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GOODS AND SERVICES TAX SHOCK ON SMALL AND MEDIUM ENTERPRISES WORKING CAPITAL IN INDIA

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Abstract. Goods and Services Tax (GST) reform introduced by the Indian government in 2017 was considered as the utmost radical and comprehensive indirect tax regime undertaken since independence. The new tax reform had created a shock wave among the Indian business houses, especially to the Small and Medium Enterprises short term working capital requirements. This research paper analyzes the working capital constraints created by the implementation of GST on the SMEs. Three research models have been developed by including the major working capital components namely average collection period, average payables period, inventory conversion period and a dummy variable to capture the effect of GST. The mathematical model presented in the paper has been tested using Random effects GLS method. The results of the study reveals that during the sample period the SMEs production capacity had deteriorated, collections and payments were delayed, profit margins were diminished and the credit requirements had escalated. This research outcome will provide an insight to the policymakers and financial institutions in India to implement and revamp strategies that will enable the SMEs to revive from this challenging environment successfully.

Keywords: SME; working capital management; Goods and Services Tax

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JEL Classifications: G30, G32.

1. Introduction

The Indian GST tax regime was aimed at replacing a range of taxes with a new, unified system of indirect taxation nationwide proclaimed as “One Nation One Tax”. The transition has already been embraced by the Indian firms and its two-edged impacts have been perceived across the nation. The key positives of GST include removal of complexities with multiple tax structures for better compliance, fixed tax rates to reduce tax evasion, facilitating efficient logistics across state borders, and the like. On the other edge, the GST regime had created a big, direct impact on the working capital of business houses especially to SMEs. SMEs with low financial reserves are compelled to reassess and realign themselves from the line of credit, taxation levels, and timelines. With a revamp in the timelines of availing line of credit under the new GST regime, SME’s short term cash flows was affected significantly and forced the firms to look for new sources of working capital finance. This results in

increased operating expenses and decreased liquidity which indirectly impacts the financial and operational sustainability of SMEs. Against this backdrop, this paper aims to explore the GST shock on SMEs working capital in India.

2. GST in India

Overview: GST as a concept was initiated in the year 2000. Based on the recommendations received from the Fiscal Responsibility and Budget Management committee in 2004, the GST movement was articulated in 2007 with the proposal to implement in 2010. The report proposed to restore all existing indirect taxes both at the central and state-level value-added taxes as shown below.

1. Central Excise duty: an indirect tax imposed by the central on the goods manufactured in India for domestic consumption
2. Central sales tax: collected by the state Governments these taxes were collected in case of inter-state sale or purchase transactions.
3. Service tax: charged to the service providers for service transactions which exceed Rs. 10 lakhs in a financial year.
4. Countervailing duty: charged on the import of specific goods to offset the domestic goods price.
5. Special Additional Customs Duty: levied at 4% on indigenous goods imported into India.

In addition to the above taxes at the central level, the following taxes were levied if the goods move to another state, and for sales within the state.

6. Value-added tax: introduced to restore general sales tax in April 2005 is a value addition at every phase of production to the distribution chain. Each India has its legislation, tax slabs and list of taxable goods.
7. Octroi/Entry tax: imposed by the State and local municipalities on the goods moving from one state to another.
8. Entertainment tax: levied on any form of entertainment as listed in Article 246 of the Indian constitution.

Value-added taxes were collected by the State Governments for sales within the state whereas Central State Tax was levied by Central Government in case of interstate transactions. In addition to CST, Excise duty and VAT were levied again by the states for the interstate sale of goods which creates a cascading effect on taxes and increased the tax burden, production inefficiencies, and distortion of resource allocation in businesses.

With the introduction of GST as a comprehensive, multistage destination-based tax the above-mentioned taxes at both central and state levels were subsumed into GST into four as shown in table 1 below.

