

Pre and Post GST Effects on Consumer Price Index in India

Dr. Prashant T. Jariwala

Associate Professor, City C.U. Shah Commerce College, Opp. Dinbai Tower, Laldarwaja, Ahmedabad, India. pjari66@gmail.com

ABSTRACT -Goods and Service Tax (GST) is one of the most important reforms in India which has become a reality on 1st July 2017. GST has brought in 'One Nation One Tax' system but its effect on various sectors is slightly different. It is designed to support economic growth of the country. CPI measures changes over time in prices of goods and services of household consumption. It is used as a macroeconomic indicator of inflation. CPI gives an idea of the cost of living. In this study researchers estimate the impact of GST would have on CPI. The impact of GST on CPI is calculated by considering 6 groups (Drawn from CSO). The paper attempts to study pre and post GST effects on CPI using parametric T- Test.

Keywords: GST, CPI, Inflation

I. INTRODUCTION

GST journey began in 2000 when Kelkar committee was set up to draft a law. It had taken 17 years from then for the law to evolve. In 2017 the GST bill was passed in both houses and on 1st July 2017 the GST law came into force. In pre GST period every purchaser including the final consumer paid tax on tax. This tax on tax is called cascading effect of taxes. GST is an indirect tax which has replaced many indirect taxes in India. It is a multistage comprehensive tax that is levied on every value addition. One Nation One Tax is applied for whole country due to GST. GST regime also brought a centralized system of bills by the introduction of 'E Way Bills'. The system was launched on 1st April 2018 for interstate movement of goods and on 15th April 2018 for intra state transactions of goods in stunned manner.

Consumer Price Index (CPI) measures changes overtime in prices of goods and services, consumption of households. CPIs are considered as one of the most important economic and social indicators to measure inflation. These changes affect the purchasing power of consumer's income and their standard of life. Consumer Price Index in India is published monthly by the Central Statistical Organization (CSO). CPI is a macroeconomic indicator which is used as a tool by central banks for inflation targeting and monitoring price stability. CPI is also used for indexing dearness allowances to employees for the increase in price. International experience shows varied impact in different countries of GST implementation. In countries like Japan, Australia, Singapore there was an increase in inflation post GST implementation. However other countries such as New Zealand, Greece, Portugal, Thailand and Vietnam have seen inflation reducing with the implementation of GST.

Conversely in case of New Zealand inflation increased in the subsequent year the GST implantation. Coming back to India present study attempts to find pre and post GST dynamic effect on CPI basket.

II. LITERATURE REVIEW

- **Valadkhani (2005)** studied pre and post GST dynamic effect on CPI basket in Australia. In his study he found that the prices did not increase significantly before and after the introduction of GST. Out of 11 groups in CPI effect of GST on prices was significant in seven groups only.
- **Nitin Kumar (2014)** stated that GST implementation in more than 150 countries around the world and the value of GST is directly reflecting on GDP of the countries where GST is implemented positively.
- **Milandeep Kaur, Kajal Chaudhry, Sujan Singh and Balvinder Kaur (2016)** studied its impact of GST after its implementation. They also identified benefits and challenges of GST. The study concludes that GST play a dynamic role in the growth and development of our country.
- **Arunabha Roy (2017)** noted that GST will make India a tax neutral market by incorporating most of the dominant indirect taxes and their effect are major obstruction under current indirect tax system. That is the reason prices of goods and services are inflated.
- **Morgan Stanley (2017)** submitted a report said that the GST is likely to have minimum effect on CPI basket because most of the tax rates for the items in CPI basket are taxed at a lower rate under the GST as compared to the existing levy.

- **Sebastian Morris, Ajay Pandey, Sobhesh Agarwalla, Astha Agarwalla (2017)** in their working paper studied the impact of the proposed GST regime is expected for a very high fraction of population. Sin goods will be affected highly. With the move towards multiple slab structure overall impact on inflation is expected to be moderate.
- **Kumar (2017)** explained the concept of GST and also compared GST with past indirect tax structure. He concluded that GST will simplify India’s tax structure & cascading effect of multiple taxes will be eliminated. The study says that by implementation of GST, Govt. will reduce the burden on final consumer.
- **Yogesh Garg and Neeta Anand (2019)** examined impact of GST on explore of Indian carpets flooring industry. Their study attempted to find out the significant impact of GST on the average exports of Carpets and Floorings industry for pre and post two consecutive years. They obtained data relevant to carpets and export information from the website of Govt., like cbic.gov.in. Their research concludes that in future GST has potential to attract international corporate and there by encouraging investments & exports.

