

Impact of the Tea Development and Promotion (TDP) Scheme on India's Tea Industry

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Abstract

In recent times, the Indian tea industry, renowned for its deep-rooted traditions and significant economic contributions, has faced formidable challenges jeopardizing its historic prominence. This study extensively assesses the profound impact of the Tea Development and Promotion (TDP) Scheme, both before and after its implementation. It delves into pre-scheme challenges, including labor disputes, unpredictable weather affecting crop yields, inflation eroding profits, and declining export volumes. The TDP Scheme was designed to not only address these issues but also stimulate growth by enhancing production, stabilizing pricing, and boosting export competitiveness. The research explores post-scheme outcomes, shedding light on shifts in production, pricing, and exports, and examines their impact on overall performance. Through comparative analysis, it evaluates whether the scheme effectively tackled long-standing challenges, providing valuable insights for policymakers and industry stakeholders.

Key Words: *Indian tea industry, Tea Development and Promotion (TDP) Scheme, Pre-scheme challenges, Post-scheme outcomes, Tea production, Export volumes, Export competitiveness*

Introduction

The Indian tea industry, renowned for its rich heritage and cultural significance, stands as one of the pillars of the nation's economy. With its sprawling tea plantations and a centuries-old legacy, the industry has been a source of livelihood for millions and a symbol of India's global influence in the world of tea. Tea gardens in Assam have long offered valuable job opportunities and benefits to people from various communities, especially unemployed youth. Industry owners in this sector have been instrumental in providing significant employment opportunities and contributing to the region's socio-economic development (SanjoyNarzary, 2019). Over the years, it has weathered numerous challenges, from labor disputes to changing consumer preferences and global market dynamics. (Kumareswaran Thangaraj, 2018) To attain a competitive edge, the Indian tea industry must focus on enhancing research capabilities, adopting modern technology, and improving processing facilities. Expanding the export sector not only generates valuable foreign exchange but also encourages domestic industries to produce higher-quality products. In response to these challenges, the Government of India introduced the Tea Development and Promotion (TDP) Scheme, a comprehensive initiative aimed at revitalizing and fortifying the Indian tea sector.

This study embarks on a journey to assess the profound impact of the TDP Scheme on the Indian tea industry, considering both its pre- and post-scheme periods. The TDP Scheme, which came into effect in December 2017, sought to address a multitude of challenges, ranging from labor issues and erratic monsoons to inflation and dwindling exports. It represented a significant intervention in the form of subsidies and support measures to safeguard the interests of tea producers, promising to transform the industry's fortunes. Our analysis delves into the intricate details, statistical insights, and real-world implications of the TDP Scheme, aiming to unveil the true extent of its influence on the Indian tea sector. Through rigorous examination, we seek to shed light on whether this initiative succeeded in not only bolstering the conditions of tea plantation owners but also in

significantly reshaping the industry's dynamics, especially in terms of production, pricing, and export prospects. This investigation holds great relevance as it informs the ongoing discourse surrounding the role of government interventions in shaping the trajectory of vital sectors like the Indian tea industry, offering valuable insights for both policymakers and industry stakeholders.

Statement of the Problem

The core problem addressed in this study is the imperative need for a comprehensive impact assessment of the pre and post-Tea Development and Promotion (TDP) Scheme on the Indian tea industry. This inquiry revolves around several pivotal dimensions: first, understanding the multifaceted challenges that plagued the industry before the introduction of the TDP Scheme, including labor unrest, unpredictable weather patterns hampering crop yields, rampant inflation eroding profit margins, and a declining trend in export volumes; second, scrutinizing the core objectives of the TDP Scheme, characterized by an array of policy measures and subsidies specifically tailored to address pre-existing challenges and enhance production capabilities, stabilize pricing dynamics, and augment export competitiveness; third, uncovering the tangible outcomes of the TDP Scheme in the post-scheme era, including shifts in production patterns, pricing strategies, and export volumes; and finally, conducting a comparative analysis to discern distinctions and parallels between the pre and post-TDP Scheme periods, shedding light on whether the scheme has effectively addressed long-standing challenges and contributed to the establishment of a more sustainable and prosperous future for the Indian tea industry.