Table 1. Components of Indian GST

Type of transaction	Applicable Tax regime	Tax levy Authority
Transactions within the Indian states or Union territories	CGST	Central Government
Transactions within the Indian states	SGST	State Government
Transactions within Union territories without legislatures	UTGST	Union territory
Transactions carried on between Indian states and imports	IGST	Central Government

Source: Goods and Services Tax Council www.gstcouncil.gov.in/

The broad objectives of the GST regime include harmonization of indirect taxes, mitigate the tax burden on business, improve production efficiencies and logistics all directed towards fostering international trade and economic development. GST is levied at each stage when there is a monetary value-addition to the product right from the materials procurement to end sale to consumers which makes it a multi-stage tax. GST is a destination-based tax arrangement. As GST is levied at the end sale, in case of interstate transactions the tax revenue goes to the government of the state where the product is consumed.

Proclaimed as one nation one tax, GST has replaced a series of 14 indirect taxes so far in India including the most prominent Central Excise duties (except for certain Non-GST goods for some exclusive transactions) purchase and sales taxes, Value added tax at state levels, Luxury tax and the like. The cascading effect of taxes (i.e paying tax for taxes) which increases the tax amount and product price at each stage of the production process has been removed with GST practice. The tax liability moves with each stage of the transaction and the taxpayers can claim credit for this amount of tax when the tax is submitted. This action eventually reduces the cost price due to reduced taxes. To facilitate intrastate transactions, E-way bills can be generated by using a common portal which benefits the manufacturers, traders, transporters and tax authorities.

3. Impact of GST on the SMEs Working Capital

SMEs occupy a significant fraction in Indian economic development in terms of production, exports, employment, wealth creation and development of entrepreneurial base. Table 2 provides a snapshot of SMEs role in the economic development of India according to recent statistics.

Table 2. Contribution of SMEs to Indian Economic Development

Metric	Contribution
Estimated number of units (in lakhs)	633.88 (31% in Manufacturing, 36 in Trade and 33% in other services)
Employment opportunity	11.10 crore jobs (360.41 lakh in Manufacturing, 387.18 lakh in Trade and 362.82 lakh in Other Services and 0.07 lakh in Non-captive Electricity Generation and Transmission (Murugesan and Manohar, 2018, p.50).
GDP Contribution	28.77 % to the total national GDP
SME Output	45% of manufacturing output
SME Exports	40%
Deployment of Bank credit(in billion Rs)	26370.52
SME Growth Rate	6.43% of annual compound growth rate in terms of number of units and 3.63 % growth in employment opportunities

Source: Central Bank of Bafrain <https://www.cbb.gov.bh/> and Ministry of Micro, Small and Medium Enterprises <https://msme.gov.in/>

Short term working capital plays a significant role in the firm performance of any firm and is of paramount importance for SMEs due to its nature of the limited source of funds and access to additional financing channels. As short term working capital decisions of SMEs profoundly impact on the firm liquidity and profitability, efficient management of current assets and current liabilities remains pivotal for SMEs at any given point of time. Throughout the SMEs daily operations, funds continuously move from inventory to receivables. Once the receivable is collected, funds are released from operating working capital as the cash account is increased. This movement of funds from inventory to receivables and receivables to cash is referred to as the operating cycle. Accounts payable help fund the inventory and receivables tied up in the operating cycle. But in most cases the business size and curbed access to formal capital raising channels reinforce many SMEs to greatly depend on timely cash receipts and bank balances for their short term working capital requirements (Sunday, 2011). When GST was introduced the SME manufacturers have to file their tax returns when the goods are passed on next stage much earlier before the proceeds of sale are collected. In simple terms, the SMEs have to pay their tax first and claim refunds later till the time the goods reach the end consumer. The problem intensifies more in case of delays in trade credit arrangements which is a common industrial practice in SMEs. Any impeded credit collections on one side and the claim refund delays of GST creates an adverse effect and constraint on manufacturing sector SMEs working capital. This mechanism will lengthen the cash conversion cycle and reduce the SMEs meager short term cash balances and cash burn rate. On reaching the threshold limit, the SMEs are compelled to rely on

external financing for short term working capital requirements. The escalating operating cost and insubstantial channels of external financing make it a less preferable choice for SMEs to raise their capital.