OBJECTIVES OF THE STUDY

1. To understand the concept of Goods and Service Tax.
2. To analyze the impact of GST on 6 groups of CPI.
3. To know the Pre and Post GST dynamic effect on CPI.

III. RESEARCH METHODOLOGY

This study is analytical in nature and it is used to exploratory technique. The data for the study has been collected from secondary sources such as journals, reports published online and offline on various newspapers and

IV. ANALYSIS OF DATA

FOOD AND BEVERAGES:

Statement of all India Consumer Price Index of Food and Beverages

Pre-period				Post-Period			
(Base year 2012=100)		year 2016-2017		(Base year 2012=100)		year 2017-2018	
Month	Rural	Urban	Combined	Month	Rural	Urban	Combined
July	137.6	139.8	138.4	July	138.5	139.8	139.0
August	138.0	137.6	137.9	August	140.6	140.5	140.6
September	137.2	135.7	136.6	September	139.6	138.0	139.0
October	137.4	136.3	137.0	October	140.4	139.7	140.1
November	136.6	135.2	136.1	November	142.4	141.5	142.1
December	134.7	132.8	134.0	December	141.5	138.8	140.5
January	133.7	132.0	133.1	January	140.4	137.2	139.2
February	133.6	132.1	133.0	February	138.7	135.6	137.6
March	133.4	132.6	133.1	March	138.6	134.8	137.2
April	133.5	133.4	133.5	April	138.6	135.7	137.5
May	133.8	133.6	133.7	May	139.1	136.4	138.1
June	134.9	135.7	135.2	June	140.0	138.4	139.4

Source: www.india.gov.in

websites. The monthly data was collected and shorted started from July 2016 to June 2017 for pre GST period and July 2017 to June 2018 for the post GST period. The base of CPI is year 2012. Six groups from CPI basket were taken as a sample for the study.

- Food and Beverages
- Pan, Tobacco and Intoxicants
- Clothing and Footwear
- Fuel and Light
- Miscellaneous
- General

Null Hypothesis: (HO)

1. There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of Food and Beverages.
2. There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of Pan, Tobacco and Intoxicants.
3. There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of Clothing and Footwear.
4. There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of Fuel and Light.
5. There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of Miscellaneous.
6. There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of General.

Paired TEST

Ho: There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of Food and Beverages.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre	135.1333	12	1.99378	.57555
	post	139.1917	12	1.46626	.42327

The mean of the Pre-Period is 135.1333 and Post-Period is 139.1917, The Std. Deviation of the Pre-Period is 1.99378 and Post-Period is 1.46626, The Std. Error Mean of the Pre-Period is 0.57555 and Post-Period is 0.42327.

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Pre & post	12	.553	.062

The Correlation between Pre-Period and Post Period is 0.553

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	-4.05833	1.70051	.49090	-5.13879	-2.97788	-8.267	11	.000

It was seen that the significance values of t statistics is -8.267 with associated significance value 0.000 which is less than 0.05 (chosen value), therefore we did not accept the null hypothesis that there is significance difference between pre GST period and the post GST period of all India Consumer Price Index of Food and Beverages.

PAN, TOBACCO AND INTOXICANTS:

Statement of all India Consumer Index of Pan, Tobacco and Intoxicants

Pre-period				Post-Period			
(Base year 2012=100)		year 2016-2017		(Base year 2012=100)		year 2017-2018	
Month	Rural	Urban	Combined	Month	Rural	Urban	Combined
July	138.0	142.9	139.3	July	147.4	150.5	146.5
August	138.9	143.6	140.2	August	149.0	152.1	146.5
September	139.9	143.9	141.0	September	149.8	153.6	146.5
October	140.9	144.3	141.8	October	150.5	154.6	146.5
November	141.2	144.3	142.0	November	152.1	156.2	146.5
December	142.4	145.0	143.1	December	153.2	157.0	146.5
January	143.1	145.6	143.8	January	153.6	157.7	146.5
February	143.7	146.3	144.4	February	153.3	159.3	146.5
March	144.2	147.5	145.1	March	155.1	159.7	146.5
April	144.4	148.0	145.4	April	156.1	159.2	146.5
May	145.5	148.3	146.2	May	157.0	160.3	146.5
June	145.8	148.6	146.5	June	157.3	161.0	158.3

Source: www.india.gov.in

Paired TEST

Ho: There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of Pan, Tobacco and Intoxicants.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre	143.2333	12	2.38531	.68858
	Post	147.4833	12	3.40637	.98333

The mean of the Pre-Period is 143.2333 and Post-Period is 147.4833, The Std. Deviation of the Pre-Period is 2.38531 and Post-Period is 3.40637, The Std. Error Mean of the Pre-Period is 0.68858 and Post-Period is 0.98333.

