

# The Impact Of Auction Price, Inflation, And Exchange Rate Fluctuations On Indian Tea Export Prices

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## Abstract

The global tea market is a pivotal sector in international trade, with India emerging as a significant player. Indian tea exports contribute notably to the economy and reflect the nation's cultural heritage. The complexities of Indian tea exports are shaped by various factors, including auction prices, inflation, exchange rate fluctuations, production patterns, seasonal variations, export quantities, and lending rates. This study comprehensively explores these interconnected influences on export pricing dynamics. The research aims to provide a holistic understanding of the multifaceted determinants of Indian tea export prices, offering valuable insights for strategic decision-making in a competitive global market. By examining historical data from 2015 to 2021 and utilizing regression analysis and automated linear modeling, the study sheds light on the interplay of these factors and their impact on Indian tea's export prices.

**Key Words:** Export Price, Auction Price, Inflation and exchange rates, production patterns, seasonal variations, lending rates, strategic decision making, global competitiveness, economic stability.

## Introduction

The global tea market stands as a vital sector within the international trade arena, with India emerging as one of its

prominent players. The export of Indian tea not only contributes significantly to the country's economy but also reflects the nation's rich cultural heritage. However, the dynamics governing Indian tea exports are intricate, influenced by a multitude of factors that collectively determine the final export prices. While factors like auction price, inflation, and exchange rate fluctuations are widely recognized contributors, it is essential to acknowledge that the export price of tea is a result of a complex interplay between various determinants. Among these, production levels, seasonal variations, export quantities, and lending rates play crucial roles in shaping the pricing landscape. (Liu & Shao, 2016) Price is a pivotal market tool influencing supply and demand dynamics, notably in the agricultural sector where price fluctuations strongly impact producers. Given agriculture's foundational role in the economy, stable prices are integral for economic stability. Tea, being an agricultural product, exhibits cyclical price fluctuations closely tied to production cycles. To analyze Indian tea auction prices, demonstrating that historical price data effectively forecasts auction prices and guides production. To enhance Chinese tea and agricultural competitiveness internationally, key steps include establishing national and regional tea auction markets, refining price information mechanisms through government-led institutions, and implementing a reasonable price warning system. (Namitagarg & Madan, n.d.). To boost tea export competitiveness, it's crucial for tea exporters to carefully oversee the availability of raw materials, cultivate a positive workplace atmosphere, and make strategic investments in competitive infrastructure and technology. Giving precedence to satisfying the local market by consistently meeting cost and quality standards is essential, as it fosters customer loyalty and safeguards against foreign competitors taking over. Collaboration with related and supporting industries to maintain product quality should be a priority, alongside a strict commitment to adhering to government regulations for the sake of industry stability. (Kakali Hazarika, n.d.) Traditional tea producers largely rely on the auction system, with minimal efforts towards marketing, branding, or innovation. However, as competition intensifies, producers must explore market

creation and direct sales strategies to cater to changing consumer preferences. A dedicated marketing department, government collaboration, and participation in trade fairs and expos can help rejuvenate the industry and secure its position in the domestic market. The industry's long-term sustainability hinges on understanding market demands and adapting to shifting market dynamics, with a focus on creating a distinct brand identity for Indian tea. Failure to adapt to market trends could jeopardize the industry's position both domestically and globally. These recommendations hold significant importance in the ongoing efforts to enhance and sustain competitiveness within the tea export sector.

**Production and Seasonal Variations:** The annual production of tea in India is marked by inherent seasonal patterns that impact both supply and quality. Factors such as climate, soil conditions, and regional variations contribute to seasonal fluctuations in tea production. These fluctuations subsequently influence the availability of tea for export. The supply-demand dynamics resulting from production levels not only affect the overall export quantities but also have implications for the quality of tea being exported. High production seasons may lead to surpluses, potentially affecting prices due to increased supply, whereas lower production periods might lead to higher prices due to supply shortages. (Nath Samantaray & Ashutosh, 2012). The Indian tea industry, with a history of 172 years, owes its origin to British discovery and growth. It thrives mainly in Assam, West Bengal, Tamil Nadu, Kerala, and Karnataka. Although India is a significant global tea producer, challenges arise due to rising domestic demand, slow yield increase, and competition in exports. Despite substantial domestic consumption driven by population, urbanization, and income growth, India's exports to developing nations are on the rise due to tea's income elasticity. To enhance export potential and meet global competitiveness, India must optimize its export strategy and focus on improving yield. The study covers the tea industry's production and export status from 1950 to 2006, presenting insights to bolster sustainable global competitiveness,

maintaining quality and price standards. This effort is essential for both export and domestic market growth.

