

INDIA'S AGRICULTURE TRADE WITH SINGAPORE UNDER WTO REGIME

This study examines the agricultural trade of India with Singapore within the framework of the World Trade Organization (WTO). Understanding the dynamics of agricultural trade between India and Singapore has become increasingly prominent. India, as a significant agricultural producer,[1] and Singapore is the fastest growing trade partner of India amongst major economies offers an interesting study in this regard.[2] Agriculture came under the WTO regime in 1995 with the introduction of the Agreement on Agriculture.[3][4] The paper analyses the trends and patterns of export and import of Indian trade with Singapore and the rest of the world during the study period 1995 to 2021 to examine the change in trade after the adoption of WTO. India and Singapore have seen a steady increase in their agricultural trade since the adoption of the WTO regime. Both agricultural imports and exports have increased, although with some fluctuations over the years. However, there's a noticeable imbalance in the trade, particularly with Singapore exporting more agricultural products to India compared to India's exports to Singapore. The study has also analysed the comparative advantage of India's agricultural products to Singapore, through Revealed Comparative Advantage (RCA). The RCA was employed in six broad categories of commodities: Animals, Food Products, Fuels Hides and Skins, Vegetables, and Wood. For a detailed understanding of products-wise RCA is calculated for Beer of barley, Breakfast cereals, Chocolate products, Cigarettes, Coffee extracts, Compound feed, Crude organic material, Essential oils, Food preparations, prepared Fruit, fruit Juices, Tea leaves, Vegetables preserved, pulses and potatoes, Wine, etc. Certain products, such as vegetables, essential oils, and coffee extracts, have shown consistent comparative advantages over the years, indicating potential areas for export expansion. However, in the case of wood, Chocolate products, Cigarettes, prepared food, Fruit prepared, juices of fruits, Vegetables preserved, and wine India is gradually losing its comparative edge. Further Unit root test was employed on Gravity variables (India's export to Singapore, GDP of India, exchange rate of India, GDP of Singapore, and exchange rate of Singapore) using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests. All variables are non-stationary in their level form but become stationary after the first difference (i.e., $I(1)$). This suggests that the variables are integrated of order one, implying the need for cointegration analysis. The Cointegration Rank Test; indicates that there is at least one cointegrating vector between the variables, suggesting a long-run relationship among them. Engle-Granger Causality Analysis and Granger Causality test are employed as well to investigate the influence of Gravity variables in determining agriculture exports in Singapore. There are certain causal relationships between variables such as exports from India causing the GDP of India, and

the exchange rate of India causing the exchange rate of Singapore. However, there's no evidence of certain causal relationships, such as between India's GDP and Singapore's GDP. This study is useful to determine whether the adoption of WTO regulations has any influence on the agricultural trade of India. The revealed comparative advantage in agricultural products will help to promote specific product exports which have more comparative advantage and will certainly benefit the agricultural sector and international trade. The change in the trade pattern can create more engagement of people in the agriculture sector. Thus, it can be useful for policymakers as well as students and researchers to better understand India's agricultural trade.

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ANALYZING THE RELATIONSHIP BETWEEN ENERGY CONSUMPTION AND CO2 EMISSIONS IN INDIA: A STUDY USING ENVIRONMENTAL KUZNETS CURVE HYPOTHESIS

Energy is an essential element for human needs. It has also a determining role in the development of the economy. Due to rapid industrialization, urbanization, and high economic growth targets, energy demand has been significantly increasing during the last few decades. Climate change and global warming have become a concerned issue globally. The empirical relationship between energy consumption, CO2 emissions, and economic development has been a major area of interest in energy economics literature over the past years. This research comes under the frame of the Environmental Kuznets curve. India is an emerging economy with a 1.41 billion population. The GDP of India is rapidly growing which simultaneously deteriorates the quality of the environment because of human activities, energy consumption, and industrial activities which results in emissions of harmful gases. India is the 3rd largest carbon emitter contributing 3% cumulatively of global GHGs. In India's power sector (37%), agriculture (21%), manufacturing (17%), and transportation (9%) contribute to green-house gases