Realizing the seriousness of this issue, the Government of India had initiated a series of strategies to revamp the working capital shortage created by GST. Some of the significant initiatives are

- Trade receivables discounting system (TReDS): discounting of trade receivables with corporates, Government treasuries and public sector undertakings which facilitates the SMEs to raise short term working capital. According to the RBI report as on 31st October 2018, there were 1878 MSMEs, 235 corporates and 57 banks have been registered under this mechanism are gaining ground.
- Formalizations of MSMEs: into a formal financial system to alleviate the cash flow problems during the transition.
- Access to credit: A 59-minute loan portal has been designed for quick access credit to MSMEs up to 1 crore rupees which connects the MSME to the bank branch for loan approval. In reality, this portal remains inaccessible most times by MSMEs. The Hindu Business Line dated 14th Feb 2019, reported that the portal has received 1.31 lakh applications, approved 1.21 lakhs and loans were sanctioned to 40669. The article also added that the high approval ratio and low sanction ratio indicates that the need for its deeper integration of this portal with bank processes
- GST grievance redressal mechanism: This channel includes help desk services, self service mechanism where firms can submit their queries related to GST laws, procedures and information technology related issues. The status of their queries can be track down using help dest or web ticketing services.

In addition to the above many other initiations were proposed by the Government of India. Nevertheless the lack of outright timely information, initial startup hiccups, and reluctance to accept new reforms had created a negative apprehension on GST. In addition lack of awareness on the benefits of this tax regime, inadequate support from concerned authorities, lack of IT support, late cash refunds intensified the apprehensions among the business firms in India.

4. Review of Literature

GST as a topic of great interest has attracted the attention of academicians, industrial practitioners and professionals at large within a short span of time. Pandey and Banwet (2018) tried to examine the impact of key innovations to reform the Indian financial system including liberalization, demonetization, digitization, and the implementation of GST. The impact of these key innovations on economic growth was measured using key macro-economic factors over a period of 1970-2014. The impact of GST on the Indian economy was discussed only as theoretically, due to paucity of the empirical data. The study concluded by highlighting that the implementation of GST as a highly disruptive innovation to the Indian economic growth at least in the short run. Stressing the same point, Banerjee and Prasad (2017) highlighted in their article that reforms must bring simplicity not disruption. Expected that GST as an opportunity to reform the cobweb indirect taxation structure, it has turned out to be burdensome on small businesses that curtail their growth. Highlighting the same point Kawle and Aher (2017) in their study found that that in the limelight of achieving the broad based tax structure, the threshold limit adds significant tax burden on Small and Medium enterprises. The authors stressed the need for an effective robust IT network that supports successful implementation and process of GST including registration, filing of returns, payments, and settlements on IGST for the successful implementation of the new tax reform. Agarwal et.al (2017) reported that frequent crash of the GST website creates an increased discontent among businesses including transitional tax rates, complex input tax credit systems, and increase in the number of returns filed with added compliance costs. The study concluded that GST has imposed a big threat to SMEs in terms of compliance costs which accelerates the prices of end products. Considering the potential drawbacks researchers had started proposing strategies for the success of GST in the long run as well. Mehta et.al (2018) constructed a logistic regression model that forecasts the possibility of a business entity to turn to be a potential return defaulter for the forthcoming tax-filing period. This model was developed for the commercial taxes department of Telangana region of Hyderabad state in India to reduce the level of tax evasion in the future.

There are few researches that attempted to analyse the impact of GST on Indian firms and households. Shukla et.al (2018) quantitatively analyzed the impact of GST on the financial performance of 192 companies listed in Bombay stock exchange the value of total assets was significantly different in post GST period. The study employed three financial parameters namely total assets, profit and market capitalization including two demographic variables size and age of the companies. The age and size of the firms were also found to be significant factors in influencing the firm performance after the implementation of GST.

Srivatsava and Bisaria (2018) studied the sector-wise impact of GST on the real estate industry which contributes to nearly 9 percent of national GDP concluded that the sector is expected to well perceive GST even at a higher rate than the current rate. The RERA and GST together are expected to eliminate the past falling expenses structure, promote easy compliance, creates uniform assessment rates and structures and reduced extra taxation rates. These cumulative benefits of GST are passed on to the end buyer in the form of the reduced cost of properties which serves its prime purpose.

