with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Red Onion (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	246.11	216.94	182.56	197.54	222.96	236.51	220.64	191.30	203.46	227.12	280.00	321.83

Figure 35. Predicted prices of Red Onion in 2020 in Colombo district by considering seasonal forecast trend.

Red Onion(1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave.	Mean	Confidence Level(95.0%)	Lower	Higher
Jan*Dec		-8.00	-28.90	-19.25	-19.95	-6.27	-3.56	129.80	-4.37	-7.56	-91.92	-13.84	-54.44	38.12	-107.08	-10.62	-13.86	-13.86	29.75	-43.60	15.89
Feb-Jan	-12.00	-12.50	-25.00	-3.62	-29.01	-5.39	-28.51	-8.68	-15.71	-30.31	-18.03	-20.39	-23.89	-16.50	-49.53	13.14	-17.87	-17.87	7.49	-25.36	-10.38
Mar-Feb	-12.40	1.50	-5.42	-0.44	6.62	-3.26	-12.95	-194.22	-4.48	-4.90	-4.35	-9.57	-2.50	-1.23	-50.00	-35.14	-20.80	-20.80	25.78	-46.58	4.98
Apr-Mar	6.73	3.75	2.62	10.12	30.41	2.50	-7.94	9.61	11.78	9.39	11.78	5.10	11.94	52.40	-20.00	-6.67	8.35	8.35	8.55	-0.21	16.90
May-Apr	14.47	3.50	4.31	-4.76	-4.82	9.21	18.88	13.40	0.79	9.23	13.43	13.06	45.56	85.33	-10.47	18.84	14.37	14.37	12.20	2.17	26.57
Jun-May	3.45	0.75	11.09	4.93	-22.30	0.62	5.60	2.99	23.31	45.55	-9.79	23.01	-3.89	8.89	-10.42	33.83	7.35	7.35	9.15	-1.80	16.50
Jul-Jun	-17.50	-2.00	-15.47	4.03	-1.37	-21.97	-3.25	-25.30	-19.05	-9.37	-14.73	11.92	-9.50	-41.03	-11.58	20.00	-9.76	-9.76	7.90	-17.66	-1.86
Aug-Jul	-8.75	-13.00	-3.70	-0.12	-5.19	-15.99	-10.47	-30.67	-17.40	3.87	-2.35	-34.32	-34.50	-32.86	-27.17	-46.75	-17.46	-17.46	8.03	-25.49	-9.43
Sep-Aug	8.00	8.00	7.82	-3.06	3.90	3.88	4.26	10.39	-1.96	1.89	8.77	-11.62	4.00	60.83	-9.17	8.75	6.54	6.54	8.44	-1.90	14.99
Oct-Sep	9.50	10.00	5.70	7.21	10.29	-1.33	18.28	4.01	3.11	12.15	4.55	20.40	9.00	12.92	-10.68	94.00	13.07	13.07	12.14	0.92	25.21
Nov-Oct	20.00	10.00	10.14	32.02	-2.35	32.32	39.36	10.69	34.64	24.29	17.91	26.89	19.21	70.63	29.85	98.50	29.63	29.63	13.11	16.52	42.74
Dec-Nov	0.50	40.00	1.30	19.13	23.32	13.12	49.80	1.04	39.71	-10.74	21.60	20.62	-16.33	99.37	7.12	60.23	23.11	23.11	15.70	7.41	38.81
Ave.	1.09	3.50	-2.96	3.85	-0.87	0.62	5.79	-6.41	4.20	3.62	-5.26	2.61	-4.61	28.07	-22.43	20.68	1.97	1.97	5.93	-3.96	7.89

Figure 36. Month to month retail price changes of Red Onion in Colombo district from 2004 to 2019.

Red Onion real retail price movement was very similar to seasonal forecast trend but slight negative correlation was shown in some few months. Red Onion real retail price movement fluctuated widely than seasonal forecast trend in some occasions. More than 10% of red onion monthly average retail price difference had increased in May, October, November and December than previous month from 2004 to 2019 and less than 10% of red onion monthly average retail price difference had decreased in January, February, March and August than previous month from 2004 to 2019.

When consider month to month red onion price change, There was Confidence Level(95.0%) for decreasing retail price in February, July and August than previous month and there was Confidence Level(95.0%) for increasing retail price in May, October, November and December than previous month. Lowest monthly average retail price was identified in March and highest monthly average retail price was identified in December from 2004 to 2019 as similar to beans price.

3.8 BIG ONION (1KG) IN COLOMBO DISTRICT

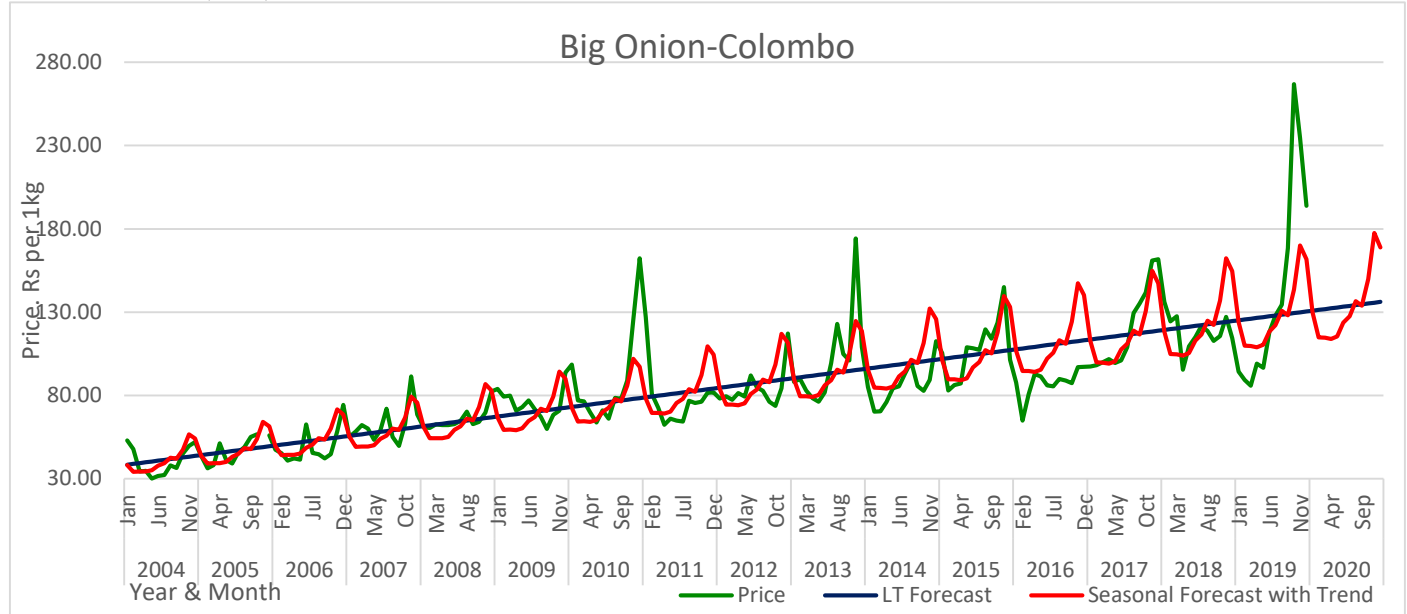


Figure 37. Retail prices of Big Onion with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Big Onion (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	129.75	114.91	114.70	113.91	115.43	123.59	127.57	136.60	133.89	149.80	177.50	168.89

Figure 38. Predicted prices of Big Onion in 2020 in Colombo district by considering seasonal forecast trend.

