

Goods and Services Tax Reform and Profitability of Indian IT Start-ups: A Pre- and Post-GST Financial Analysis

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ABSTRACT

Purpose. This study examines whether the implementation of the Goods and Services Tax (GST) was associated with changes in the profitability of selected Indian IT start-ups.

Design/methodology/approach. The study adopts a secondary-data, pre- and post-GST comparative design. Financial observations for five selected IT start-ups are analysed using a paired-samples t-test to compare profit before and after GST and profit margins before and after GST. A regression model is also used to examine whether GST paid is associated with profitability.

Findings. The mean profit increased from 19.594 lakh before GST to 143.462 lakh after GST, and the paired-samples test reports $p = 0.019$, indicating a statistically significant difference at the 5% level. However, the regression model shows that GST paid explains only 1.5% of the variation in profit and is not statistically significant ($p = 0.604$). The profit-margin comparison also shows a numerical increase, but the difference is not statistically significant ($p = 0.225$).

Originality/value. The study distinguishes between a significant pre- and post-GST difference in profit levels and the absence of a significant relationship between GST paid and profitability. This provides a more cautious interpretation of the financial consequences of GST for Indian IT start-ups.

Keywords: Goods and Services Tax (GST); IT start-ups; profitability; profit margin; tax reform; Indian IT sector; financial performance

investor preferences; risk perception; India

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1. Introduction

The Indian Information Technology (IT) sector plays an important role in economic activity through its contribution to employment, exports, innovation and digital transformation. Start-up IT firms are particularly sensitive to changes in regulatory and taxation frameworks because they generally operate with limited financial and administrative resources. The introduction of GST on 1 July 2017 represented a major change in India's indirect-tax system, replacing several indirect taxes with a unified framework intended to reduce cascading and improve tax administration [1].

The GST transition has particular relevance for service-oriented IT businesses. The reform changed tax-compliance processes, documentation requirements and the treatment of input tax credits. Industry commentary and prior research indicate that small and emerging firms experienced initial compliance and working-capital pressures, while digitally capable businesses could potentially benefit from greater transparency and a more standardised tax environment [1–3].

The empirical evidence is not uniformly positive. Prior research on Indian companies reports post-GST improvements in some profitability measures but also identifies higher working-capital requirements and adjustment costs [4]. Research on start-ups similarly suggests that the early phase of GST implementation created compliance challenges, while the longer-term effects depended on firms' ability to adapt to digital processes [2].

Against this background, the present study examines the financial performance of selected Indian IT start-ups by comparing profit and profit margins across the pre-GST and post-GST periods and by testing whether GST paid is statistically associated with profitability.

2. Problem Statement

GST was introduced to simplify India's indirect-tax structure and improve the efficiency and transparency of business taxation. For IT start-ups, however, the transition also involved new digital compliance requirements, changes in tax incidence and potential working-capital pressures. Existing discussions identify both benefits and challenges, but firm-level evidence specifically

examining the relationship between GST and the profitability of Indian IT start-ups remains limited in the material reviewed for this study [1–4].

The central research problem is therefore to determine whether the observed changes in profitability and profit margins between the pre-GST and post-GST periods are statistically significant and whether the amount of GST paid provides a meaningful explanation of variation in profit.

3. Objectives

1. To examine whether there is a statistically significant difference in the profitability of selected Indian IT start-ups between the pre-GST and post-GST periods.
2. To examine whether GST paid is significantly associated with the profitability of selected Indian IT start-ups.
3. To compare profit margins of selected IT start-ups before and after GST implementation.
4. To provide practical implications for IT start-ups and policymakers based on the empirical findings.

4. Hypotheses

H01: There is no statistically significant difference in mean profit between the pre-GST and post-GST periods for the selected Indian IT start-ups.

H02: GST paid is not significantly associated with the profitability of the selected Indian IT start-ups.

H03: There is no statistically significant difference in mean profit margin between the pre-GST and post-GST periods for the selected Indian IT start-ups.