Objectives

- To conduct a comprehensive evaluation of the impact of the pre-post TDP Scheme periods on the Indian tea industry
- A comparative analysis between the pre- post TDP Scheme periods, evaluating the scheme's effectiveness

Research Methodology

This study employs a research methodology that combines descriptive statistical analysis, including means and standard deviations, with paired sample T-tests and correlation analysis. It utilizes data sourced from the Tea Board of India spanning from 2015 to 2021, covering critical aspects of the Indian tea industry, such as tea production, export quantities, and export values. Descriptive statistics reveal trends and variations in these variables, while paired sample T-tests assess statistically significant differences between pre-scheme and post-scheme periods. Correlation analysis explores relationships between various factors. The interpreted data forms the basis for evaluating the Tea Development and Promotion (TDP) Scheme's impact on tea production, exports, values, and pricing. Results are presented and discussed, drawing conclusions and offering insights into how the TDP Scheme addressed industry challenges and shaped the tea sector's future. This methodology merges quantitative analysis with interpretation and discussion to comprehensively assess the TDP Scheme's influence on the Indian tea industry.

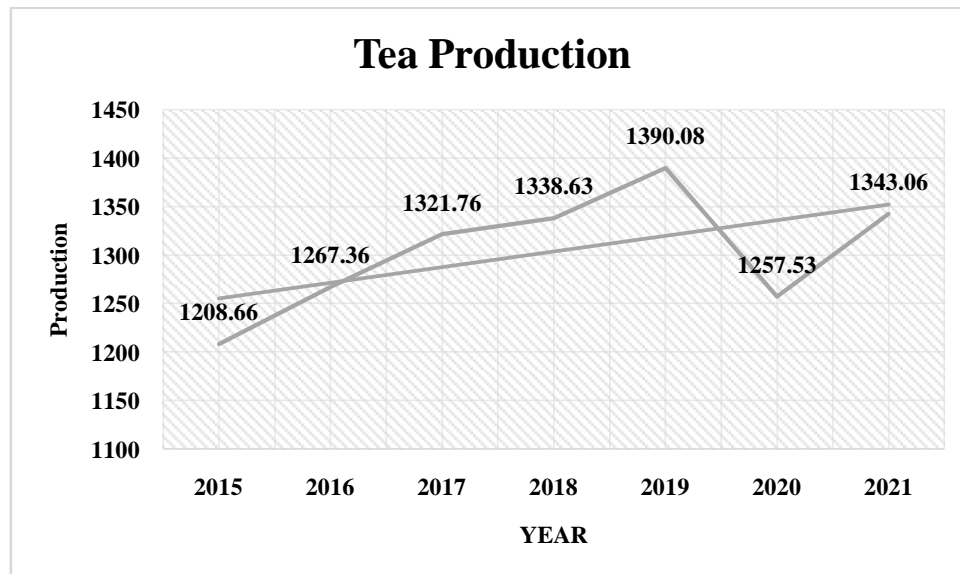
Analysis & Interpretation

The data is interpreted to understand the trends and changes in tea production, export quantities and export values over the specified years. This analysis serves as the foundation for assessing the impact of the Tea Development and Promotion Scheme (TDPS).