Big Onion(1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave.	Mean	Confidence Level(95.0%)	Lower	Higher
Jan*Dec		-8.25	-8.68	-19.07	-7.62	1.54	4.75	-35.41	-3.60	-28.95	-24.11	-7.15	-13.65	0.22	-25.57	-20.24	-13.05	-13.05	6.65	-19.71	-6.40
Feb-Jan	-5.25	-7.50	-2.07	3.15	-0.50	-4.70	-21.56	-46.27	1.31	1.66	-14.81	-22.40	-22.97	0.82	-11.69	-4.98	-9.86	-9.86	7.00	-16.86	-2.86
Mar-Feb	-13.55	1.95	-4.43	3.94	2.15	0.65	-0.58	-8.21	-2.06	-6.91	0.27	3.25	15.76	1.68	3.02	-3.47	-0.41	-0.41	3.45	-3.86	3.04
Apr-Mar	0.47	13.05	1.39	-2.24	-0.34	-9.12	-6.58	-10.22	4.09	-4.53	5.54	0.88	12.17	1.92	-32.11	13.24	-0.77	-0.77	5.88	-6.65	5.10
May-Apr	-4.67	-10.00	-0.90	-6.60	0.01	2.10	-6.03	3.74	-2.17	-2.15	8.24	21.75	-1.30	-2.30	14.09	-2.52	0.71	0.71	4.30	-3.59	5.00
Jun-May	1.50	-2.25	21.13	5.80	0.47	4.06	7.21	-1.14	12.64	5.49	1.24	-0.62	-5.42	1.59	5.52	21.36	4.91	4.91	4.09	0.83	9.00
Jul-Jun	0.75	6.75	-16.97	12.85	1.95	-5.21	-5.06	-0.63	-6.99	17.61	7.61	-0.83	-0.62	7.79	6.75	10.02	2.24	2.24	4.56	-2.33	6.80
Aug-Jul	5.75	3.05	-0.89	-17.04	5.58	-4.53	12.51	12.54	-2.10	23.58	7.17	12.25	4.46	20.59	-3.00	6.44	5.40	5.40	5.31	0.09	10.71
Sep-Aug	-1.67	6.20	-2.47	-5.26	-7.56	-7.33	-0.49	-1.36	-6.61	-18.11	-14.71	-5.56	-0.96	5.79	-6.09	34.02	-2.01	-2.01	6.11	-8.12	4.10
Oct-Sep	8.67	1.50	2.57	13.11	1.38	8.57	11.01	0.72	-2.43	-3.83	-2.87	9.62	-1.62	6.63	2.92	98.48	9.65	9.65	12.93	-3.28	22.59
Nov-Oct	4.67		13.67	28.51	5.71	2.45	36.50	5.44	10.45	73.30	6.53	21.25	9.73	19.16	11.61	-32.19	14.45	14.45	12.29	2.16	26.74
Dec-Nov	2.33		15.82	-22.82	12.62	22.92	36.96	0.08	32.87	-65.12	23.31	-43.55	0.10	0.76	-12.66	-40.83	-2.48	-2.48	16.43	-18.91	13.95
Ave	-0.09		1.51	-0.47	1.15	0.95	5.72	-6.73	2.95	-0.66	0.28	-0.93	-0.36	5.39	-3.93	6.61	0.76	0.76	1.94	-1.18	2.70

Figure 39. Month to month retail price changes of Big Onion in Colombo district from 2004 to 2019.

Big Onion real retail price movement was moderately similar to seasonal forecast trend but slightly negative correlation was shown in some few months. Big Onion real retail price movement fluctuated widely than seasonal forecast trend in some occasions. More than 10% of big onion monthly average retail price difference had increased in October and November than previous month from 2004 to 2019 and less than 10% of big onion monthly average retail price difference had decreased in January and February than previous month from 2004 to 2019.

When consider month to month big onion price change, There was Confidence Level(95.0%) for decreasing retail price in January and February than previous month and there was Confidence Level(95.0%) for increasing retail price in June, August and November than previous month. Lowest monthly average retail price was identified in April and highest monthly average retail price was identified in November from 2004 to 2019 as similar to beans price.

3.9 POTATOES (1KG) IN COLOMBO DISTRICT

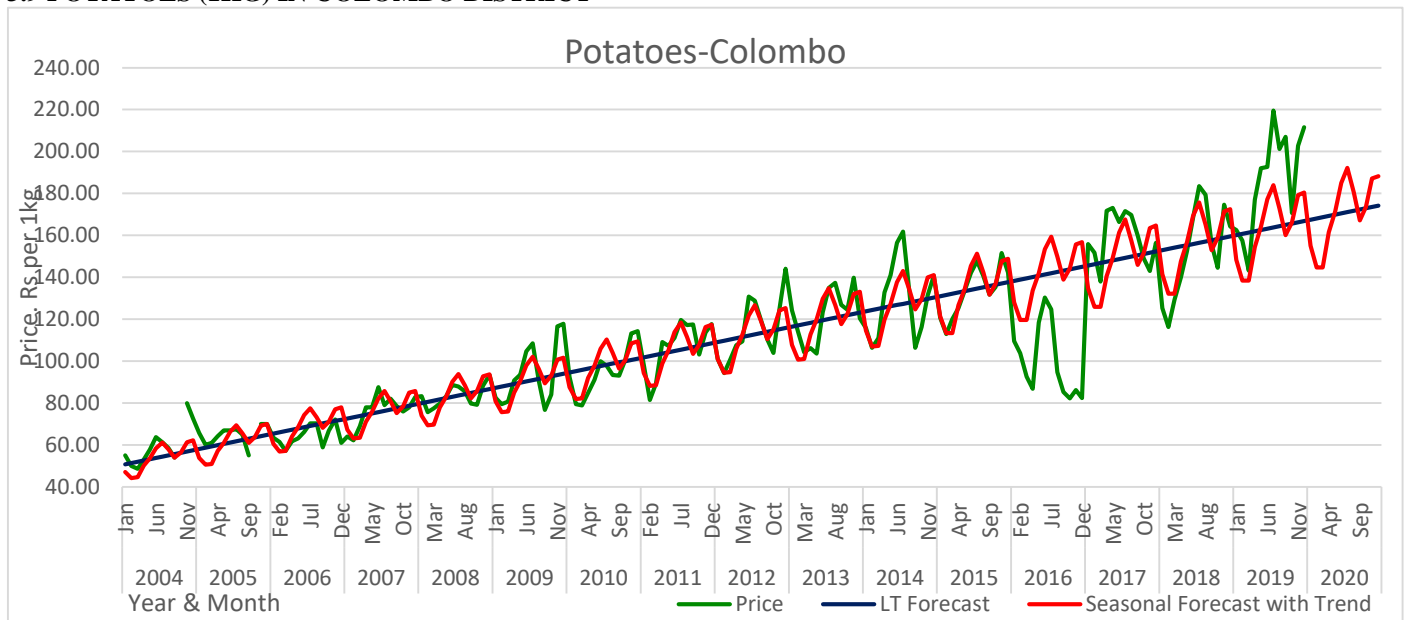


Figure 40. Retail prices of Potatoes with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Potatoes (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	155.04	144.71	144.74	161.48	171.40	185.09	192.12	180.52	167.12	173.55	187.11	188.30

Figure 41. Predicted prices of Potatoes in 2020 in Colombo district by considering seasonal forecast trend.