Another sector-wise psychographic study of the top executives in the shipping industry by Rengamani (2018) reported the respondents' preference for having single GST enactment and a single rate for CGST and SGST across India. The study highlights the discrimination of taxability of outbound freights for Indian shipping lines as against the foreign companies in case of cargo transports. The EY report 2018 also emphasized the same indicated that this could result in reduced competitiveness and business loss to Indian shipping companies. Towards that end, an amendment to Sec 128 (8) of the IGST was made by the Government of India, yet the EY report claims the provisions as unfulfilled. These actions set a clear picture that GST reform is shaping itself by the amendments when required. The GST council meetings at frequent intervals revise, recommend and approve amendments on composition levies, GST rates, update and publish GST rates approved by the council from time to time.

Notwithstanding the amendments provided by the Government, a thorough understanding of the benefits of GST among Indian households and industries remains insufficient. The lack of awareness could also lead to negative apprehensions about GST in India. A study by Kumar et.al (2018) identified that the level of awareness about the rates and related features of GST found to be very low in the Pharma industry of Guntur district. A study conducted by Rao and Babu (2018) also reported a knowledge gap among engineering faculty who are bound to develop future entrepreneurs for the nation. A similar study by Madan et.al (2018) used twitter for data mining and sentiment analysis to examine the perception of Indians using lexicon-based methodology. The data collected on 10000 datasets found that 33% were positive and 54% remained neutral towards the implementation of GST. The results of lexical based sentiment analysis clearly indicate that the addition to the positive side purely depends on the successful compliance of GST in the future.

Most of the researchers have attempted to analyze the GST qualitatively or broad-based effect of GST on the Indian economy as a whole. Though the implementation of GST had created shock wave on the overall performance of large businesses, it is imperative to study the working constraint created by GST on SMEs. The short term financing decisions of SMEs highly diverge from large firms in terms limited sources of funds, limited accessibility to financing avenues and high dependence of daily cash flows. For a sector that has been hammered by demonetization and the chaotic implementation of the GST had created a substantial working capital constraint and uptick in demand for credit for SMEs. The GST enactment which creates a cash flow gap between receivable and payables of SMEs requires an empirical analysis.

5. Research Methodology

Panel data is employed to test our prediction that the implementation of GST affects the working capital management of SMEs. According to Baltagi (2005) panel data controls individual heterogeneity which is missed in time series and cross-sectional data which runs the risk of the biased result. The variability nature, less collinearity and more degrees of freedom of the panel data makes it more efficient and informative in scoring more reliable estimates. A sample of 28 SMEs listed in Bombay Stock Exchange has been selected for this study based on the continuous data availability during the sample period. A strong, balanced panel was constructed by including 29 firms' data for pre and post GST periods of the sample SMEs. The financial statements of the SMEs for 4 years (pre GST 2015-2016 years and post GST 2017-2018) were collected from the Thomson Reuters database.

Research Models: Three research models have been developed by including the major working capital components as stated in literatures namely ACP, APP and ICP as independent variables. To examine the effect of GST on SMEs working capital a dummy variable is included in all the three models to capture the effect. ROA and WCSG were used as dependent variables and QR, CR, DE, CCC, NPM, and TOTE were used as control variables in the models.

$$ACP_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 QR_{i,t} + \beta_3 DE_{i,t} + \beta_4 CCC_{i,t} + \beta_5 Dummy + \beta_6 WCSG + \varepsilon_{i,t}$$

$$APP_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 QR_{i,t} + \beta_3 DE_{i,t} + \beta_4 Dummy + \beta_5 WCSG + \varepsilon_{i,t}$$

$$ICP_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 CR_{i,t} + \beta_3 TOTE_{i,t} + \beta_4 NPM_{i,t} + \beta_5 Dummy + \beta_6 WCSG_{i,t} + \varepsilon_{i,t}$$

Variables of the study

Average collection period (ACP): represents the average number of days it takes for a supplier to collect the proceeds of credit sales. It is computed by accounts receivables scaled by daily credit sales. Delayed cash collections interrupt the cash cycle and firms will be forced to raise external or internal financing. This, in turn, will increase the operating expenses and reduce the firm profitability.

