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Full Length Research Paper

Trade liberalization effects on agricultural production growth: The case of Sri Lanka

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This paper provides a quantitative assessment of the trade policy impacts on agricultural sector growth in Sri Lanka based on the national data from 1960 to 2010. A number of multiple regression models incorporating macro level data were estimated using the Ordinary Least Square (OLS) method to investigate the impact of trade policy reforms on agricultural sector growth in Sri Lanka. The empirical results suggested that trade liberalization had a positive effect on agricultural production growth, and eventually lead to improved agricultural productivity in Sri Lanka. This analysis also concluded that the trade openness, investment, and interest rate were significant factors that were positively related to agricultural production growth.

Key words: Agricultural production growth, economic growth, investments, trade liberalization, trade openness, Sri Lanka.

INTRODUCTION

Growth in agricultural production is crucial for achieving sustainable economic growth and poverty reduction in developing nations. The positive link between agricultural production growth and trade openness may suggest that trade liberalization goes along with economic development. Removal of trade barriers has become a powerful economic policy in both developed and developing nations today, while import and export tariffs, quotas, and export subsidies were common during the previous decades (Herath, 2008). More recently, developing nations, such as Sri Lanka, have also been implementing trade liberalization policies. Further, most countries' experience on trade policy reforms suggest that agricultural production growth and domestic welfare gains rise along with trade policy reform implementation.

The major goals of the trade liberalization policy framework introduced in 1977 in Sri Lanka were to increase the availability of goods and services to consumers, and to expand the opportunities to the agricultural sector, enhancing market competition, as well as increasing investments while raising agricultural productivity and output in the country.

Traditional trade theory implies that free trade policies improve welfare of any economy by reducing dead weight loss associated with trade barriers such as taxes, subsidies, and quotas. However, net welfare effects of free trade have been debated over time. Some studies show that there is little or no evidence suggesting that trade liberalization induces accelerated agricultural production growth, whereas some analyses provide empirical evidence confirming the link between trade openness and agricultural production growth when trade liberalization is introduced (Andersen and Babula, 2008). Moreover, research points out that trade liberalization and agricultural productivity may both feed on each other. Agricultural productivity can be gained from trade openness, along with liberalized trade policies, as agricultural products need to be more competitive to get expected agricultural production levels (Mahadevan, 2003). There is evidence to suggest that Sri Lanka may have benefitted from trade policy reforms in moving away

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from protectionism (De Silva et al., 2013).

Increasing of real Gross Domestic Product (GDP) is required for the development of a country over a long period of time. The growth in real GDP is a representation of economic development along with manpower, capital accumulation, natural resources, entrepreneurial abilities, and technology. Simultaneously, the agricultural sector also significantly accumulates real GDP by generating agricultural surplus, which ultimately expands agricultural output in a country. Trade policy reforms further encourage and motivate mobility of factors of production such as labor and capital, which tend to ultimately increase welfare along with efficient allocation of domestic resources. International trade can act as an engine of growth, the removal of trade barriers facilitates international trade to be more accessible and open to the world. The opening of the market causes domestic resources to be more efficiently used, and reduces the production of import substitutes, and finally, strengthens production of exportable products. Simultaneously, the upturning of exports adjusting resource allocation efficiently does generate comparative advantages, which eventually can result in a higher producer surplus from the agricultural sector. Enhancing international competitiveness helps to increase consumer welfare with lower import prices and import substitutes. Overall, international trade with more liberalized policies certainly may improve social welfare by improving international openness to the rest of the world, mobilizing capital, labor, goods, and services across borders. Furthermore, the advancement of foreign trade can have a significant impact on wages, employment, and investment, which finally, can result in a higher aggregate output in the agricultural sector while broadening a country's development.