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**Export Quantity:** The quantity of tea exported from India to global markets plays a pivotal role in determining its market price. Higher export quantities, driven by increased global demand or surplus production, can influence prices by creating supply gluts that put downward pressure on prices. Conversely, lower export quantities resulting from factors like adverse weather conditions or export regulations can lead to supply shortages, potentially driving prices upwards. (Kumareswaran Thangaraj, 2018). The study examines the compound growth trends of area, yield, production, export quantity, and export value of tea in India from 1986 to 2015. Notably, tea cultivation area witnessed consistent growth over the years, with the highest increase in the latter period. However, yield growth showed a declining trend, indicating a productivity challenge. Tea production demonstrated positive growth in both periods, but overall growth remained moderate. Export quantity varied across periods, with a negative trend in the early years but an overall positive rate of 1% for the entire period. Tea export value experienced significant growth during the latter period, while a decline was noted in the early years. The instability analysis revealed fluctuating trends in area, yield, production, export quantity, and export value, with varying coefficients of variation. Export Performance Ratio (EPR) revealed a diminishing trend over the years, reflecting decreasing export performance, possibly due to rising domestic consumption. This emphasizes the need for improved strategies, technological advancements, and increased export efforts to maintain the competitive edge of Indian tea in the global market.

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**Lending Rates:** The lending rates prevailing in the Indian economy have an indirect but notable impact on tea export prices. Fluctuations in lending rates can influence the cost of capital for tea producers, affecting their production decisions. Higher lending rates could lead to increased borrowing costs, potentially impacting investment in tea cultivation and processing. This, in turn, might affect the

overall tea supply chain, ultimately impacting export quantities and prices.

In addition to the above-discussed factors, auction prices, inflation, and exchange rate fluctuations form the nucleus of this study's investigation. Auction prices directly reflect market sentiment and demand, thereby playing a central role in shaping export prices. Inflation, on the other hand, impacts costs at various stages of tea production and export, influencing the final pricing structure. Exchange rate fluctuations are particularly pertinent for an economy like India, which heavily relies on international markets. Variations in exchange rates can directly impact the competitiveness of Indian tea in global markets, thereby affecting export prices.

### **Research Objective**

This research aims to comprehensively explore the various factors that influence the export price of Indian tea in the global market. It recognizes the interconnected nature of factors like auction price, inflation, and exchange rates with other variables such as production, seasons, export quantities, and lending rates. By analyzing these relationships, the study seeks to provide a holistic understanding of the pricing dynamics in Indian tea exports. The insights gained from this research are valuable for stakeholders making strategic decisions in a competitive global market.

### **Statement of the Problem**

The export of Indian tea stands as a significant contributor to the nation's economy and cultural identity. However, the pricing dynamics governing Indian tea exports are intricate and influenced by a complex interplay of various determinants. While auction price, inflation, and exchange rate fluctuations are recognized as key contributors to export prices, their interactions with other factors such as production levels, seasonal variations, export quantities, and lending rates have yet to be comprehensively explored. This study seeks to address the gap in our understanding by investigating how these multifaceted factors collectively shape the export prices of Indian tea in the global market. By doing so, the research aims to unravel the intricate

relationships and interdependencies among these variables, providing valuable insights for stakeholders navigating the volatile and competitive landscape of the global tea trade.

### **Scope of the study**

This study aims to comprehensively analyze the intricate factors shaping Indian tea export prices globally, with a primary focus on auction prices, inflation, and exchange rate fluctuations. Additionally, it will explore the effects of production patterns, export quantities, lending rates, and their interconnected influences. The study will scrutinize the impact of auction prices and inflation on pricing, evaluate the role of production patterns and export quantities, and assess how lending rates and exchange rate fluctuations impact export decisions. By unraveling these complexities and employing predictive analysis, the research seeks to provide valuable insights for tea stakeholders and policymakers, guiding strategic decisions in the dynamic global tea market.