Inventory conversion period (ICP): Inventory is essential to revenue generation and market share growth especially in manufacturing firms. The ICP represents the number of days elapsed in between the acquisition of inventory and the date on which the item is sold. In other terms, it illustrates the number of days the inventory sits idle in the firm. The delayed ICP increase the associated costs in holding the inventory and interest expense, and loses opportunity cost. Technically ICP is calculated as ending inventory divided by the daily cost of goods sold.

Average payable period (APP): termed as supplier financing most recently, it scales the number of days passed in between the receipt of inputs and when the payment is made to the suppliers. Firms use the APP to evaluate their payment performance to measure the average length of time the firm takes to pay for its suppliers. APP is calculated by accounts payable over the daily cost of goods sold.

Dummy Variable: To capture the effect of GST this study has employed a dummy variable indicating 0 for pre GST period and 1 for post GST period.

Return of Assets (ROA): estimates the comprehensive operational efficiency of the firm in utilizing its total assets in generating returns. In other words, ROA measures the efficacy of the total assets in generating profit on each dollar of sales. ROA is computed by earnings over the total assets of the firm.

Working capital turnover (WCT): measures how efficiently the firm is utilizing its working capital in generating sales. In other terms this ratio indicates how much of every dollar of sales is used in meeting the firm's operational expenses and short term obligations. The WCT ratio of a firm is computed as periodic sales over its average working capital.

Control Variables

Total Assets to Total Equity (TOTE): represents the proportion of total assets funded by the shareholders of the firm. A high TOTE indicates that the firm had raised a large sum of debt in financing its total assets whereas a low TOTE shows that either the firm is conservative or experiencing difficulty in raising external debt.

Debt to equity ratio (DE): termed as leverage ratio in the finance world shows the percentage of debt and investor financing. A lower DE shows less creditor financing including bank loans and a higher DE tends to indicate high

risk to the shareholder. For highly levered firms, the decline in sustained earning leads to financial distress or bankruptcy in the long run.

Net profit margin (NPM): as an indicator of the firm's financial health NPM estimates the percentage of each sales dollar remaining after the firm has paid for its expenses. Investors use NPM to evaluate the firm's ability in generating ample profits from its sales

Current ratio (CR): termed as liquidity ratio CR quantifies the ability of the firm to meet its short term obligations with its current assets. CR is scaled as current assets over current liabilities over a period of time.

Quick ratio (QR): also known as absolute liquid/acid test ratio, QR shows the ability of the firm to pay its short term obligations with least liquid assets. Firms with high QR have rapid inventory turnover and cash conversion cycles. QR is calculated by Current assets minus inventory over its current liabilities.

Cash Conversion Cycle (CCC): it measures the number of days it takes for the firm to collect cash from the sale of inventory. CCC is computed by adding the ACP and ICP minus APP. The shorter the CCC the more efficient working capital policies that maximize shareholders' wealth.

6. Data Analysis

Summary of GST effect on SME: The descriptive statistics provide a snapshot of the changes in the working capital and other firm performance indicators during the pre and post GST period using the dummy variable is shown in Table 3.