Sri Lanka introduced liberalizing economic policies including low tariff structure, removing non-tariff barriers, and relaxing exchange rates in 1977. Actually, it was the first country to implement free trade among the South Asian countries. Furthermore, Sri Lanka has been a member of World Trade Organization (WTO) since 1994, and has implemented regional Free Trade agreements since 1995. Sri Lanka expected fast economic growth with trade liberalization polices along with this process. However, Sri Lanka's agricultural production has been growing at a very low rate in comparison to its government's expectations. The main purpose of this study is to investigate whether or not the trade liberalization increased the agricultural sector growth. Therefore, this empirical research attempts to provide a quantitative assessment of the trade policy impacts on the agricultural production growth from 1960 to 2010 in Sri Lanka.

Problem statement

Since trade liberalization occurred, the agricultural growth rate has remained approximately at an annual average of 2%. Historically, Sri Lanka has been an agricultural economy where agriculture accounted for more than 50% of the total GDP. Even though the country introduced open market policies ahead of other developing nations like India, China, and Vietnam, agricultural production growth did not fare as expected. The relative contribution of the agricultural sector has decreased to less than 19% of the total GDP in 2008 (Central Bank of Sri Lanka, 2008). Although the relative contribution of the agricultural sector to the total GDP has declined, agriculture still accounted for about 35% of the total labor force, and 23% of total exports in 2008 (Central Bank of Sri Lanka, 2008). Very few studies have examined the trade liberalization effects on agricultural production growth in Sri Lanka, and those studies have produced conflicting results.

This study examines the relationship between trade liberalization and the agricultural production growth of Sri Lanka to draw implications for policy implementation. More specifically, this study investigates the contribution of international trade openness to agricultural production growth in conjunction with other economic factors such as investment and interest rates in Sri Lanka. Further, this study examines whether or not the regional Free Trade Agreements (FTA) like SAFTA (South Asian Free Trade Agreement) or ILFTA (Indo-Lanka Free Trade Agreement) generate economic benefits to Sri Lanka's agricultural sector.

Trade liberalization and agricultural sector in Sri Lanka

In 1950, the contribution of agriculture related activities to the GDP were nearly 46%, whereas the industrial sector accounted for around 19%. The percapita GDP grew by 2.3% between 1965 and 1977, while the Asian regional growth rate was 5.4%. The government decided that open market policies and trade liberalization were necessary to reach a faster growth rate for the country. As a result, Sri Lanka introduced liberalizing economic policies in 1977 including a low tariff structure having three-bands with 10%, 20% and 35%, removing non-tariff barriers, and relaxing exchange rates. The most prominent feature under the new policies was the export-oriented economic strategy. The government recognized that the high rates of economic growth could only be accomplished by increasing new industrial exports such as garment products. Currently, the manufacturing sector contributes around 29.4%, while the agricultural sector contributes 12.8% of GDP. Statistics show that there was a significant increase of 265% in rice production during the last three decades under the open economic policy framework introduced in 1977 (Mudalige, 2008). Tea is the most prominent crop of the Sri Lankan plantation sector, and Sri Lanka is one of the largest suppliers of black tea in the world. Statistics also show that the tea sector benefited from

liberalized trade policies. In 1999, Sri Lanka recorded a US$ 269 million kilogram of tea (95% of total tea production) exports to the world market, and earned US $621 million in foreign exchange.

Growth rates of the agricultural sector in Sri Lanka have been poor compared to government expectations in previous decades. Agricultural productivity growth was around 2% for the last decades, however, recent policies have improved the country's agricultural sector growth by around 5%. Sri Lanka aims to improve the productivity of many subsectors, and to generate a significant exportable surplus while promoting import substitution to strengthen the balance of payment (Gunawardena, 2012).

According to the government's ten year development framework for 2006-2016, agriculture and food security policies focus on land allocation and productivity improvement. This framework also promotes the agricultural sector to ensure food production, and to improve technology along with phyto-sanitary regulations to encourage private sector contribution.