Potatoes(1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave.	Mean	Confidence Level(95.0%)	Lower	Higher
Jan+Dec		-6.85	-6.63	3.02	0.47	-10.92	-25.43	-16.02	-16.71	-19.75	-4.46	-20.01	-32.72	73.49	-31.10	-1.71	-7.69	-7.69	13.86	-21.55	6.17
Feb-Jan	-5.00	-5.75	-1.99	-1.86	-7.70	-2.94	-12.93	-16.92	-6.63	-10.35	-9.47	-7.83	-5.80	-4.16	-9.08	-5.00	-7.09	-7.09	2.15	-9.23	-4.94
Mar-Feb	-1.40	1.00	-4.17	6.84	1.94	1.09	-0.56	7.91	6.33	-9.72	4.48	7.21	-11.14	-13.67	13.08	-14.37	-0.32	-0.32	4.41	-4.73	4.09
Apr-Mar	4.40	3.25	4.59	8.95	2.30	10.08	5.97	19.75	6.94	1.95	21.89	5.14	-5.75	33.67	10.67	33.87	10.48	10.48	5.98	4.49	16.46
May-Apr	4.80	2.75	1.26	-0.07	3.50	2.88	6.22	-1.82	1.73	-2.51	8.22	8.60	31.59	1.51	12.50	15.00	6.01	6.01	4.46	1.55	10.47
Jun-May	5.95	0.00	3.06	9.61	5.24	11.11	8.83	3.85	21.53	19.61	15.49	8.29	11.82	-6.75	15.83	0.67	8.38	8.38	4.01	4.37	12.39
Jul-Jun	-2.50	0.50	4.17	-8.50	-0.70	3.86	-2.09	8.57	-2.07	11.63	5.32	5.56	-5.63	5.11	15.17	26.80	4.08	4.08	4.62	-0.55	8.70
Aug-Jul	-2.75	-2.50	0.07	3.05	-2.27	-17.99	-4.39	-2.50	-9.23	2.50	-27.87	-7.13	-29.98	-1.85	-4.12	-18.22	-7.82	-7.82	5.45	-13.27	-2.38
Sep-Aug	-4.50	-10.00	-11.56	-3.45	-5.77	-13.83	-0.32	0.31	-9.27	-10.56	-27.59	-8.93	-9.33	-9.69	-23.75	5.75	-8.91	-8.91	4.43	-13.34	-4.47
Oct-Sep			8.01	-2.66	-0.60	7.33	7.41	-14.28	-6.37	-2.26	10.00	3.65	-3.10	-11.07	-11.13	-36.33	-3.67	-3.67	7.04	-10.71	3.36
Nov-Oct			5.40	2.05	9.03	32.45	12.74	10.50	20.99	15.20	15.09	16.29	3.95	-5.85	30.19	32.00	14.29	14.29	6.67	7.62	20.95
Dec-Nov	-7.40	0.00	-11.20	4.83	5.14	1.29	1.07	4.00	19.10	-19.42	9.33	-9.32	-3.86	13.35	-10.48	8.91	0.33	0.33	5.41	-5.07	5.74
Ave.	-0.93	-1.76	-0.75	1.82	0.88	2.03	-0.29	0.28	2.20	-1.97	1.70	0.13	-5.00	6.17	0.65	3.95	0.57	0.57	1.37	-0.80	1.93

Figure 42. Month to month retail price changes of Potatoes in Colombo district from 2004 to 2019.

Wide seasonal fluctuations in vegetable production with a peak in January to March and a trough in May to June is a predominant feature of the supply chain for fresh vegetables in Sri Lanka. Inadequate storage facilities lead to surpluses during the harvest period and extreme shortages during the off-season. The system therefore exhibits wide seasonal price variation. During the peak supply season, the fresh fruit and vegetable supply system typically records wastage of around 30 to 40 percent (HARTI, 2005).

Potatoes real retail price movement was very similar to seasonal forecast trend but slightly negative correlation was shown in some few months in 2016. Potatoes real retail price movement fluctuated widely than seasonal forecast trend in some few occasions. More than 10% of potatoes monthly average retail price difference had increased in April than March from 2004 to 2019 and less than 10% of potatoes monthly average retail price difference had decreased in January than December month from 2004 to 2019.

When consider month to month potatoes price change, There was Confidence Level(95.0%) for decreasing retail price in February, August and September than previous month and there was Confidence Level(95.0%) for increasing retail price in April, May, June and November than previous month. Lowest monthly average retail price was identified in March and highest monthly average retail price was identified in July from 2004 to 2019 as similar to beans price.

3.10 DRIED CHILIES (1KG) IN COLOMBO DISTRICT

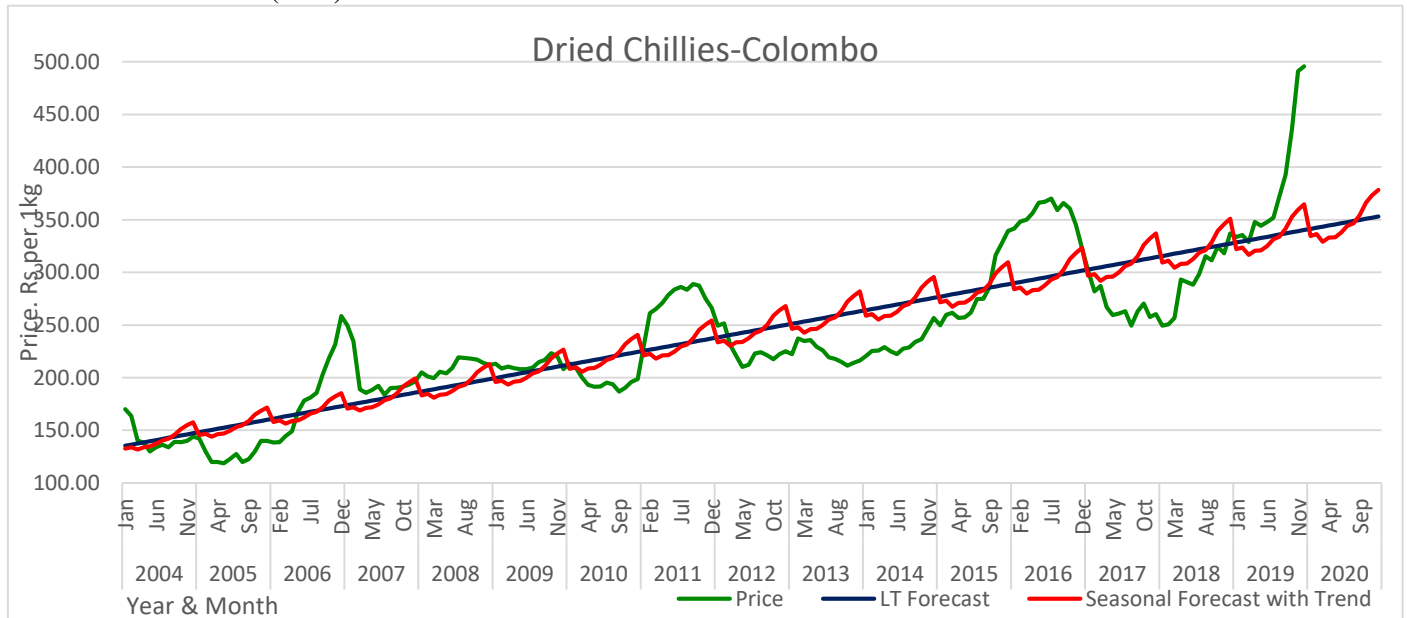


Figure 43. Retail prices of Dried Chillies with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Dried Chillies (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	334.70	336.34	329.05	333.10	333.28	337.76	344.33	346.82	354.55	366.27	373.12	378.50

Figure 44. Predicted prices of Dried Chillies in 2020 in Colombo district by considering seasonal forecast trend.

