Revealed comparative advantage and trade patterns in international trade: A study based on leading agricultural exports in Sri Lanka

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1. Introduction

Agricultural trade plays a vital role in the Sri Lankan economy as a promising source of foreign earnings. Moreover, Sri Lanka had a strong competitive position in the agriculture sector (Hettiarachchi, 2018). However, it is questionable whether Sri Lanka's existing major agricultural exports are based on comparative advantage and how this advantage is used over a past period. Therefore, this study mainly focused on examining the Revealed Comparative advantage (RCA) during 2007- 2019 and Revealed Symmetric Advantage (RSCA) in the years 2007 and 2019 of the agricultural commodities.

Further, COVID -19 creates a tremendous impact on human lives by creating unprecedented changes including in the agriculture sector and trade. The measures taken by the government as outbreaks continue to spread have a severe impact on international trade and the Sri Lankan government adopted different trade policies during the COVID-19 pandemic. Hence the study is timely and attempted to identify the potential commodities in trading during this COVID- 19 pandemic and the way of taking this situation as an advantage. No recent study was attempted to examine the comparative advantage throughout the years and impact of COVID-19 on agricultural trade in Sri Lanka. By having a deeper insight into the comparative advantage and the patterns of trade, the policymakers could make sound policy strategies to focus on goods in which Sri Lanka's comparative advantage in agricultural exports exists. Finally, a comparison is carried out to see the differences in the comparative structure of agricultural commodities between Sri Lanka and Bangladesh as Bangladesh is considered a country with positive economic growth in South Asia which is very similar to that of Sri Lanka. With this background, it would be of timely importance to analyze the patterns of trade and the comparative advantage of the agricultural commodities in Sri Lanka**.**

2. Materials and Methods

Data were obtained from the Central Bank monthly Bulletins and UNCTAD stat web portal. In analyzing the patterns of trade during the COVID-19, the study used the monthly export values from Central Bank monthly bulletins for having a broad insight.

The Revealed Comparative Advantage concept is developed by Balassa (1965 and 1977) to identify the relative trade performance of individual countries for a particular country. Balassa Index (Balassa, 1965) is the widely used in the literature to calculate the RCA for the countries with the sectorial specialization. RCA values were obtained from the UNCTAD stat web portal and RSCA values are calculated to have a complete view of the comparative advantage that Sri Lankan agricultural commodities enjoy in international trade. Results will be analyzed through Descriptive analysis methods (by Graphs, charts, and tables) and RCA values and RSCA values as the theoretical frameworks.

Revealed Competitive Advantage Index
RCA Values were obtained for the agricultural commodities from 2007-2019 by using the following equation (Balassa 1965; 1997).

$$RCA_i = \left(X_{ij} \in X_j\right) / \ X_{I,World} / \in X_{World}$$

RCA_i = Revealed Comparative Advantage

X_{ij} = Exports of good i by country j

$\in X_i$ = Total Export of country j

$X_{I,World}$ = World Exports of good i

$\in X_{World}$ = Total world exports

Classification of RCA (Hinloopen & Marrewijk, 2001)

Class A
RCA Value = 0-1
Interpretation = No comparative advantage

Class B
RCA Value = 1-2
Interpretation = Weak comparative advantage

Class C
RCA Value = 2 – 4
Interpretation = Moderate comparative advantage

Class D
RCA Value = 4<
Interpretation = Strong comparative advantage

Revealed Symmetric Advantage Value (RSAV)

The concept of RSAV is developed by Dalum et al. (1998) and Widodo (2009) to measure trade competitiveness. The purpose of this analysis is to have a complete view of the comparative advantage that Sri Lankan agricultural commodities enjoy in international trade and to calculate the RSCA values in the years 2007 and 2019 by referring to the method introduced by Dalum et al. (1998) and Widodo (2009) as following.

$$RSCA = (RCA - 1) / \ (RCA + 1)$$

3. Results and Discussion

3.1 Revealed Comparative Advantage of main Agricultural Commodities (2007 – 2019)

Table 01. Revealed Comparative Advantage of main Agricultural Commodities (2007 – 2019)