### **Objectives**

- To examine the interplay between export unit price and the primary drivers that influence the pricing of Indian tea in the export market.
- To evaluate the predictive indicators like auction price, inflation, and exchange rates collectively contribute to shaping the export prices of Indian tea.

### **Research Methodology**

This empirical investigation draws upon secondary data from sources such as the Tea Board of India, trade statistics from EXIM Bank and RBI, scholarly journals, and other relevant reports. The study encompasses the years 2015 to 2021, analyzing essential metrics including production levels, export quantities, export values, and average prices of Indian tea. Employing regression analysis, the study delves into the intricate relationships among these variables and the export unit price of Indian tea. This approach aids in elucidating the significance and direction of these relationships, indicating whether they are positive or negative. Additionally, automated linear modeling techniques are applied to discern the significance and

impact of predictive indicators. These predictive indicators play a pivotal role in shaping the export price of Indian tea within the global market, providing a comprehensive understanding of their implications.

**Analysis & Interpretation**

**Examining the influence of quality factors on Indian Tea**

**Pricing**

Regression analysis offers a numerical method for comprehending the correlation between the export unit price and pivotal indicators. This facilitates data-driven insights and enables well-informed decisions when devising export price.

**Regression Analysis -Dependent Variable: Export Unit Price**

Independent Variables	R Value	F	df1	df2	Sig.	Constant	b1
Month	.64	130.23	1	73	.00	-484.27	3.69
Production	.07	5.70	1	73	.02	20.01	0.01
Export Qty	.00	.020	1	73	.89	21.03	0.01
Auction Price	.51	76.30	1	73	.00	12.54	0.06
Exchange rate	.62	102.31	1	64	.00	-15.14	0.53
Lending Rate	.65	136.33	1	73	.00	48.16	-2.60
Inflation	.71	176.73	1	73	.00	-6.88	0.20

**Interpretation:** The correlation coefficients (R values) and corresponding statistical data for the independent variables are as follows: The export unit price displays a positive and moderately strong correlation with the month variable (R = 0.64,  $p < 0.01$ ), suggesting a noteworthy influence of the month on export unit prices. Each unit increase in the month leads to an approximate \$3.69 increase in the export unit price. The production variable exhibits a weak positive correlation with the export unit price (R = 0.07,  $p < 0.05$ ), implying a minor impact of production on the export unit price. A one-unit increase in production corresponds to an approximate \$0.01 increase in the export unit price. The export quantity variable shows almost no significant correlation with the export unit price (R = 0.00,  $p > 0.05$ ), indicating that changes in export quantity do not markedly affect the export unit price. The auction price demonstrates a substantial and positively strong correlation with the export unit price (R = 0.51,  $p < 0.01$ ), signifying a noteworthy

impact of auction prices on export unit prices. An increase of one unit in the auction price corresponds to an approximate \$0.06 increase in the export unit price. The exchange rate showcases a notable and positive correlation with the export unit price ( $R = 0.62$ ,  $p < 0.01$ ), highlighting a significant influence of exchange rate fluctuations on export unit prices. Each unit increase in the exchange rate corresponds to an approximate \$0.53 decrease in the export unit price. The lending rate reveals a strong positive correlation with the export unit price ( $R = 0.65$ ,  $p < 0.01$ ), indicating a substantial impact of lending rates on export unit prices. An increase of one unit in the lending rate corresponds to an approximate \$2.60 decrease in the export unit price. Lastly, the inflation variable displays a robust and positive correlation with the export unit price ( $R = 0.71$ ,  $p < 0.01$ ), underscoring a significant effect of inflation on export unit prices. Each unit increase in inflation corresponds to an approximate \$0.20 increase in the export unit price. In summary, these interpretations illuminate the diverse degrees and directions of influence exerted by the independent variables on the export unit price of Indian tea.