Dried Chillies(1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave	Mean	Confidence Level(95.0%)	Lower	Higher
Jan*Dec		-1.50	-1.53	-8.90	8.57	1.07	5.56	31.48	-17.25	-2.88	4.24	-6.85	2.10	-21.25	-11.00	-3.25	-1.43	-1.43	6.80	-8.22	5.37
Feb-Jan	-6.25	-12.50	0.15	-15.26	-4.00	-4.57	-4.26	31.02	2.16	15.00	4.81	10.11	6.62	-19.66	1.30	1.88	0.41	0.41	6.50	-6.09	6.91
Mar-Feb	-23.75	-10.00	6.02	-45.41	-1.71	1.90	-8.94	4.13	-20.31	-2.44	0.35	1.74	1.71	5.11	6.04	-6.88	-5.78	-5.78	7.37	-13.14	1.59
Apr-Mar	-1.67	0.00	4.37	-3.47	6.28	-1.40	-7.18	5.68	-10.74	0.75	3.48	-4.86	6.58	-20.17	36.49	19.25	2.09	2.09	6.73	-4.64	8.82
May-Apr	-8.33	-1.25	18.85	2.80	-1.69	-1.10	-1.86	7.62	-10.37	-6.25	-4.17	0.57	9.53	-7.67	-2.53	-3.62	-0.59	-0.59	3.96	-4.55	3.37
Jun-May	3.75	4.25	10.26	4.01	5.17	-0.01	0.31	5.03	2.26	-3.28	-2.57	4.61	0.95	1.78	-2.30	3.62	2.37	2.37	1.86	0.51	4.22
Jul-Jun	2.50	4.50	2.81	-8.57	9.98	1.74	3.82	2.70	10.51	-6.88	5.14	12.80	3.19	2.03	10.17	4.00	3.78	3.78	3.03	0.74	6.81
Aug-Jul	-2.50	-7.50	4.75	6.50	-0.48	5.21	-1.55	-2.75	1.21	-1.54	1.13	0.37	-10.92	-13.73	16.81	20.50	0.97	0.97	4.70	-3.73	5.67
Sep-Aug	5.25	2.50	17.56	0.08	-0.60	2.01	-7.02	5.32	-2.76	-2.53	5.08	10.84	6.55	13.83	-3.75	20.13	4.53	4.53	4.14	0.39	8.67
Oct-Sep	-0.25	7.50	15.01	1.10	-0.91	6.49	3.64	-1.61	-3.70	-3.68	2.91	30.46	-5.13	7.12	12.94	43.37	7.20	7.20	7.02	0.19	14.22
Nov-Oct	1.25	10.00	13.22	1.99	-3.16	-3.14	5.38	-12.46	4.91	2.55	9.94	10.80	-15.50	-12.69	-6.37	55.25	3.87	3.87	8.69	-4.81	12.56
Dec-Nov	4.00	0.00	27.08	3.15	-1.99	-12.30	2.87	-8.28	2.70	2.27	9.99	12.36	-22.28	2.66	18.87	4.54	2.85	2.85	6.16	-3.31	9.02
Ave	-2.36	-0.33	9.88	-5.17	1.29	-0.34	-0.77	5.66	-3.45	-0.74	3.36	6.91	-1.38	-5.22	6.39	13.23	1.68	1.68	2.87	-1.19	4.56

Figure 45. Month to month retail price changes of Dried Chillies in Colombo district from 2004 to 2019.

Dried Chillies real retail price movement was marginally similar to seasonal forecast trend but some negative correlation was shown in some months. Dried Chillies real retail price movement fluctuated widely than seasonal forecast trend in some occasions. More than 3% of dried chillies monthly average retail price difference had increased in October than September from 2004 to 2019 and less than 8% of dried chillies monthly average retail price difference had decreased in January than December month from 2004 to 2019.

When consider month to month dried chillies price change, There was not Confidence Level(95.0%) for decreasing retail price in any month than previous month and there was Confidence Level(95.0%) for increasing retail price in June, July, September and October than previous month. Lowest monthly average retail price was identified in March and highest monthly average retail price was identified in December from 2004 to 2019 as similar to beans price.

3.11 KELAWALLA (1KG) IN COLOMBO DISTRICT

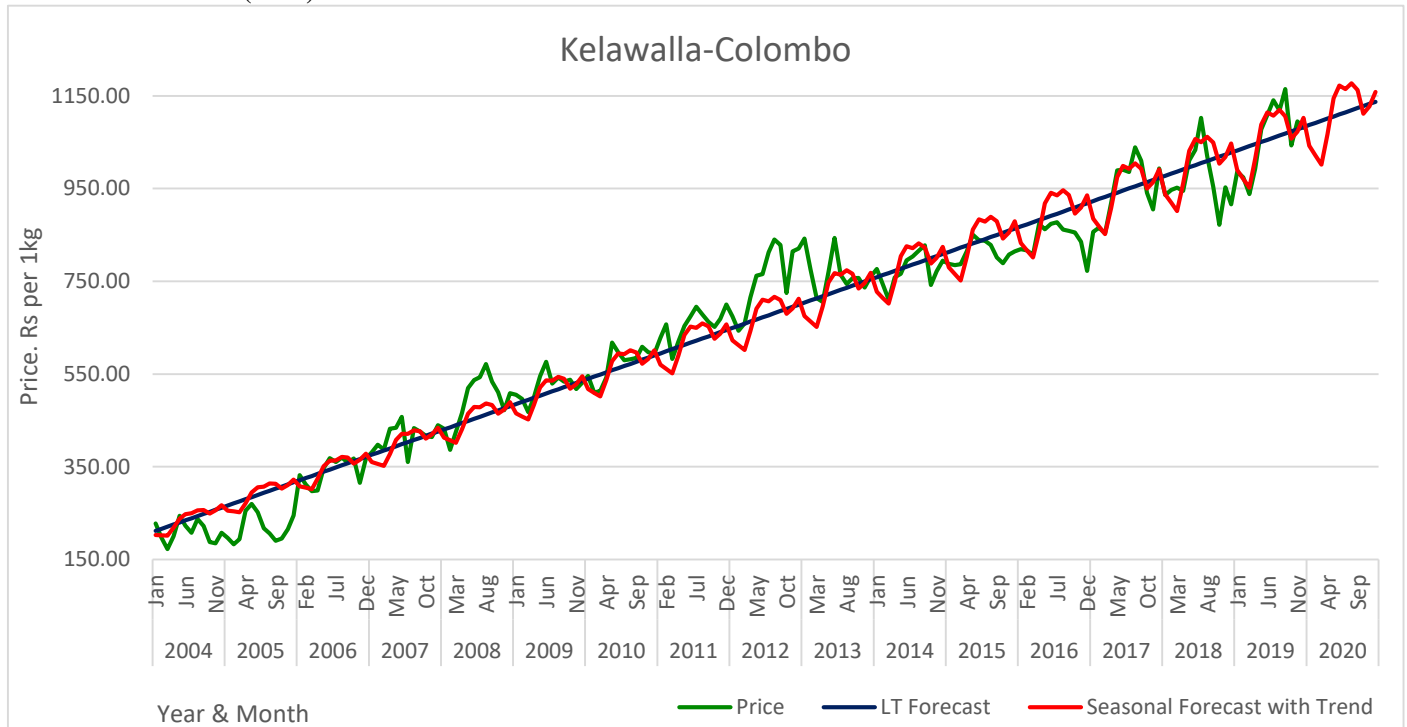


Figure 46. Retail prices of Kelawalla with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Kelawalla (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	1042.23	1021.68	1001.69	1067.19	1144.44	1172.28	1164.30	1176.94	1162.44	1111.46	1127.19	1158.46

Figure 47. Predicted prices of Kelawalla in 2020 in Colombo district by considering seasonal forecast trend.