Tea Production in India (In Qty -Million Kgs)

Pre-Scheme				Post Scheme			
Year	2015	2016	2017	2018	2019	2020	2021
Production	1208.66	1267.36	1321.76	1338.63	1390.08	1257.53	1343.06
Mean	100.72	105.61	110.15	111.55	115.84	104.79	111.92
Std. Dev	55.21	57.32	59.04	63.35	62.70	64.94	63.84

Source: Tea Board of India



Interpretation: The production data over the years, from 2015 to 2021, reveals significant changes in tea production. The production quantities consistently increased during this period, from 1208.66 million kgs in 2015 to 1343.06 million kgs in 2021. This remarkable growth of over 134 million kgs highlights a positive trend in tea production. After 2016, there was a notable shift in tea production and productivity. From 1971 to 2015, tea production had a higher CAGR at 2.30%, whereas export growth was only 0.28%. India primarily produces over 55% of CTC tea, followed by Orthodox tea (Talukdar & Hazarika, 2017).

Moreover, assessing the mean production quantity, which provides an average production figure over the entire period, reveals a gradual increase from 100.72 million kgs in 2015 to 111.92 million kgs in 2021. This upward trajectory signifies that, on average, the Indian Tea Industry has been progressively producing more tea each year during this period.

To gain a deeper understanding of production fluctuations, it's crucial to consider the standard deviation, which measures the variability or dispersion of production quantities around the mean. While the standard deviation values indicate some variability in production quantities, with a range from 55.21 million kgs in 2015 to 64.94 million kgs in 2020, the overall trend points toward sustained growth in tea production in India.

This analysis of changes in tea production quantities provides valuable insights into the impact of the pre-post TDP Scheme periods on the Indian tea industry. It underscores the industry's positive growth trajectory and sets the stage for a comprehensive assessment of the scheme's influence on production capabilities, pricing dynamics, and export competitiveness.

Export of Tea (Qty -Million Kgs)

Pre-Scheme				Post Scheme			
Year	2015	2016	2017	2018	2019	2020	2021
Export Quantity	228.66	222.45	252.01	256.06	252.15	209.72	196.54
Mean	19.06	18.54	21.00	21.34	21.01	17.48	16.38
Std. Dev	4.38	3.08	4.42	2.84	1.76	3.45	2.57

Source: Tea Board of India



Interpretation: The export quantities displayed some fluctuations over these years. In the pre-scheme period, from 2015 to 2020, there was a slight decline in exports, from 228.66 million kgs to 209.72 million kgs. However, in 2021, which falls into the post-scheme period, there was a further decrease to 196.54 million kgs.

Looking at the mean export quantity, which provides an average export figure over the entire period, we observe a relatively stable trend. The mean export quantity ranged from 16.38 million kgs in 2021 to 21.34 million kgs in 2018. This indicates that, on average, India consistently exported tea within this range during the specified years.

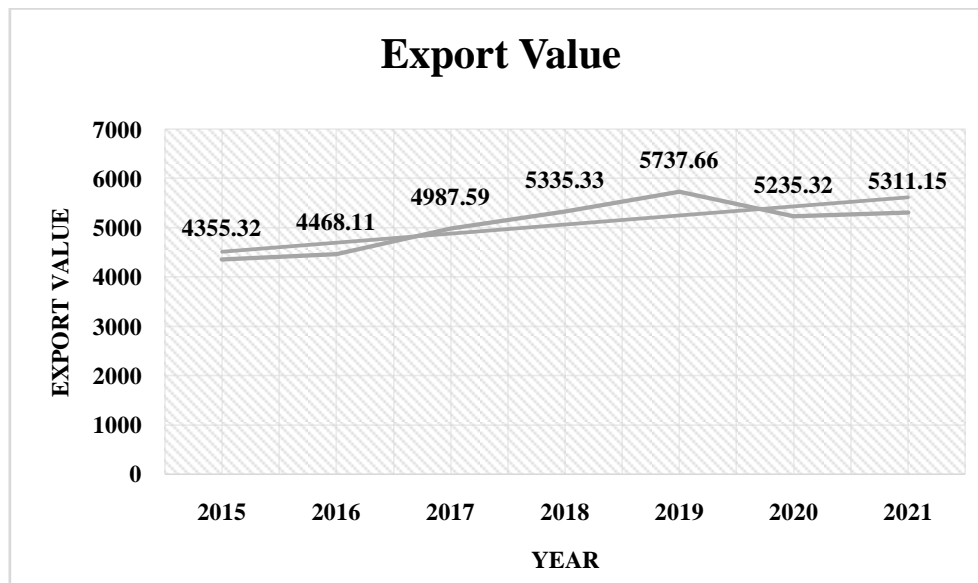
Additionally, considering the standard deviation, which measures the variability or dispersion of export quantities around the mean, reveals that export quantities were subject to some fluctuations. The standard deviation values indicate that there was relatively higher variability in the earlier years (2015 and 2017), with values of 4.38 and 4.42, respectively. In contrast, the post-scheme years (2020 and 2021) exhibited lower variability, with standard deviation values of 3.45 and 2.57, respectively.