#### **Evaluating the collective impact of Auction Prices, Inflation and Exchange Rate on India Tea Export Pricing**

The detailed examination of correlation coefficients gives us a deep understanding of how independent variables relate to the export price of Indian tea. Particularly, variables such as the month, auction price, exchange rate, lending rate, and inflation play important roles. To better understand this complex connection and find the main factors that predict outcomes, the researcher has used Automated Linear Modeling to figure out how auction prices, inflation, and the USD to INR exchange rate impact the price at which Indian tea is sold in the global market.



**Coefficients**  
Target: EXPORTUNITPRICE

Model Term	Coefficient	Sig.	Importance
Intercept	-7.970	.004	
AUCTIONPRICE_transformed	0.044	.000	0.624
CPICOMBINED_transformed	0.111	.000	0.327
EXCHANGERATEUSD_transformed	0.115	.091	0.049

The significance level of Auction price and CPI combined are less than 0.05 which indicates that the two variables have a significant influence on the export unit price while Exchange rate has a significance of 0.091 >0.05 indicating that the influence is not remarkable.

The Analysis & Interpretation of Key Predictive Factors Impacting Indian Tea Export Prices in the International Market reveals a significant multiple regression equation that helps explain the relationship between export prices and two crucial predictive factors: auction price and Consumer Price Index (CPI) combined. The derived equation provides insights into the influence of these factors on Indian tea export prices.

<b>Export Price = -7.970+(0.044 x Auction Price) +(0.111 x CPI combined)</b>
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The coefficient for Auction Price (0.044) indicates that, on average, a unit increase in auction price is associated with a 0.044 unit increase in export price, holding other factors constant. This suggests that higher auction prices positively contribute to higher export prices, showcasing the market's responsiveness to quality and demand signals.

The coefficient for CPI combined (0.111) suggests that a unit increase in the combined Consumer Price Index is associated with a 0.111 unit increase in export price, while controlling for other variables. This highlights the impact of inflation on export prices, implying that as inflation rises, it tends to lead to higher export prices.

The intercept of -7.970 represents the estimated export price when both auction price and CPI combined are zero. However, since these factors are unlikely to be zero in

practical scenarios, the intercept's practical interpretation may be limited.

It suggests that both auction prices and CPI combined play a significant role in shaping export prices, highlighting the complex interplay between market dynamics and economic factors in determining the pricing of Indian tea in the international market. (Jacob & Raphael, 2021) In the context of India's increasing reliance on exports since liberalization, this research examines the determinants of exports, specifically focusing on inflation and exchange rates. Significance of both exchange rates and inflation positively impacting exports in India. These insights imply potential policy measures for managing inflation and exchange rates to enhance exports and overall economic growth.

In an open economy characterized by globalization and market liberalization, including aspects like export, import, and foreign direct investment (FDI), there is an observed trend of inflation escalation. This phenomenon is intensified by the additional demand stemming from capacity utilization, with trade volume exerting a notable positive influence on inflation (Dexter et al., 2005). Similarly, the relationship holds true for currency exchange rates. The factors affecting India's tea exports, considering variables like international tea prices, domestic price ratios, and exchange rates. However, recent fluctuations in exchange rates, with the US dollar prompted a fresh investigation into the determinants of India's tea exports. (Pal & Mitra, 2015). To analyze the domestic price realization, influenced by exchange rate volatility, affects India's tea exports across different quantiles over time. The appreciation of the native currency coincides with an increase in the exchange rate, and conversely, its depreciation corresponds to a decrease. Consequently, during periods of exchange rate appreciation, where the local currency strengthens, it is predicted that exports would decline, as foreign buyers might opt for fewer goods and services from another foreign economy due to reduced purchasing power. Additionally, when the Indian currency strengthens, foreign buyers would be constrained in their ability to purchase a diverse range of products and services using their currency, leading to a reduction in exports. (Sahoo & Sethi, 2018). Consequently, the depreciation of the Indian rupee becomes a driving factor