Table 3. Summary of GST effect on SME

GST EFFECT = 0					
Variable	Obs	Mean	Std.Dev	Min	Max
ACP	56	82.16607	48.76679	11.7	272.5
APP	56	54.59643	42.90733	2	195.4
ICP	56	107.6411	199.2594	20.9	1327.3
TOTE	56	3.554464	1.964676	1.38	12.06
NPM	56	0.031036	0.042942	-0.083	0.197
QR	56	0.830179	0.353715	0.26	2.49
CCC	56	135.5107	223.7458	8.5	1484.5
DE	56	1.611607	1.239478	0.03	5.68
ROA	56	0.063804	0.069222	-0.125	0.391
CR	56	1.299643	0.380392	0.27	3.01
WCT	56	0.0466	0.2879	-0.096	2.142
GST EFFECT =1					
ACP	56	164.7839	293.696	16.3	1812.3
APP	56	81.12857	129.9826	0.7	773.8
ICP	56	143.3911	263.5181	28.9	1316.6
TOTE	56	2.919286	1.65115	0	12.82
NPM	56	-0.05093	0.370465	-2.337	0.158
QR	56	0.938393	0.334581	0.23	1.64
CCC	56	227.0518	376.997	9.2	1764.4
DE	56	1.197857	1.140086	0	7.53
ROA	56	0.055804	0.12352	-0.503	0.328
CR	56	1.450536	0.453794	0.31	3.08
WCT	56	-0.0307	0.4070	-2.724	0.65

Source: STATA output

Table 3 provides clear evidence that the SMEs have seen an unprecedented increase in their ACP from 82 days to 164 days in post GST period away longer than usual. The average number of days to collect credit sales outstanding of the SMEs almost doubled within a short period. This increased ACP lengthens the cash flow cycle as the firms are forced to pay their GST beforehand. Besides, the increased number of days the inventories held in the post GST period from 107 to 143 days adds to the cash-flow gap. Due to this credit crunch, the APP also has extended from 54 days to 81 days. The overall working capital turnover has decreased by 0.03 in the post GST period. Eventually, the SMEs' total asset turnover also gets affected by these activities which are reflected by a reduced TOTE to 2.9 times after the implementation of GST. In nutshell, the decreased ROA as an indicator of the firms' overall efficiency in providing returns also reflects the shock created by GST to SMEs.

Cross-Correlation of Variables

As a further step to proceed to OLS the Pearson correlation coefficient is employed to identify the correlation between the selected variables of the study. The correlation table 4 demonstrates a strong and statistically significant relationship between the selected variables of the study.

Table 4. Cross correlation of Variables

	APP	ACP	DIH	ROA	WCT	TOTE	NPM	QR	CCC	DE	CR
APP	1										
ACP	0.263* (0.0049)	1									
DIH	0.707* (0.000)	0.310* (0.0009)	1								
ROA	-0.205* (0.0298)	-0.359* (0.0001)	-0.4042* (0.000)	1							
WCT	-0.518* (0.000)	-0.089 (0.350)	-0.4256* (0.000)	0.192* (0.042)	1						
TOTE	-0.066 (0.4837)	-0.042 (0.659)	-0.1525 (0.1084)	-0.277* (0.003)	0.0039 (0.967)	1					
NPM	-0.312* (0.0008)	-0.400* (0.000)	-0.5350* (0.000)	0.7220* (0.000)	0.4988* (0.000)	0.0606 (0.5256)	1				
QR	-0.265* (0.0046)	0.0306 (0.7485)	-0.3088* (0.0009)	0.5546* (0.000)	0.0973 (0.307)	-0.237* (0.0116)	0.2586* (0.005)	1			
CCC	0.398* (0.000)	0.834* (0.000)	0.7397* (0.000)	-0.484* (0.000)	-0.217* (0.021)	-0.119 (0.2083)	-0.577* (0.000)	-0.127 0.1794	1		
DE	-0.108 (0.254)	0.0609 (0.5237)	-0.1001 (0.2938)	-0.359* (0.000)	-0.010 (0.913)	0.9224* (0.000)	-0.016 (0.861)	-0.214* 0.0234	0.0025 (0.979)		
CR	-0.374* (0.000)	-0.155 (0.1023)	-0.2070* (0.0285)	0.451* (0.000)	0.1244 (0.191)	-0.239* (0.0109)	0.2522* (0.007)	0.679* (0.000)	-0.145 (0.127)	-0.207 (0.028)	1

Source: STATA output

The ACP is positively correlated with APP, ICP, CCC, DE and QR; and negatively correlated with ROA, NPM, WCT, CR, and TOTE. The results indicate that increased ACP interrupts the cash cycle and eventually delays the ICP and sales. As a result, increased external financing increases the DE ratio. Limited cash availability due to increased ACP also delays the average length of time the firm takes to pay for its suppliers. Such late payments adversely affect the firm's ability in obtaining further supplier financing results in lengthened ICP. Eventually, the firm's profitability and overall performance decreases. Taking into account the presence of multicollinearity with variable correlating 0.9, the research models were framed accordingly.