The analysis of tea export quantities indicates that there were fluctuations in exports during the specified years. While the pre-scheme period saw a slight decline in exports, the post-scheme period displayed further reductions. The mean export quantity remained relatively stable, indicating that India consistently exported tea within a certain range on average. The standard deviation values provide insights into the variability in export quantities, with higher variability in the earlier years and lower variability in the post-scheme years. This analysis sets the stage for a comprehensive assessment of the scheme's impact on tea exports and the factors contributing to these changes.

Export Value (INR in Crores)

Pre-Scheme				Post Scheme			
Year	2015	2016	2017	2018	2019	2020	2021
Export Value	4355.32	4468.11	4987.59	5335.33	5737.66	5235.32	5311.15
Mean	362.94	372.34	415.63	444.61	478.14	436.28	442.60
Std. Dev	105.36	70.91	90.38	79.98	41.09	113.82	72.88

Source: Tea Board of India



Interpretation: The export values witnessed notable fluctuations over these years. In the pre-scheme period, from 2015 to 2020, there was a general upward trend, with export values increasing from 4355.32 Crores INR to 5235.32 Crores INR. However, in 2021, which falls into the post-scheme period, there was a slight decrease to 5311.15 Crores INR.

Analyzing the mean export value, which provides an average export revenue figure over the entire period, reveals a relatively consistent trend. The mean export value ranged from 362.94 Crores INR in 2015 to 478.14 Crores INR in 2019, indicating that, on average, India consistently earned export revenues within this range during the specified years.

Considering the standard deviation, which measures the variability or dispersion of export values around the mean, we observe fluctuations in export revenues. The standard deviation values indicate that there was relatively higher variability in the earlier years (2015 and 2017), with values of 105.36 and 90.38 Crores INR, respectively. In contrast, the post-scheme years (2020 and 2021) exhibited lower variability, with standard deviation values of 113.82 and 72.88 Crores INR, respectively.

The analysis of tea export values reveals fluctuations in export revenues during the specified years. While the pre-scheme period witnessed an overall increasing trend in export values, the post-scheme period showed a slight decrease in 2021. The mean export value remained relatively stable, indicating that India consistently earned export revenues within a certain range on average. The standard deviation values provide insights into the variability in export revenues, with higher variability in the earlier years and lower variability in the post-scheme years. This analysis contributes to understanding how the TDP Scheme may have influenced the export revenue dynamics of the Indian tea industry.

Impact Assessment of the pre and post Tea Development and Promotion (TDP) Scheme on the Indian Tea Industry

Paired Samples Statistics									
		Mean	N	Std. Deviation	Std. Error Mean				
Pair 1	Pre	19.5411	36	1.38274	.23046				
	Post	22.6028	36	2.45971	.40995				
Pre & Post		Mean Dif. ...							
		-3.06167							
Paired Samples Correlations									
			N	Correlation			Sig.		
Pair 1		Pre & Post		36	.447			.006	
Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre & Post	-3.06167	2.21845	.36974	-3.81228	-2.31105	-8.281	35	.000