for India's export growth. The relationship between export and inflation, in theory, is inversely correlated. Inflation contributes to elevated prices for global products and services, and the expansion of exports relies on the condition that domestic demand for exports remains relatively inelastic in other nations. Thus, inflation directly impacts exports through its effect on currency exchange rates. Furthermore, inflation can influence output due to its impact on the returns from real and financial capital. The Reserve Bank of India (RBI) emphasizes that excessive inflation escalates the costs of manufacturing, thereby reducing the competitiveness of Indian exporters, especially when there is a significant disparity in inflation levels with major trade partners. This has led the RBI to adopt various tools to curb inflation, including measures like reducing the money supply through mechanisms such as the repo rate, cash reserve ratio, and bank rate. The available literature indicates an intrinsic connection between inflation and exchange rates. However, it's noteworthy that the regression analysis has yielded a somewhat ambiguous outcome, where the inflation indicator demonstrates a substantial impact on export pricing, while the influence of currency exchange rates appears to be less prominent.

### **Findings, Discussions and conclusion**

The findings of this study shed light on the intricate relationship between various factors and the export prices of Indian tea in the global market. The research uncovered several significant insights:

1. **Auction Price Impact:** The auction price of Indian tea demonstrated a strong positive correlation with export unit prices. Higher auction prices were associated with higher export prices, indicating the market's responsiveness to quality and demand signals.
2. **Inflation Influence:** Inflation exhibited a robust positive correlation with export unit prices. As inflation increased, so did export prices, reflecting the impact of inflation on overall pricing dynamics and the competitiveness of Indian tea.
3. **Exchange Rate Dynamics:** While the exchange rate showed a positive correlation with export unit prices,

its significance was relatively weaker. Exchange rate fluctuations played a role in influencing export prices, although this influence appeared less pronounced compared to auction prices and inflation.

**Discussions:** The results of this study have important implications for various stakeholders in the Indian tea industry and the global market:

1. **Quality-Driven Pricing:** The strong correlation between auction prices and export unit prices underscores the significance of quality in determining the value of Indian tea in international markets. This highlights the importance of maintaining and enhancing the quality of Indian tea to remain competitive.
2. **Inflation as a Pricing Factor:** The notable correlation between inflation and export unit prices indicates that inflation has a tangible impact on the pricing dynamics of Indian tea. Stakeholders must carefully consider inflation trends when devising pricing strategies and managing cost structures.
3. **Exchange Rate Considerations:** While exchange rates play a role in influencing export prices, their significance is less pronounced. This suggests that while exchange rate fluctuations are a factor, they might be secondary to other determinants such as quality and inflation in shaping export pricing.
4. **Export Competitiveness of major tea producing countries:** This export competitiveness of major tea-producing countries in the global market, utilizing data on production, exports, and export value. India, China, Kenya, and Sri Lanka are among the world's top tea producers, their impact on global tea competitiveness is limited, indicating increasing competition from emerging tea-producing nations. (Negi, 2019) These major tea-producing countries need innovation in production and marketing to enhance their market influence, as their tea exports seem to have plateaued. With most tea consumed domestically, their role in trade competitiveness hinges on creating a niche through varietal improvements and innovative marketing strategies in the international market.

### **Conclusion:**

In conclusion, this research provides a comprehensive analysis of the predictive factors influencing Indian tea export prices in the global market. Through regression analysis and automated linear modeling, the study highlighted the significant roles of auction prices and inflation in shaping export unit prices. The intricate relationships revealed in the findings emphasize the need for a nuanced understanding of market dynamics, quality considerations, and economic factors.

These findings offer valuable insights for policymakers, industry stakeholders, and exporters in formulating pricing strategies, risk management approaches, and export plans. By understanding the interconnected nature of auction prices, inflation, and exchange rates with other variables, stakeholders can make informed decisions that enhance the competitiveness of Indian tea in the international market.

As the global trade landscape continues to evolve, the insights from this research contribute to the broader understanding of pricing dynamics in agricultural commodities, offering a framework for analyzing the interplay of predictive factors and their impact on export prices. (Das, 2018) Addressing challenges such as outdated techniques, low quality, price fluctuations, and labor issues requires concerted efforts from the Tea Board of India, central and state governments to support and protect the tea sector and the livelihoods dependent on it, ultimately improving both tea production and export, including export prices. The study paves the way for further research and discussions on optimizing export pricing strategies and navigating the complexities of the global tea market.

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