Kelawalla(1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave.	Mean	Confidence Level(95.0%)	Lower	Higher
Jan-Dec		-10.83	86.73	13.51	-7.90	-3.47	14.88	34.51	-25.35	21.04	16.41	-7.22	4.46	84.02	-57.70	70.46	15.57	15.57	22.18	-6.61	37.75
Feb-Jan	-30.00	-14.17	-19.85	16.42	-45.49	-9.11	-36.27	28.90	-31.21	-66.98	-31.39	-2.62	-2.78	9.00	11.46	-12.25	-14.77	-14.77	13.34	-28.11	-1.43
Mar-Feb	-25.50	11.50	-14.37	-10.05	38.76	-27.80	3.27	-74.83	16.24	-60.92	-34.43	1.88	-9.55	-12.09	4.67	-35.87	-14.32	-14.32	15.32	-29.64	1.01
Apr-Mar	28.00	61.00	1.01	44.71	40.67	32.20	29.14	37.36	55.87	-8.71	47.90	27.68	66.91	65.43	-6.74	54.37	36.05	36.05	12.81	23.24	48.86
May-Apr	44.00	15.00	48.45	2.00	53.77	44.61	75.29	34.34	46.46	64.33	7.92	35.91	-11.42	70.66	65.45	85.36	42.63	42.63	14.76	27.88	57.39
Jun-May	-21.50	-18.00	21.51	23.30	17.76	31.53	-20.54	20.62	3.97	74.14	29.03	-11.68	11.42	0.95	22.62	30.47	13.48	13.48	13.13	0.35	26.60
Jul-Jun	-15.00	-34.50	-8.44	-97.42	5.72	-46.93	-17.37	20.39	46.86	-79.28	8.37	-1.70	3.75	-4.61	69.02	32.26	-7.43	-7.43	22.79	-30.22	15.36
Aug-Jul	30.00	-11.50	9.78	73.59	28.67	12.80	2.23	-16.45	27.22	-20.13	11.91	-8.45	-15.83	53.45	-82.35	-22.02	4.56	4.56	19.07	-14.51	23.62
Sep-Aug	-15.50	-16.00	-11.35	-7.79	-38.28	-9.14	2.98	-15.78	-11.68	12.11	12.22	-26.90	-3.17	-29.41	-66.25	46.17	-11.11	-11.11	13.10	-24.21	1.99
Oct-Sep	-34.50	5.00	9.50	-8.94	-22.91	4.34	23.70	-11.26	-103.32	0.85	-85.62	-12.32	-3.00	-69.08	-81.75	-121.88	-31.95	-31.95	24.13	-56.08	-7.82
Nov-Oct	-2.50	20.00	-52.67	-2.99	-38.21	-20.08	-11.33	17.09	89.82	-20.50	29.62	18.27	-20.50	-35.96	80.50	52.14	6.42	6.42	21.94	-15.52	28.36
Dec-Nov	22.50	30.00	52.23	25.70	36.34	13.83	-3.64	31.27	6.13	23.13	22.94	7.14	-62.69	88.90	-36.71	-13.67	15.21	15.21	18.52	-3.30	33.73
Ave	-1.82	3.13	10.21	6.00	5.74	1.90	5.20	8.85	10.08	-5.08	2.91	1.67	-3.53	18.44	-6.48	13.80	4.44	4.44	3.65	0.79	8.09

Figure 48. Month to month retail price changes of Kelawalla in Colombo district from 2004 to 2019.

Kelawalla real retail price movement was moderately similar to seasonal forecast trend but some negative correlation was shown in some months. Kelawalla real retail price movement fluctuated widely than seasonal forecast trend in some occasions. More than 6% of kelawalla monthly average retail price difference had increased in April and May than previous month from 2004 to 2019 and less than 5% of kelawalla monthly average retail price difference had decreased in January than December month from 2004 to 2019.

When consider month to month kelawalla price change, There was Confidence Level(95.0%) for decreasing retail price in February and October than previous month and there was Confidence Level(95.0%) for increasing retail price in April, May and June than previous month. Lowest monthly average retail price was identified in March and highest monthly average retail price was identified in June from 2004 to 2019.

3.12 HURULLA (1KG) IN COLOMBO DISTRICT

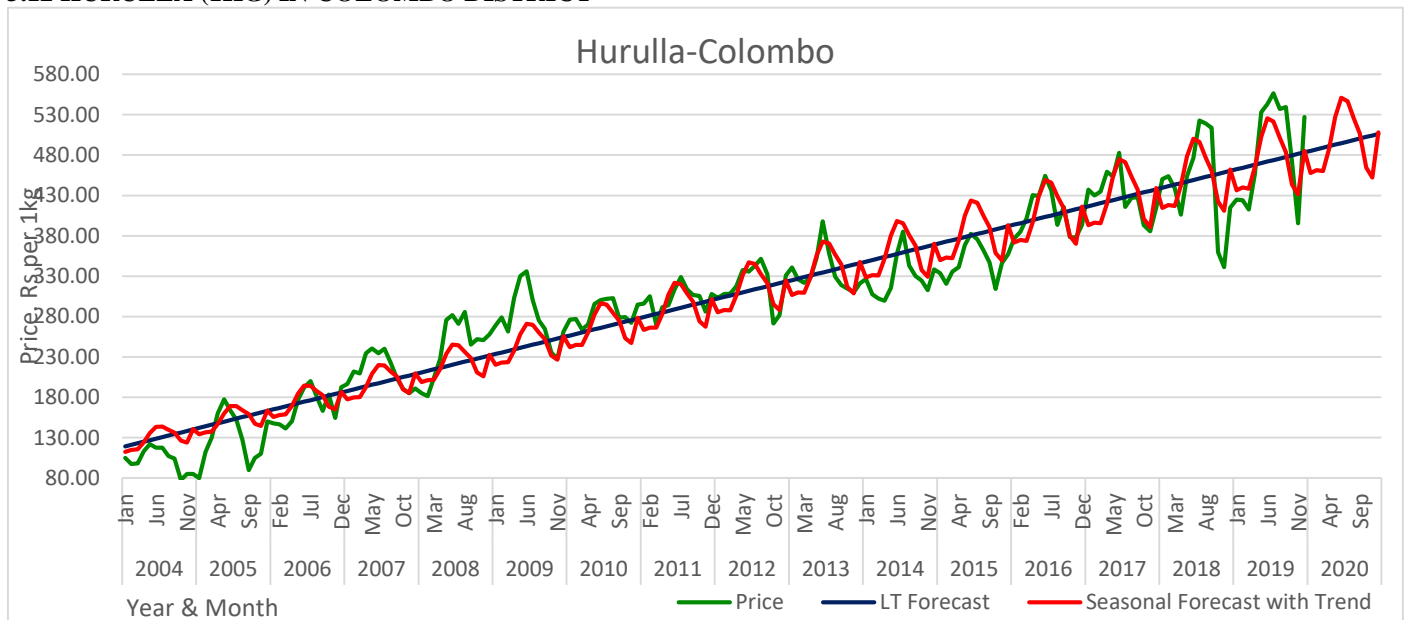


Figure 49. Retail prices of Hurulla with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Hurulla (1kg) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	457.88	461.43	459.98	487.76	527.18	551.14	546.64	525.48	506.70	464.62	452.19	508.08

Figure 50. Predicted prices of Hurulla in 2020 in Colombo district by considering seasonal forecast trend.