5. Literature Review

Sankar [1] examined GST and its implications for different sectors of the Indian economy and highlighted the potential for simplification and reduction of cascading taxes, while also identifying initial compliance difficulties for service-based sectors and smaller businesses.

Thowseaf and Millath [2] examined the expected implications of GST for Indian industries and exports before implementation. Their analysis suggested that a well-implemented GST could improve tax efficiency and export competitiveness.

Kumar, Walia and Singh [3] analysed before-and-after effects of GST on sales and profitability among leading BSE-listed companies. Their findings suggested that GST had a stronger influence on cost structures and profitability than on sales, highlighting operational efficiency as an important dimension of the reform.

Ahmed [4], using panel-data analysis of Indian companies, reported improvements in profitability after GST while also identifying increased working-capital requirements associated with compliance and tax-payment timelines.

Gayathri and Saravanan [5] focused specifically on Indian start-ups and reported that start-ups initially experienced difficulties associated with compliance costs and digital filing requirements, while adaptation over time generated benefits from tax simplification and easier interstate operations.

Singh [6] discussed the role of GST in facilitating the global expansion of Indian start-ups, suggesting that a more standardised tax framework can support firms operating across markets. Gupta [7] similarly highlighted potential benefits for start-ups from GST-related simplification. These sources provide contextual support but do not by themselves establish a causal relationship between GST and start-up profitability.

The literature therefore indicates a mixed transition effect: GST may improve tax-system uniformity and operational transparency while simultaneously imposing short-term compliance

and liquidity costs. The present study addresses this issue by combining a paired comparison of financial performance with a regression test of GST paid and profitability.

6. Research Methodology

6.1 Research Design

The study adopts a secondary-data analytical and comparative research design. Financial observations are compared across pre-GST and post-GST periods. The design is observational and does not constitute a controlled experiment; consequently, the findings indicate statistical associations and period differences rather than a definitive causal effect of GST.

6.2 Data Sources

The source manuscript identifies government publications and official sources, including GST Council reports, Ministry of Finance documents, Startup India data and Ministry of Corporate Affairs filings. It also identifies published research and credible financial and taxation sources as secondary information sources.

6.3 Sample and Data

The statistical outputs reported in the manuscript contain five paired observations for the pre- and post-GST profit and profit-margin comparisons. The regression analysis contains 20 observations. The exact names and selection criteria of the five firms are not specified in the source manuscript; therefore, this revised version does not invent or infer those details.

6.4 Variables and Analytical Tools

The principal dependent variable is profitability/profit. Profit margin is examined as a complementary performance indicator. GST paid is the explanatory variable in the regression model. The analytical tools are paired-samples t-tests and linear regression.

6.5 Statistical Decision Rule

The hypotheses are evaluated at the 5% significance level. Where $p < 0.05$, the null hypothesis is rejected. Where $p \geq 0.05$, the null hypothesis is not rejected.

7. Results and Analysis

7.1 Paired-Samples Test: Profit Before GST and Profit After GST

Table 1 presents the paired-samples test reported in the source manuscript.

Statistic	Profit Before GST	Profit After GST
Mean (lakh)	19.594	143.462
Variance	26745.05618	22853.34797
Observations	5	5
Pearson correlation	0.89471213	—
Degrees of freedom	4	—
t-statistic	-3.783600226	—
Two-tailed p-value	0.019375509	—

The mean profit increased from 19.594 lakh before GST to 143.462 lakh after GST. The paired test reports a two-tailed p-value of 0.019, which is below 0.05. H_0 is therefore rejected. The result indicates a statistically significant difference in the mean profit levels between the two periods for the selected firms. However, this statistical difference should not be interpreted as proof that GST alone caused the increase because the analysis does not control for other factors affecting profitability.