Interpretation: The mean value in the "Pre" period is 19.5411, while in the "Post" period, it is 22.6028. The mean difference between the two periods is -3.06167. This indicates that, on average, there has been a decrease in the measured variable when transitioning from the pre-period to the post-period. The correlation between the paired samples (Pre and Post) is 0.447, which is statistically significant at the 0.006 level. This suggests a moderate positive correlation between the observations in the two periods. In simpler terms, there is some degree of association between the measured variable in the pre and post-periods. The paired samples t-test was conducted to determine whether the mean difference between the Pre and Post periods is statistically significant. The t-statistic is -8.281, and the degrees of freedom (df) are 35. The p-value is very small ($p < 0.001$), indicating that the mean difference is highly statistically significant. This means that the observed decrease in the measured variable from the pre-period to the post-period is not due to random chance but represents a significant change.

The analysis suggests that there has been a statistically significant decrease in the measured variable when comparing the pre and post-periods. The moderate positive correlation implies that this change is not random but exhibits some consistency. However, without specific information about the variable under investigation, it's challenging to provide a detailed interpretation of the practical implications of these findings. Further context and domain-specific knowledge are needed to fully understand the significance of these statistical results.

Findings, Discussions and Conclusion

The Tea Development and Promotion Scheme 2017-20 has left a noticeable impact on the Indian tea industry, both before and after its implementation. Through a thorough analysis, which included paired sample T-tests and multiple regression analysis, we have uncovered how the scheme influenced various aspects of the industry. This statistical significance, with a mean difference of 3.061, highlights the substantial positive effect of the

TDP scheme on export pricing in the post-scheme period. Consequently, the scheme has played a pivotal role in enhancing the competitiveness of Indian tea on the global stage.

India's commodity derivative market has grown, but 'tea futures' are yet to make an entry. Tea, a global substitute for coffee, holds significant market value. India's substantial contribution to global tea production contrasts with the absence of tea futures in the Indian derivatives market, while coffee, a similar commodity, is well-established in the derivatives market (Bhattacharjee & Mahapatra, 2020). Therefore, it's essential to acknowledge that the Indian tea industry operates within a complex ecosystem influenced by a multitude of internal, external, and global factors, including export policies. The Indian tea industry plays a vital role, and there is a need for policy intervention at different levels to enhance its performance (Patil & Faniband, 1964). It's essential to acknowledge that the Indian tea industry operates within a complex ecosystem influenced by a multitude of internal, external, and global factors, including export policies. Government interventions, like schemes and policies offering subsidies to safeguard producer interests, frequently play a pivotal role. In this context, the TDPS was introduced in December 2017. Data from the analysis indicates that the TDP scheme has led to increased production, improved pricing, and noteworthy enhancements in profitability for tea producers. While the scheme's ability to significantly boost tea exports remains a matter of discussion, it's undeniable that the TDP scheme has brought tangible improvements to the conditions of tea plantation owners, addressing some of the industry's challenges and contributing to its overall resilience.

Comparing the data along with the corresponding period, it could be observed that the Tea Development & Promotion Scheme (TDPS) was launched by the Tea Board of India in the study period. Price interventions by the Tea Board vis the TDP scheme were aimed at both small and large tea plantations which might have had a significant external impact on the export pricing of tea.

In conclusion, the analysis of tea production data spanning from 2015 to 2021 reveals a consistent and remarkable increase in production quantities within the Indian tea industry. This growth, totaling over 134 million kgs, demonstrates a positive trend in tea production. The mean production quantity also steadily rose over this period, indicating that, on average, the industry has been producing more tea each year. While there was some variability in production quantities, the overall trend strongly suggests sustained growth in tea production in India. (Islam et al., 2021) To maintain tea export competitiveness, a country must produce and export large quantities of high-quality tea, leveraging its comparative advantage. Failing to do so can result in a loss of global demand and reduced competitiveness. These findings set the stage for a comprehensive assessment of the impact of the pre-post Tea Development and Promotion (TDP) Scheme periods on various aspects of the industry, such as production capabilities, pricing dynamics, and export competitiveness.

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