EMPIRICAL LITERATURE ON TRADE LIBERALIZATION AND AGRICULTURAL PRODUCTION GROWTH

Here, this paper provides a discussion of previous studies that have assessed the relationship between trade liberalization and agricultural production growth. The ultimate objective of trade policy reforms is to enhance the welfare of an economy. Research shows the relationship between trade openness and agricultural production growth, as well as illustrates conflicting results. Some studies found that trade liberalization has increased the performance of exports, and will eventually increase the agricultural production while improving national welfare; however, few studies showed that there is not enough evidence to suggest a positive relationship between trade liberalization and agricultural production growth.

Brandao and Martin (1993) studied the structure of agricultural protection in developed and developing countries, and reviewed estimations of trade implications on trade liberalization. The RUNS model was employed to analyze the consequences of agricultural trade liberalization along with the Dunkel proposal. The results of this study indicated that the agricultural prices of OECD countries will have significant impacts on world prices, whereas developing countries in aggregate could expect to achieve smaller welfare gains if this Dunkel package were implemented by developed countries alone. This study also showed that food exporters of developing countries are likely to be the main beneficiaries. Moreover, this analysis concluded that large potential gains from a comprehensive move to agricultural trade liberalization will be achieved in the future, even though there is a small gain from the initial liberalization. The study further indicated that developing countries can have cumulative benefits as trade liberalization stimulates productivity.

In 1997, Incgo evaluated the effects of agricultural trade liberalization in lesser developed and net-food importing countries. This analysis confirmed that welfare changes were affected significantly by an economy's structure of trade distortions and stated that more benefits were gained from Uruguay Round because countries adapted for trade liberalization efforts. This study emphasized that limited liberalization commitments have lost efficiency gains for some countries, and those countries may have lost rising market opportunities, as they did not approach liberalized trade policies and structural reforms.

In 2010, Hassine, Robichaud and Decaluwe investigated the agricultural trade liberalization, productivity gain, and poverty alleviation in Tunisia. This study used Computable General Equilibrium models to estimate the impact of trade liberalization scenarios on poverty and equity in Tunisia. This study's findings implied that the opening up of foreign trade promotes productivity growth, and poverty drops down by 11% under the agricultural trade liberalization scheme.

In 2012, Gunawardena studied the agricultural productivity in Sri Lanka, and showed that agricultural productivity has increased during past years. This study applied a Computable General Equilibrium (CGE) model using the input and output data for the year 2000. This study further implied that all the provinces have positive regional GDP growth as agricultural productivity increases, and stated that this productivity improvement has mostly benefited rural agricultural provinces. However, our analysis makes a significant effort to contribute to the economic literature by investigating the effects of trade policy reforms on the entire agricultural sector's growth in Sri Lanka before and after those trade policy reforms were implemented.

According to most studies, which were carried on agricultural trade liberalization, panel data were used across a number of countries. Few studies have been done estimating liberalization impacts on the agricultural sector within a particular nation. The previous study done by De Silva et al. (2013) focused on the liberalization effects on economic growth as a whole. However, this study assess whether the trade liberalization policies enhance the growth of the agricultural sector by removing trade barriers such as export and import quota and tariff. More importantly, this study contributes to literature on economic growth by examining the trade agreements' effect on agricultural production growth with liberalized trade policies in Sri Lanka.

METHODOLOGY

Data

This study used only the secondary data published in the Central Bank of Sri Lanka's annual reports. The selected

time period of the study was from 1960-2010, a 51-year period. By using the GDP deflator of respective years, price effects of variables were removed to avoid the inflationary effects.