7.2 Regression Analysis: GST Paid and Profitability

Regression statistic	Value
Multiple R	0.1233679
R Square	0.0152196
Adjusted R Square	-0.0394904

Standard Error	163.0147
Observations	20
F-statistic	0.278
Significance F	0.60433278
GST paid coefficient	0.634749
GST paid p-value	0.604
GST paid 95% CI	-1.8936 to 3.1631

The regression model has very low explanatory power: R^2 is 0.015, indicating that GST paid accounts for approximately 1.5% of the variation in profit in the reported dataset. The overall model is not statistically significant (Significance F = 0.604). The GST-paid coefficient is positive (0.634749), but its p-value of 0.604 is substantially above 0.05. H_02 is therefore not rejected. The evidence does not support a statistically significant relationship between GST paid and profitability in this regression model.

7.3 Paired-Samples Test: Profit Margin

Statistic	Pre-GST Margin	Post-GST Margin
Mean	-0.0071	0.1671
Variance	0.075927205	0.023190585
Observations	5	5
Pearson correlation	0.301475971	—
Degrees of freedom	4	—
t-statistic	-1.43369081	—
Two-tailed p-value	0.224959074	—

The mean profit margin increased numerically from -0.0071 before GST to 0.1671 after GST. However, the two-tailed p-value is 0.225, which exceeds 0.05. H_03 is therefore not rejected. The observed increase in profit margin is not statistically significant in the reported sample.

8. Discussion

The results provide a more nuanced picture than a simple claim that GST improved profitability. The paired comparison indicates a statistically significant difference in profit levels between the two periods, whereas the regression analysis does not show a statistically significant relationship between GST paid and profit. In addition, the increase in profit margin is not statistically significant.

This distinction is important. A significant pre- and post-GST difference can arise alongside a non-significant relationship between GST paid and profit because profitability is influenced by multiple factors. The source manuscript itself recognises the importance of market conditions, managerial efficiency and broader economic trends. Accordingly, the present findings should be interpreted as evidence of a change in the selected firms' profit levels across the GST transition, not as definitive evidence that GST caused the change.

The findings are broadly consistent with the mixed picture reported in prior literature. GST can increase standardisation and transparency while also imposing compliance and adjustment costs, particularly on smaller service businesses [1–5].

9. Practical Implications

9.1 Implications for IT Start-ups

IT start-ups should strengthen automated accounting and tax-compliance systems to improve the timely identification and claiming of eligible input tax credits. Digital compliance systems can also reduce administrative effort and the risk of filing errors. Firms should integrate GST-related cash-flow planning with working-capital management, particularly where tax payments and refunds affect liquidity.

9.2 Implications for Policymakers

Policymakers should continue efforts to simplify GST compliance for resource-constrained start-ups and improve the predictability of digital filing processes. Timely processing of eligible refunds

is particularly relevant for firms whose business models involve significant tax credits or exports. These recommendations are consistent with the compliance challenges identified in the literature [1,4,5].

10. Limitations

The study has several limitations. First, the paired tests are based on only five observations, which limits statistical power and generalisability. Second, the regression uses 20 observations, but the source manuscript does not provide the underlying firm-level dataset or the exact construction of all observations. Third, the analysis does not control for firm size, revenue, leverage, business model, market conditions, inflation, financing costs or other factors that may affect profitability. Fourth, the study uses a pre- and post-GST comparison and therefore cannot isolate GST as a causal intervention.

Future research should use a larger panel of verified Indian IT start-ups, clearly identify firms and observation periods, include relevant control variables and consider panel-data or quasi-experimental methods. Primary evidence on compliance costs, input-tax-credit utilisation and working-capital effects would further strengthen the analysis.

11. Conclusion

This study examined the financial performance of selected Indian IT start-ups across the pre-GST and post-GST periods. The paired-samples test shows a statistically significant difference in mean profit, with the mean increasing from 19.594 lakh to 143.462 lakh ($p = 0.019$). However, the regression analysis shows that GST paid is not a statistically significant predictor of profit ($p = 0.604$), while the paired comparison of profit margins also fails to reach statistical significance ($p = 0.225$).

The central conclusion is therefore not that GST independently caused higher profitability. Rather, the evidence indicates a significant change in profit levels across the two periods, while the specific contribution of GST paid to profitability remains unsupported by the regression model. The results

highlight the need to distinguish between period-level financial changes and causal or explanatory effects when evaluating tax reforms.

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