Test for Serial correlation in Panel data

Presence of serial correlation in panel data biases the standard error and produces less efficient outputs. So it is imperative to identify serial correlation in the idiosyncratic error term in panel data models. (Drukker, 2003). For this reason, the Wooldridge test was employed and the results are shown in Table 5.

Table 5. Wooldridge test for Serial correlation in panel data

	Model 1	Model 2	Model 3
F (1, 27)	1.977	3.335	3.962
Prob>F	0.1711	0.0789	0.0567

Source: STATA output

The p values greater than 0.05 indicates that the three models are free from serial correlation within the panels. As a further step, test for multicollinearity among the dependent variables was conducted. Multicollinearity is a case where the independent variables are highly correlated which will reduce the precision of the estimate coefficients (Paul, 2006). So, the Variance inflation factor test was employed to identify the degree of correlation among our predictor variables and the results are shown in Table 6.

Table 6. Variance Inflation Factor (VIF) of Variables

Variable	Model 1	Model 2	Model 3
ROA	2.27	1.70	3.40
QR	1.57	1.52	
DE	1.24	1.20	
WCT	1.07	1.05	1.52
CCC	1.45		
NPM			3.61
CR			1.36
TOTE			1.36

Source: STATA output

The estimated VIF statistics of each explanatory variables are less than 4 (Pan and Jackson, 2008) we can conclude that the statistics are within the limit and the absence of multicollinearity in the research models.

Test for heteroscedasticity

As a further step, the Breusch-Pagan / Cook-Weisberg test was conducted for the three models to test for heteroskedasticity in panel data. The test results were above 0.05 percent indicated the presence of heteroskedasticity. When dealing with working capital components impact on firm performance indicators the presence of heteroskedasticity in the disturbance term could normally be expected. In the possible presence of heteroskedasticity one should compute robust standard errors to obtain efficient regression coefficients and unbiased standard error of the estimates (Baltagi, 2005). Literatures of White (1980, 1984); Huber 1967; Arellano 1987; Froot 1989; Rogers 1993 quoted in Hoechle (2007) also highlights that the assumptions of relaxing independently distributed residuals. Their generalized estimator produces consistent standard errors even if the residuals are correlated within. So based on these assumptions, this study adopted random-effects GLS with robust standard errors and the results are shown in Table 7.

Table 7. Results of Random effects GLS

	Model 1	Model 2	Model 3
Dependent variable	ACP	APP	ICP
Wald Chi2(5)	730.20	43.05	192.05
Significance	0.000*	0.000*	0.000*
R ²	0.79	0.2574	0.4139
Constant	3.624364 0*	3.95414 0*	4.209165 0*
Dummy	0.118044 0.002**	0.2218613 0.006**	0.091315 0.195
WCT	-0.0273 0.181	-0.3271643 0.002**	-0.57602 0.001**
QR	0.483446 0*	-0.5115709 0.070***	
ROA	-1.135259 0.000*	.0569875 0.913	-2.36367 0.04**
DE	0.046949 0*	0.0462395 0.037**	
CCC	0.001567 0*		
CR			0.228941 0.147
TOTE			0.04174 0.132
NPM			-0.666801 0.088***

Source: STATA output

Model 1 includes ACP as an independent variable regressed against four dependent variables QR, ROA, DE, and CCC. The dummy variable (pre-GST period = 0 and post GST period = 1) is employed to capture the effect of GST on SMEs number of days of sales outstanding. The coefficient value of the dummy variable at 0.118 with a p-value of 0.002 indicate that GST has significantly increased the ACP of SMEs. This leads to a net increase in the firm's working capital, operating cycle and CCC which requires additional credit to offset the balance in the firm's cash cycle. The positive significant association between ACP, CCC, QR, and DE reinforces the same findings. The negative association between ACP and WCSG indicates that increased ACP reduces cash in hand and longer cash conversion periods. This creates a sizeable gap between cash inflows and outflows as the firms. These firms are required to pay the tax first before it is collected from the accounts receivables or a claim of refund of GST. To fund the cash flow gap the SMEs are forced to raise external financing which is very much limited. Nevertheless, the fact that the credit requirements of SMEs escalate anomaly on one side and the liquidity crunch from banks after the non-banking ecosystem created high strain on SMEs short term working capital needs.