Hurulla(1kg)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave.	Mean	Confidence Level(95.0%)	Lower	Higher
Jan-Dec		-5.00	-2.25	3.95	-5.85	11.08	14.80	1.22	-4.60	9.96	5.88	-4.98	19.48	43.43	35.40	10.00	8.83	8.83	8.18	0.66	17.01
Feb-Jan	-7.50	32.50	-1.08	15.53	-3.59	9.75	1.02	8.78	4.57	-14.52	-19.29	-12.96	8.75	-7.00	3.35	-1.00	1.08	1.08	6.78	-5.70	7.87
Mar-Feb	0.50	17.50	-5.28	-2.54	22.26	-17.35	-13.03	-35.19	0.66	-4.46	-5.03	15.03	16.69	4.71	-15.08	-11.50	-2.01	-2.01	8.04	-10.04	6.03
Apr-Mar	15.33	30.00	9.18	24.96	23.96	41.39	6.07	21.69	8.91	6.61	-2.83	5.82	28.56	24.62	-32.56	43.50	15.95	15.95	9.83	6.12	25.78
May-Apr	8.67	17.50	26.42	5.85	47.98	27.00	25.32	2.67	20.34	24.18	16.04	27.37	-1.27	-6.00	47.89	77.08	22.94	22.94	11.22	11.72	34.16
Jun-May	-4.50	-13.50	15.12	-5.75	5.96	6.25	4.95	19.21	-2.13	45.42	42.44	13.66	25.00	29.32	22.36	9.78	13.35	13.35	8.93	4.42	22.28
Jul-Jun	0.00	-11.50	8.07	5.43	-10.76	-35.91	1.52	15.64	7.34	-39.82	27.12	-6.72	-18.04	-66.94	46.64	13.64	-4.02	-4.02	14.57	-18.58	10.55
Aug-Jul	-10.00	-25.00	-19.21	-16.77	14.83	-24.75	0.72	-15.19	8.47	-28.82	-41.83	-13.45	-42.50	11.64	-3.71	-19.36	-14.06	-14.06	9.17	-23.23	-4.89
Sep-Aug	-3.50	-37.50	-17.72	-20.05	-40.46	-10.97	-24.03	-7.16	-19.01	-10.27	-13.33	-15.24	21.84	0.43	-5.54	2.30	-12.51	-12.51	8.03	-20.54	-4.48
Oct-Sep	-26.50	15.00	20.31	-12.74	6.58	-28.87	0.88	-1.04	-60.94	-4.42	-5.45	-32.58	-37.06	-34.45	-153.75	-67.30	-26.40	-26.40	22.52	-48.91	-3.88
Nov-Oct	7.50	5.00	-29.08	-5.58	-0.91	-8.33	-7.45	-19.42	10.48	-4.67	-11.69	32.13	-0.64	-7.56	-18.67	-76.76	-8.48	-8.48	12.24	-20.71	3.76
Dec-Nov	0.00	40.00	38.09	6.14	7.13	33.88	22.93	21.58	48.93	10.83	25.61	10.53	15.68	29.23	73.67	131.76	32.25	32.25	17.30	14.95	49.55
Ave.	-1.82	5.42	3.55	-0.13	5.59	0.26	2.81	1.07	1.92	-0.83	1.47	1.55	3.04	1.79	0.00	9.35	2.19	2.19	1.49	0.70	3.68

Figure 51. Month to month retail price changes of Hurulla in Colombo district from 2004 to 2019.

Hurulla real retail price movement was very similar to seasonal forecast trend but some negative correlation was shown in some months. Hurulla real retail price movement fluctuated widely than seasonal forecast trend in some occasions. More than 7% of Hurulla monthly average retail price difference had increased in May than April from 2004 to 2019 and less than 6% of Hurulla monthly average retail price difference had decreased in January and October than previous month from 2004 to 2019.

When consider month to month hurulla price change, There was Confidence Level(95.0%) for decreasing retail price in August, September and October than previous month and there was Confidence Level(95.0%) for increasing retail price in January, April, May, June and December than previous month. Lowest monthly average retail price was identified in November and highest monthly average retail price was identified in June from 2004 to 2019.

3.13 EGGS (EACH) IN COLOMBO DISTRICT

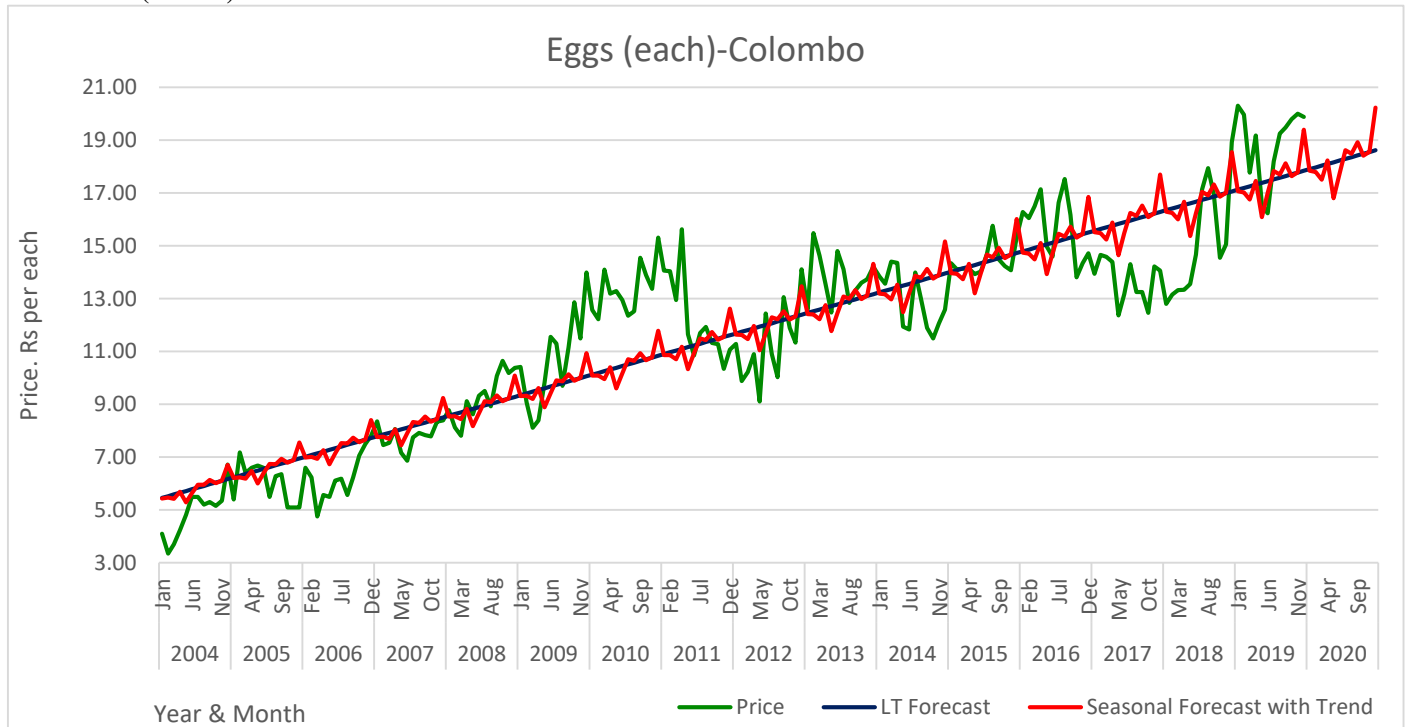


Figure 52. Retail prices of Eggs (each) with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Eggs (each) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	17.84	17.79	17.51	18.24	16.81	17.75	18.63	18.49	18.93	18.42	18.57	20.24

Figure 53. Predicted prices of Eggs (each) in 2020 in Colombo district by considering seasonal forecast trend.