Analytical methods

To illustrate the agricultural production growth in Sri Lanka, our study applied Single Equation Models (SEMs) to examine the determinants of the agricultural production growth function where the agricultural production growth (Y) of the country was the dependent variable. Since growth theory requires specific models, SEM regression analysis was performed by incorporating four variables as explanatory factors:

I. Gross Domestic Product (GDP) of the agricultural sector - This study used the Gross Domestic Product (GDP) of the agricultural sector as a proxy for the agricultural production growth.
II. Trade openness.
III. Total investment.
IV. Real interest rate

This study also included two dummy variables (D_1 and D_2) for the trade liberalization and for the Free Trade Agreements (FTA). D_1 was assigned to trade liberalization, or after 1977. D_2 was assigned to FTA, after 1995. A multiple regression analysis was performed for four models to analyze the impacts of the trade liberalization and regional trade agreements on Sri Lanka's agricultural production growth.

The World Bank defines the trade openness as the ratio of the total export and imports to total GDP (X+M/GDP). This study applied this definition for the trade openness and used the ratio of total exports and imports of Sri Lanka to the total GDP. Both domestic and foreign investments were the total investments in Sri Lanka. As the main economic decision maker, the Central Bank of Sri Lanka determines the country's interest rate. This study used those interest rates adjusting for the inflationary effects. This analysis used the statistics of total GDP, total agricultural sector's GDP exports, imports, investments, and interest rates from the annual reports of the Central Bank of Sri Lanka. Table 1 shows the different models functional form, and the purpose of each model with the selected time period.

Multiple regression model

This study used the Ordinary Least Square (OLS) method to estimate multiple regression models. To examine the effects of trade liberalization on agricultural production growth, the following variables were used: agricultural production growth, trade openness, investment, interest rate, trade liberalization (dummy variable), and FTAs (dummy variable).

The general regression equation is as follows:

$$\text{Agricultural production growth} = \beta_0 + \beta_1 \text{ Trade Openness} + \beta_2 \text{ Investments} + \beta_3 \text{ Real Interest} + \beta_5 \text{ Dummy} + u_i$$

Expected hypothesis

The ratio of total exports and imports, as well as their combined total GDP ((X+M)/GDP) are expected to increase with trade liberalization. Therefore, trade openness is assumed to have a positive impact on agricultural production growth. Because the removing of trade barriers attracts foreign firms, and accordingly raises the demand and returns to factors, total investments are assumed to have a positive relationship with agricultural sector growth. The interest rate is expected to have a negative impact on agricultural productivity because high interest rates suppress investments. Such rates provide opportunities to convert money into time deposits, depressing investments by the private sector, and decreasing investment may lead to poor agricultural production growth. To examine whether there is a change in the agricultural production growth after introducing the market economy in 1977, trade liberalization dummy variable was added. The Free Trade Agreement dummy variable was added to study the impacts of trade liberalization with FTAs on agricultural sector growth in Sri Lanka after 1995. The regression analysis was performed for four models using SAS as the analytical tool.

EMPIRICAL ANALYSIS AND RESULTS

Table 2 provides the descriptive statistics of the study for the period of 1960 to 2010. Model 1 illustrates as equation (1). The coefficient of the determination, adjusted R-square for Model 1 for the period of 1960 to 2010 is 88%. Therefore, the R^2 statistics suggested that more than 88% of the total variation in agricultural sector's GDP is explained by the Single Equation regression model.

Table 3 provides the parameter estimates of trade openness, investment, interest rate, and the trade liberalization dummy variable of the model 1 for the period of 1960 to 2010. The results showed that trade openness and agricultural GDP growth are positively related. The variable trade openness showed a significant relationship at the 90% level. The elasticity of means suggested that a 1% increase of trade openness causes a 0.075% increase in agricultural GDP growth. The study period for the model was 1960 to 2010. Within this selected period, there were several changes in the economy in the country. The most prominent feature was that the government introduced the open market policies in 1977, and liberalized the trade and tariff policies. This situation may have facilitated rapid expansion of the

Table 1. Models and purposes of each model.