This liquidity squeeze also creates default or delayed average payment periods of SMEs. The dummy variable in model 2 which is employed to capture the effect of GST also reflects this attribute. The positive significant coefficient value of the dummy variables at 0.22 with a p-value of 0.006 reveals that the APP of the SMEs also

has significantly increased during the sample period. Any such delayed payments might increase late payments costs such as penalties, interests which adversely impact on revocation or curtailment in obtaining additional credit from the suppliers (Enow and Kamala, 2016). Any dishonors on agreed-upon terms of payment by SMEs will breach the trust, confidentiality and strong relationships with the suppliers. As accounts payable is a major source of short term financing for SMEs this will impact their cash flow and liquidity at greater levels (Mbroh and Attom, 2012).

The extended APP sooner or later affects the inventory conversion period as reflected through the dummy variable in model 3. The positive coefficient value at 0.09 reveals that GST had elevated the number of day's inventory held in the firms. Aforesaid/such extended ICP disrupts the timely release of cash, hinders the repayment to supplier financing and other financial obligations leading to financial crises. To refrain from such longitudes firms usually, raise/employ more their leverage (positive coefficients of TOTE and DE) despite realizing the fact that such acts decrease the firm profitability (negative coefficients of NPM) in the long run as shown by depicting in model 3. The statistically significant coefficient of ROA with ACP and ICP shows that an increased operating cycle reduces the overall efficiency of the SMEs in utilizing its total assets in generating profits. The results of this study in nutshell indicate that the SMEs' production capacity and sales have reduced, collections and payments were delayed and eventually the firm profit margin also decreased with the introduction of GST.

Pesaran's Test of Cross sectional Independence

The presence of cross sectional dependence in panel data will lead to efficiency loss for least squares and invalidates F test and could result in inconsistent estimators (Baltagi, 2007). To obtain reliable parameters in our research model residuals we applied pesaran test to check for cross sectional independence. The results of pesaran test is shown in Table 8.

Table 8. Pesaran's Test of Cross sectional Independence in the Panels

	Model 1	Model 2	Model 3
Pesaran's test of cross sectional independence	-0.653	-0.957	-0.533
Pr	0.5135	0.3384	0.5943
Average absolute value of the off-diagonal elements	0.516	0.526	0.516

Source: STATA output

The findings in Table 8 illustrate that the null hypothesis of no cross sectional dependence within and between panels is accepted. Give that the p values of the test are above 0.05 in all the three models, likely to exhibit no cross sectional dependence in the error terms.

Conclusion

The empirical findings of this study indicate that GST has a hard hit on SMEs short term working capital needs in the short run. The credit requirements have escalated anomaly on one side and the limited avenues of credit, on the other hand, had created a liquidity squeeze to SMEs. This situation has to be revamped soon to refrain the transformation of this credit crunch to credit risk which would turn to be a major catastrophe for the Indian economy. The efficacy of the series of strategies implemented by the Government of India to revamp the SMEs' working capital needs to monitored, evaluated and amended periodically. The potential areas of improvement in specific sectors, if implanted successfully is expected to reap big benefits in the future to make India a vibrant and dynamic economy. The research outcomes will provide an insight to the policymakers and financial institutions about the working capital strain created by the introduction of GST. Realizing the inevitable role of SMEs in the economic development of India, financial institutions should relax lending guidelines by rescheduling and restructuring the loans. In such a challenging operating environment, the Government of India can advance more

subsidies to SMEs to revive from this short-run effect. The SMEs ought for new avenues technology-infused platforms like crowdfunding in raising additional credit at a minimized cost.

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