Eggs (each)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave	Mean	Confidence Level(95.0%)	Lower	Higher
Jan-Dec	-1.32	1.50	0.55	0.39	0.04	-1.41	-1.24	0.22	-1.51	-0.36	1.76	0.94	-0.78	-1.26	1.38	-0.07	-0.07	0.64	-0.71	0.56	
Feb-Jan	-0.75	1.78	-0.37	-0.90	-0.66	-1.35	-0.36	-0.03	-1.41	2.88	-0.28	-0.24	-0.23	0.72	0.36	-0.34	-0.07	-0.07	0.59	-0.66	0.51
Mar-Feb	0.35	-0.78	-1.47	0.08	-0.31	-0.96	1.88	-1.09	0.34	-0.84	0.83	0.03	0.45	-0.07	0.17	-2.19	-0.22	-0.22	0.52	-0.75	0.30
Apr-Mar	0.53	0.20	0.81	0.53	1.31	0.28	-0.91	2.68	0.68	-1.09	-0.04	0.00	0.65	-0.20	0.01	1.40	0.43	0.43	0.48	-0.05	0.91
May-Apr	0.59	0.08	-0.07	-0.90	-0.50	1.43	0.10	-3.98	-1.79	-1.07	-2.42	-0.21	-2.18	-2.02	0.22	-2.62	-0.96	-0.96	0.76	-1.72	-0.20
Jun-May	0.68	-0.08	0.61	-0.31	0.70	1.73	-0.34	-0.80	3.33	2.32	-0.11	0.10	-0.37	0.80	1.11	-0.33	0.57	0.57	0.59	-0.03	1.16
Jul-Jun	0.00	-1.10	0.07	0.89	0.19	-0.25	-0.59	0.85	-1.54	-0.69	2.16	0.67	2.03	1.14	2.46	1.97	0.52	0.52	0.65	-0.13	1.16
Aug-Jul	-0.30	0.78	-0.61	0.17	-0.59	-1.60	0.17	0.23	-0.87	-1.27	-0.99	1.06	0.90	-1.06	0.81	1.05	-0.13	-0.13	0.48	-0.61	0.34
Sep-Aug	0.10	0.07	0.66	-0.08	1.16	1.46	2.02	-0.60	3.03	0.47	-1.11	-1.27	-1.35	0.00	-1.00	0.23	0.24	0.24	0.65	-0.42	0.89
Oct-Sep	-0.15	-1.25	0.83	-0.05	0.57	1.70	-0.66	-0.05	-1.16	0.29	-0.39	-0.26	-2.37	-0.78	-2.39	0.32	-0.36	-0.36	0.58	-0.94	0.21
Nov-Oct	0.20	0.00	0.43	0.55	-0.47	-1.37	-0.52	-0.94	-0.56	0.14	0.56	-0.15	0.53	1.75	0.51	0.20	0.05	0.05	0.39	-0.34	0.44
Dec-Nov	1.37	0.00	0.32	0.05	0.20	2.50	1.94	0.73	2.77	0.47	0.53	1.26	0.38	-0.16	3.87	-0.11	1.01	1.01	0.63	0.37	1.64
Ave	0.24	-0.14	0.23	0.05	0.17	0.30	0.11	-0.35	0.25	0.01	-0.14	0.23	-0.05	-0.06	0.41	0.08	0.08	0.08	0.11	-0.02	0.19

Figure 54. Month to month retail price changes of Eggs (each) in Colombo district from 2004 to 2019.

Eggs (each) real retail price movement was marginally similar to seasonal forecast trend but some negative correlation was shown in some months. Eggs (each) real retail price movement shown some high volatility than seasonal forecast trend in some occasions. More than 4% of eggs (each) monthly average retail price difference had increased in January and July than previous month from 2004 to 2019 and less than 8% of eggs (each) monthly average retail price difference had decreased in January, May and December than previous month from 2004 to 2019.

When consider month to month eggs (each) price change, There was Confidence Level(95.0%) for decreasing retail price in May than April and there was Confidence Level(95.0%) for increasing retail price in December than November. Lowest monthly average retail price was identified in May and highest monthly average retail price was identified in December from 2004 to 2019.

3.14 COCONUT (EACH) IN COLOMBO DISTRICT

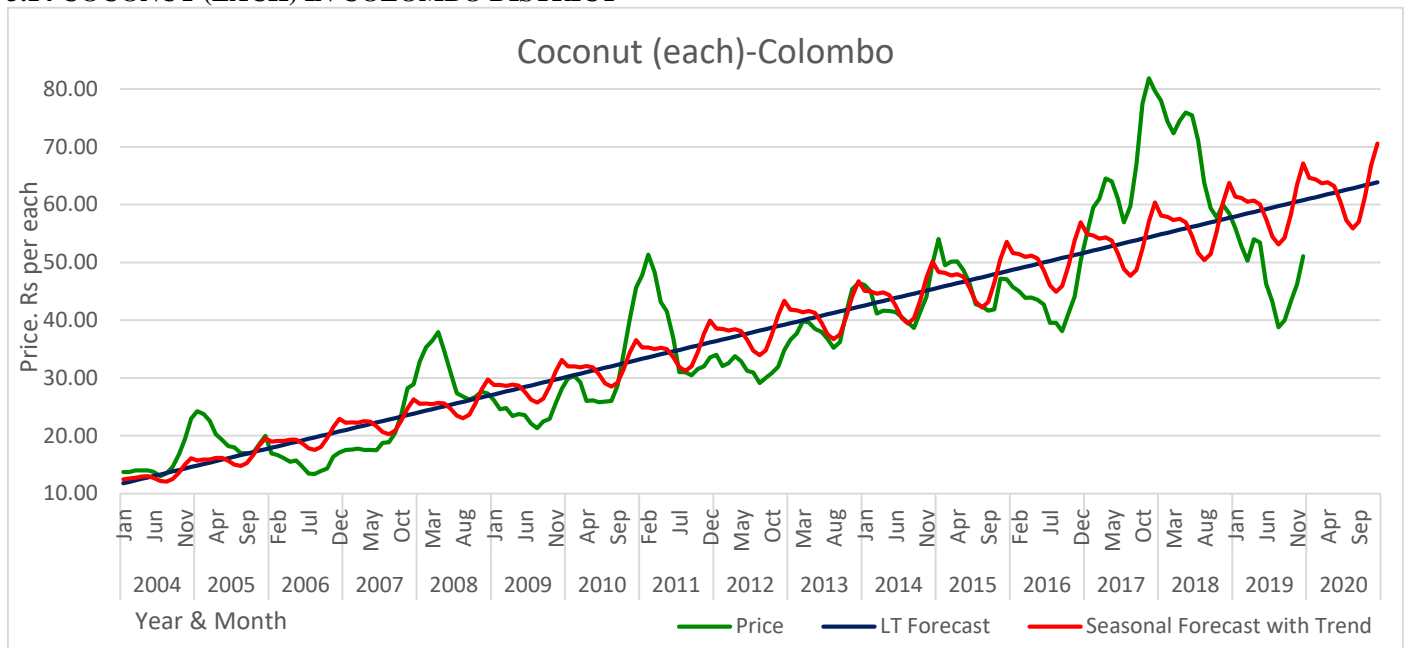


Figure 55. Retail prices of Coconut (each) with linear trend forecast and seasonal forecast trend in Colombo district from 2004 to 2019.

Prediction of Coconut (each) price in Colombo district in 2020.												
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Price (Rs.)	64.64	64.35	63.66	63.88	63.19	60.53	57.27	55.87	57.04	61.36	66.71	70.55

Figure 56. Predicted prices of Coconut (each) in 2020 in Colombo district by considering seasonal forecast trend.