Model	Functional form	Purpose
Model 1	$Y = \beta_0 + \beta_1$ Trade Openness + β_2 Investments + β_3 Real Interest + $\beta_4 D_1 + u_i$	To examine the impacts of trade liberalization and trade openness on economic growth using the data from 1960 to 2010.
Model 2	$Y = \beta_0 + \beta_1$ Trade Openness + β_2 Investments + β_3 Real Interest + u_i	To show the impacts of trade openness on agricultural production growth before trade liberalization by using the data for 17 years, from 1960 to1977.
Model 3	$Y = \beta_0 + \beta_1$ Trade Openness + β_2 Investments + β_3 Real Interest + u_i	To show the impacts of trade liberalization and trade openness on Agricultural production growth after the trade liberalization by using data from 1977 to 2010.
Model 4	$Y = \beta_0 + \beta_1$ Trade Openness + β_2 Investments + β_3 Real Interest + $\beta_4 D_2 + u_i$	To show the impacts of FTA on economic growth with liberalized trade policies using data from 1977 to 2010 by including the FTA dummy variable.

Table 2. Descriptive statistics.

Variable	Mean	Std. Deviation	Minimum	Maximum
Total Agricultural GDP	2088.22	757.89	994.80	3386.15
Trade openness	0.04	0.03	0.0035	0.12
Investments	136064.58	184027.78	978.00	752200.00
Interest rate	11.59	5.16	4.00	25.00
D1	0.66	0.48	0	1.00

Table 3. Parameter estimates of the model 1.

Variable	Parameter estimates	t-value
Intercept	1106.59 (240.69)	4.60**
Trade openness	4373.25 (2375.59)	1.84*
Investments	0.0008 (0.0003)	3.08**
Interest rate	80.46 (17.32)	4.65**
D1	139.35 (166.87)	0.84

Notes: Adjusted R-Square: 88%, D-W Statistics is 1.41. Standard errors are in parentheses.
** and * denote significance at the 5% and 10% level, respectively.

agricultural export and import sectors. As expected, agricultural trade openness resulted in significantly positive effects on agricultural imports. Also, removal of tariffs on agricultural commodities induces a substantial reduction in the domestic prices. Simultaneously, this reduction of domestic prices induces an increase of agricultural exports because farmers may choose new markets for selling their products as domestic markets become less attractive. These factors increased trade openness and production and may have significantly increased Sri Lanka's GDP in the agricultural sector.

The investment was positively related and significant at the 95% level. This agricultural GDP increase may be due to increasing foreign direct investment and domestic investments. Increasing both investments elicits an independent influence on the growth of the agricultural sector. Both foreign direct investment and domestic investment increase as a result of openness of the trade policy regimes. On the other hand, investment includes improvements in land, development of natural resources, and promotion of educational, training and extension institutions. These facilities ultimately increase the agricultural output in the country.

Real interest rate and agricultural production growth illustrated a positive relationship and it was significant at 5%. Increases in interest rates are also advocated as a means of curbing expenditure and investment. Interest rate is a double edged sword, as high interest rates could increase costs of production, which increases prices.

The trade liberalization variable (D_1), and the agricultural production growth variable indicated a positive relationship, and it was evident that trade liberalization promoted agricultural production growth in Sri Lanka. On average, the real GDP is higher in the post-1977 period. This indicates that the overall trade policy framework adopted after 1977 has accelerated the

Table 4. Parameter estimates of the model 2.

Variable	Parameter estimates	t-value
Constant	51.65 (153.77)	0.34*
Trade openness	-4218.75 (1449.70)	-2.91**
Investments	0.34 (0.058)	5.95**
Interest rate	487.34 (41.08)	11.86**

Notes: Adjusted R-Square: 69%, D-W Statistics is 1.06. Standard errors are in parentheses.
** and * denote significance at the 5% and 10% level, respectively.

Table 5. Parameter estimates of the model 3.