Class	SITC code	Type of Product	2007	2009	2011	2013	2015	2017	2019
D	074	Tea and Mate	348.4	324.2	330.7	315.4	240.1	239.8	237.9
D	075	Spices	53.1	42.3	49.1	77.9	53.4	48.5	34.2

D	046	Meal and flour of Meslin	20.5	15.7	41.3	11.1	8.5	5.9	8.0
D	058	Fruit preserved and fruit preparation	2.6	3.3	4.1	4.3	5.1	6.5	6.1
D	034	Fish (Fresh live or dead)	5.8	5.9	4.4	5.3	3.5	3.8	4.0
C	057	Fruits and nuts (Excluding oil nuts)	2.4	2.1	3.4	2.3	3.3	2.2	3.2
C	036	Crustaceans, Molluscas and aquatible invertibrates	3.0	2.3	2.8	3.5	2.0	1.8	2.4
C	072	Cocoa	<0	<0	1.7	<0	<0	<0	<0
C	098	Edible products and preparations	1.8	1.0			1.5	1.5	1.8
B	081	Feeding stuff for animals (No unmilled cereals)	1.8	2.2	1.8	1.4	1.6	1.6	1.6
B	035	Fish, Dried salted or in brined , smoked fish	1.3	1.2	1.4	1.3	1.1	1.6	1.5
B	047	Other cereal meals and flour	<0	1.0	<0	1.2	1.2	1.7	1.5
A	054	Vegetable	<0	1.1	<0	<0	<0	<0	1.1
A	025	Birds eggs and Egg yolks egg albumin	<0	<0	<0	<0	<0	<0	1.0

Source: UNCTAD stat web portal

According to the results, roughly 14 agricultural products in Sri Lanka enjoy a comparative advantage. The country holds a strong comparative advantage in tea and mate, spices, meal and flour of meslin, fruit preserved and fruit preparation, fish (fresh live or dead). Unfortunately, all these five product groups exhibited downward trends in their comparative advantage throughout these years. However, there is an increasing trend in Fruits and nuts (excluding oil nuts), edible products and preparations, and fish dried salted or in brined smoked fish. Vegetables and cocoa loss their advantages in many of the years. Considering the comparative advantages between Sri Lanka and Bangladesh, Sri Lanka is more advantageously placed than

Bangladesh in 8 agricultural commodities, and Bangladesh is more advantageously placed than Sri Lanka in 2 agricultural commodities.

3.2 Revealed Symmetric Advantage (RSCA) (2007 and 2019)

Concerning the RSCA values, tea and mate, spices, meal and flour of meslin, fruit preserved and fruit preparation, and fish (Fresh life or dead) accounted for high values of RSCA. Comparing the RSCA values (in 2007 and 2019) of the top 5 commodities with the highest RCA values 4 commodities show a declining trend whilst only fruit preserved and fruit preparation indicate an increasing trend for RSCA values.

3.3 Patterns of trade of agricultural commodities during COVID -19

Concerning the tea sector, after COVID-19 hits, it can see a huge drop in value between March – April 2020. The worldwide logistics networks are messed up, and cargo and port clearance processes in Sri Lanka have been delayed. RCA value for tea in 2020 is at 143.87 and is a huge drop compared to previous years. Besides the tea industry, other agricultural commodities like spices, coconut-based products, fruits, and vegetables also show a declining trend. However, the rubber base products indicated an increasing trade during COVID -19 period.

4. Conclusions

As indices by RCA values, the five main agricultural commodities of Sri Lanka enjoy a strong comparative advantage. It is sad to note that all these five commodities experiencing a downward trend in RCA. Moreover, the COVID- 19 creates a favorable environment to increase the trade-in Tea and Spices as many researchers profound that the more tea and spices as immunity boosters. Unfortunately, these commodities do not show any positive sign in trade. As a result, the country must pay close attention to current policies and diversify high-tech, and value-added products to increase the country's share of agricultural export in international trade.

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