Coconut (each)-Colombo/ Price Changes Month to Month from 2004 to 2019																					
Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Month Ave	Mean	Confidence Level(95.0%)	Lower	Higher
Jan-Dec		1.25	-3.08	0.45	3.95	-1.15	1.79	2.20	0.41	1.76	-0.42	4.29	-1.34	4.82	-1.64	-2.56	0.72	0.72	1.36	-0.65	2.08
Feb-Jan	0.00	-0.50	-0.24	0.06	2.48	-1.56	0.40	3.53	-1.90	1.14	-1.09	-4.55	-0.67	4.37	-3.62	-3.13	-0.33	-0.33	1.30	-1.63	0.97
Mar-Feb	0.25	-1.15	-0.58	0.13	1.08	0.20	-1.07	-3.07	0.49	2.10	-3.83	0.63	-1.19	1.50	-2.05	-2.50	-0.57	-0.57	0.89	-1.46	0.33
Apr-Mar	0.00	-2.35	-0.59	-0.18	1.54	-1.40	-3.20	-5.13	1.20	-0.26	0.52	0.05	0.04	3.50	2.14	3.69	-0.03	-0.03	1.22	-1.25	1.20
May-Apr	0.00	-1.00	0.19	-0.04	-3.35	0.33	0.07	-1.60	-0.85	-1.09	-0.05	-1.56	-0.37	-0.50	1.47	-0.56	-0.56	-0.56	0.57	-1.13	0.01
Jun-May	-0.25	-1.05	-1.07	-0.02	-3.77	-0.13	-0.29	-4.58	-1.71	-0.49	-0.16	-2.25	-0.85	-2.97	-0.52	-7.11	-1.70	-1.70	1.06	-2.77	-0.64
Jul-Jun	-0.75	-0.20	-1.17	1.24	-3.46	-1.49	0.06	-5.95	-0.26	-1.24	-0.89	-3.64	-3.15	-4.10	-4.37	-3.18	-2.03	-2.03	1.05	-3.09	-0.98
Aug-Jul	0.50	-1.00	-0.05	0.12	-0.56	-0.80	0.15	0.02	-1.81	-1.52	-0.93	-0.34	0.03	2.75	-7.30	-4.40	-0.95	-0.95	1.19	-2.14	0.24
Sep-Aug	1.10	0.00	0.51	1.63	-0.57	1.19	2.62	-0.57	0.86	0.97	-0.99	-0.77	-1.46	7.24	-4.37	1.25	0.54	0.54	1.28	-0.74	1.82
Oct-Sep	2.15	0.00	0.43	3.09	0.50	0.42	5.55	1.08	0.83	4.98	2.87	0.23	3.08	10.58	-1.63	3.33	2.34	2.34	1.56	0.79	3.90
Nov-Oct	2.75	1.50	2.06	4.63	0.91	2.71	5.86	0.47	1.15	4.19	2.53	5.36	2.92	4.33	2.25	2.92	2.91	2.91	0.85	2.06	3.75
Dec-Nov	3.50	1.50	0.70	0.69	-0.35	2.50	5.54	1.56	2.85	1.10	5.73	-0.15	6.21	-2.19	-1.50	4.80	2.03	2.03	1.37	0.66	3.41
Ave	0.84	-0.25	-0.24	0.98	-0.13	0.07	1.46	-1.00	0.11	0.97	0.27	-0.23	0.27	2.44	-1.76	-0.62	0.20	0.20	0.53	-0.33	0.73

Figure 57. Month to month retail price changes of Coconut (each) in Colombo district from 2004 to 2019.

Coconut (each) real retail price movement was moderately similar to seasonal forecast trend but some few negative correlation was shown for some few months. Coconut (each) real retail price movement shown some high volatility than seasonal forecast trend in some occasions. More than 5% of coconut (each) monthly average retail price difference had increased in October, November and December than previous month from 2004 to 2019 and less than 4% of coconut (each) monthly average retail price difference had decreased in January, June and July than previous month from 2004 to 2019.

When consider month to month coconut (each) price change, There was Confidence Level(95.0%) for decreasing retail price in June and July than previous month and there was Confidence Level(95.0%) for increasing retail price in October, November and December than previous month. Lowest monthly average retail price was identified in August and highest monthly average retail price was identified in December from 2004 to 2019.

IV.CONCLUSION

Seasonal retail price analysis of Samba Rice, Kekulu Rice, Beans, Cabbage, Brinjals, Pumpkins, Red Onion, Big Onion, Potatoes, Dried Chillies, Kelawalla, Hurulla, Eggs and Coconut were done to predict future prices of them by using seasonal index of their prices and Confidence Level(95.0%) of month to month price difference. Below indication were noted.

For Samba rice- Real retail price movement was marginally similar to its seasonal forecast trend. There was Confidence Level(95.0%) for decreasing retail price in March than February and there was Confidence Level(95.0%) for increasing retail price in September, October, November and December than previous month.

For Kekulu rice- Real retail price movement was marginally similar to its seasonal forecast trend. There was Confidence Level(95.0%) for decreasing retail price in March than February and there was Confidence Level(95.0%) for increasing retail price in November and December than previous month.

For Beans- Real retail price movement was moderately similar to its seasonal forecast trend There was Confidence Level(95.0%) for decreasing retail price in March and July than previous month and there was Confidence Level(95.0%) for increasing retail price in May, October and November than previous month.

For Cabbage- Real retail price movement was moderately similar to its seasonal forecast trend. There was Confidence Level(95.0%) for decreasing retail price in February and August than previous month and there was Confidence Level(95.0%) for increasing retail price in May and June than previous month.

For Brinjal- Real retail price movement was somewhat similar to its seasonal forecast trend. There was Confidence Level(95.0%) for decreasing retail price in July than June and there was Confidence Level(95.0%) for increasing retail price in May, October and November than previous month.

For Pumpkins- Real retail price movement was somewhat similar to its seasonal forecast trend. There was not Confidence Level(95.0%) for decreasing retail price in any month than previous month and there was Confidence Level(95.0%) for increasing retail price in June and November than previous month.

For Red Onion- Real retail price movement was very similar to its seasonal forecast trend. There was Confidence Level(95.0%) for decreasing retail price in February, July and August than previous month and there was Confidence Level(95.0%) for increasing retail price in May, October, November and December than previous month.

For Big Onion- Real retail price movement was moderately similar to its seasonal forecast trend. There was Confidence Level(95.0%) for decreasing retail price in January and February than previous month and there was Confidence Level(95.0%) for increasing retail price in June, August and November than previous month.

For Potatoes- Real retail price movement was very similar to its seasonal forecast trend. There was Confidence Level(95.0%) for decreasing retail price in February, August and September than previous month and there was Confidence Level(95.0%) for increasing retail price in April, May, June and November than previous month.

For Dried Chillies- Real retail price movement was marginally similar to its seasonal forecast trend. There was not Confidence Level(95.0%) for decreasing retail price in any month than previous month and there was Confidence Level(95.0%) for increasing retail price in June, July, September and October than previous month.

For Kelawalla- Real retail price movement was moderately similar to its seasonal forecast trend. There was Confidence Level(95.0%) for decreasing retail price in February and October than previous month and there was Confidence Level(95.0%) for increasing retail price in April, May and June than previous month.

For Hurulla- Real retail price movement was very similar to its seasonal forecast trend. There was Confidence Level(95.0%) for decreasing retail price in August, September and October than previous month and there was Confidence Level(95.0%) for increasing retail price in January, April, May, June and December than previous month.

For Eggs (each)- Real retail price movement was marginally similar to its seasonal forecast trend. There was Confidence Level(95.0%) for decreasing retail price in May than April and there was Confidence Level(95.0%) for increasing retail price in December than November.

For Coconut (each)- Real retail price movement was moderately similar to its seasonal forecast trend. There was Confidence Level(95.0%) for decreasing retail price in June and July than previous month and there was Confidence Level(95.0%) for increasing retail price in October, November and December than previous month.

V. POLICY IMPLICATIONS

Considering the seasonality in prices, particularly for Samba Rice, Kekulu Rice, Beans, Cabbage, Brinjal, Pumpkins, Red Onion, Big Onion, Potatoes, Dried Chillies, farmers should adjust their sowing season to take advantage of higher prices according to demand and supply through the season. Wholesaler and retailer can more aware on price increase and decrease behaviour to take more advantage for their business.

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