Variable	Parameter estimates	t-value
Constant	10581 (1740.50)	6.08**
Trade openness	118424 (30245)	3.92**
Investments	0.02 (0.001)	12.48**
Interest rate	-32.56 (90.46)	-0.36

Notes: Adjusted R-Square: 72%, D-W Statistics is 1.79. Standard errors are in parentheses.
** and * denote significance at the 5% and 10% level, respectively.

agricultural GDP growth in Sri Lanka. In other words, the open economic policy seemed to be successful in attracting investments and increasing trade openness. However, the model shows that the liberalization variable is not significant. This might be due to the liberalization of industry and service sector. These sectors might put pressure on the agricultural sector, which creates more competition. Also, endogenous price competition in the agricultural sector may also be a reason to regard the trade liberalization variable as insignificant.

To ensure the accuracy of the regression results, the multicollinearity was tested, and results indicated that multicollinearity was not a problem. Autocorrelation was found and corrected using the Cochrane-Orcutt procedure.

Model 2 (the data from 1960 to 1977) is represented as:

$$\text{Agricultural Production Growth} = \beta_0 + \beta_1 \text{ Trade Openness} + \beta_2 \text{ Investments} + \beta_3 \text{ Real Interest} + u_i$$

Model 3 (the data from 1977 to 2010) is represented as:

$$\text{Agricultural Production Growth} = \beta_0 + \beta_1 \text{ Trade Openness} + \beta_2 \text{ Investments} + \beta_3 \text{ Real Interest} + u_i$$

Tables 4 and 5 state the parameter estimates of models 2 and 3. The adjusted R square for models 2 and 3 is 69 and 72%, respectively. It showed that more than 69% of the total variation in the real GDP is explained by the regression model.

Table 6. Parameter estimates of the model 4.

Variable	Parameter estimates	t-value
Constant	1863.18 (322.997)	5.77
Trade openness	2147 (5513.0177)	3.90**
Investments	0.001 (0.0005)	2.11**
Interest rate	64.59 (17.08)	3.78**
D2	-421.21 (173.7555)	-2.42*

Notes: Adjusted R-Square: 76%, D-W Statistics is 1.4. Standard errors are in parentheses.
** and * denote significance at the 5% and 10% level, respectively.

Regression results of model 2 provided interesting results. Model 2 reported that trade openness was negatively related, and that there was a significant determinant at the 5% or 10% significance level. It was evident that the closed economic policies have not supported international competiveness through increased imports and exports in this era. As mentioned earlier, for model 2, the study period was 1960 to 1977, and the government had the authority in making decisions and policy implementation. The government policy may have increased only imports and not exports. However, model 3 illustrated that trade openness was positively related, and a highly significant determinant on the agricultural production growth of Sri Lanka. The elasticity of means illustrated that a 1% increase of trade openness increased the agricultural GDP by 0.15%. This was the period of implementing trade liberalizing policies. These new policies encouraged the international competitiveness.

Both models showed that the investments were positively related to the agricultural production growth and those were significant. The interest rate was negatively related to the economic growth after 1977, and it was statistically insignificant. As indicated before, the interest rate is a double edged sword as a high interest rate could increase costs on production, as well as prices. These high interest rates encourage people to save rather than invest.

Each model was tested for multicollinearity and the results indicated that it was not a problem. Autocorrelation was found and corrected using the Cochrane-Orcutt procedure.

Model 4 can be represented as:

$$\text{Agricultural Production Growth} = \beta_0 + \beta_1 \text{ Trade Openness} + \beta_2 \text{ Investments} + \beta_3 \text{ Real Interest} + \beta_4 \text{FTA} + u_i$$

Table 6 explains the regression results of model 4 for the period of 1977 to 2010. The results reported the relationship between the agricultural production growth and other variables including the FTA dummy variable. Results showed that the adjusted R-Square was 76%,

and this showed that 76% of the total variation in the real GDP was explained by the regression model.

The results illustrated that the trade openness was positively related to agricultural production growth, and was significant on the agricultural GDP growth after 1977 with trade liberalization. Elasticity of means suggested that a 1% increase of trade openness will increase the agricultural GDP by 0.14%. This further suggested that trade openness has increased agricultural production growth by eliminating major trade barriers that were exhibited in the economy.

Investment was also positively related to the agricultural GDP growth, and was a significant variable that further explains that domestic and foreign investment accelerated agricultural production growth. The interest rate was positively related to the agricultural GDP growth, and it was a significant variable on the economic growth after 1977. This shows that agricultural production growth has been directly affected by fiscal and monetary policies of Sri Lanka.

The dummy variable of model 4 was Free Trade Agreements (FTA), and the variable was negatively related to the economic growth. Moreover, the FTA variable was a significant determinant at 5% significance. Sri Lanka signed the India-Sri Lanka Free Trade Agreement in 1998, and fully implemented it in 2000. In 2004, Sri Lanka signed the South Asia Free Trade Agreement (SAFTA) and it was implemented in 2006. This negative relationship implies that these agreements have not been supported to increase agricultural production growth in Sri Lanka. Even though the overall trade policy framework adopted after 1977 has promoted the agricultural production growth, the regional trade agreements have not improved total agricultural output in the country.

The model was tested for multicollinearity and the results suggested that multicollinearity was not an issue. Autocorrelation was found and corrected using the Cochrane-Orcutt procedure.

SUMMARY AND CONCLUDING REMARKS

The empirical results of this study confirmed that trade liberalization policies adapted in 1977 had significantly increased the agricultural GDP by stimulating trade openness in Sri Lanka. Similarly, as a significant factor, investment also had promoted economic growth all along with these open market policies.

This study's results show that trade liberalization may have a positive impact on trade openness and could result in the accelerated economic growth of Sri Lanka's agriculture. The new trade policies would have also been responsible for more efficient use of the country resources in terms of increased welfare. Further, the results reveal that the trade agreements such as the India-Sri Lanka Free Trade Agreement and the South Asia Free Trade Agreement (SAFTA) may have not had significant influence on the country's agricultural production growth.

The study also indicated that the average agricultural production growth rate was higher in the post liberalization period. The total foreign exchange earned from all sectors has significantly increased during past years; manufacturing and service sectors especially produced a higher total output for the country. This situation created a wide gap between agricultural and total output since 1977. The most important factor inducing this wide gap could have been a structural transformation. However, the foreign exchange earned by exporting agricultural products has increased substantially during this period. Therefore, it may suggest the well-established positive impact of market liberalization on agricultural production growth during the post liberalization period in Sri Lanka.

Overall, the implementation of trade liberalization policies may have increased agricultural production in Sri Lanka. Competitive export and import opportunities among countries have led to maintain the standard levels of quality and a stable production. However, it suggests that there should be need of improvements in the agricultural sector. Mainly, more attention should be given to reduce unspecialized and excessive workers in the agricultural sector to improve agricultural productivity. The most critical issue currently in Sri Lanka is that the agriculture does not bring a consistent economic gain to the farmer. This may be due to the fact that the government has not paid adequate attention to provide farmers with input and marketing facilities in time.

Irrigated agriculture plays a vital role in the Sri Lankan economy. However, field water losses cause significant crop reduction, and it may lead to a decrease in total agricultural production. Therefore, efficient field water management has to be promoted with new water saving techniques to increase productivity through crop diversification.

Farming without adequate concern on conservation of natural resources such as soil, water, and environmental protection has led to the deterioration of the agricultural resource base in the country and pollution of the environment. Even though the trade policy reforms can achieve a higher agricultural production growth, these factors may lead to underestimating the expected benefits of trade liberalization in the agricultural sector. This study suggests that the continuous support to the agricultural sector including natural resource conservation policies and proper skill development programs may be useful to increase the total agricultural output in Sri Lanka.

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