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Pre & post	12	.431	.162

The Correlation between Pre-Period and Post Period is 0.431

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	-4.25000	3.20695	.92577	-6.28760	-2.21240	-4.591	11	.001

It was seen that the significance values of t statistics is -4.591 with associated significance value 0.001 which is less than 0.05 (chosen value), therefore we did not accept the null hypothesis that there is significance difference between pre GST period and the post GST period of all India Consumer Price Index of Pan, Tobacco and Intoxicants.

CLOTHING AND FOOTWEAR:

Statement of all India Consumer Index of Clothing and Footwear

Pre-period				Post-Period			
(Base year 2012=100)		year 2016-2017		Base year 2012=100		year 2017-2018	
Month	Rural	Urban	Combined	Month	Rural	Urban	Combined
July	136.5	126.9	132.7	July	143.5	130.4	138.3
August	137.1	127.3	133.2	August	144.5	131.4	139.3
September	137.8	127.7	133.8	September	145.2	132	140
October	138.8	128	134.5	October	146.2	132.6	140.8
November	139.2	128.5	135	November	147.3	133.5	141.8
December	139.7	128.8	135.4	December	147.2	134	142
January	140	129	135.6	January	147.5	134.4	142.3
February	140.2	129.3	135.9	February	147.8	134.7	142.6
March	140.8	129.6	136.4	March	148.3	135.2	143.1
April	141.6	130	137	April	149.1	136.2	144
May	141.8	130.2	137.2	May	149.8	137	144.7
June	142.3	130.2	137.5	June	150.3	137.4	145.2

Source: www.india.gov.in

Paired TEST

Ho: There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of Clothing and Footwear.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre	135.3500	12	1.57047	.45335
	Post	142.0083	12	2.12451	.61329

The mean of the Pre-Period is 135.3500 and Post-Period is 142.0083, The Std. Deviation of the Pre-Period is 1.57047 and Post-Period is 2.12451, The Std. Error Mean of the Pre-Period is 0.45335 and Post-Period is 0.61329.

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Pre & post	12	.995	.000

The Correlation between Pre-Period and Post Period is 0.995

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	-6.65833	.58069	.16763	-7.02728	-6.28938	-39.720	11	.000

It was seen that the significance values of t statistics is -39.720 with associated significance value 0.000 which is less than 0.05 (chosen value), therefore we did not accept the null hypothesis that there is significance difference between pre GST period and the post GST period of all India Consumer Price Index of Clothing and Footwear.

FUEL AND LIGHT:

Statement of all India Consumer Index of Fuel and Light

Pre-period				Post-Period			
(Base year 2012=100) year 2016-2017				Base year 2012=100) year 2017-2018			
Month	Rural	Urban	Combined	Month	Rural	Urban	Combined
July	128.2	115.5	123.4	July	135.3	119.7	129.4
August	129.1	114.7	123.6	August	136.4	118.9	129.8
September	129.7	114.8	124.1	September	137.4	120.6	131
October	129.8	115.2	124.3	October	138.1	122.6	132.2
November	130.3	116.2	125	November	141.1	125.7	135.3
December	132	117.8	126.6	December	142.6	126.8	136.6
January	132.1	118	126.8	January	142.3	127.3	136.6
February	133.2	119.2	127.9	February	142.4	127.3	136.7
March	134.2	120.8	129.1	March	142.6	126.4	136.5
April	135	121.4	129.8	April	143.8	124.6	136.5
May	135	120.1	129.4	May	144.3	124.7	136.9
June	134.8	119	128.8	June	145.1	126.5	138.1

Source: www.india.gov.in

Paired TEST

Ho: There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of Fuel and Light.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre	131.0333	12	.46775	.13503
	Post	136.5750	12	1.21365	.35035

The mean of the Pre-Period is 131.0333 and Post-Period is 136.5750, The Std. Deviation of the Pre-Period is 0.46775 and Post-Period is 1.21365, The Std. Error Mean of the Pre-Period is 0.13503 and Post-Period is 0.35035.

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Pre & post	12	.279	.380

The Correlation between Pre-Period and Post Period is 0.279

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	-5.54167	1.17277	.33855	-6.28681	-4.79653	-16.369	11	.000

It was seen that the significance values of t statistics is -16.369 with associated significance value 0.000 which is less than 0.05 (chosen value), therefore we did not accept the null hypothesis that there is significance difference between pre GST period and the post GST period of all India Consumer Price Index of Fuel and Light.

MISCELLANEOUS:

Statement of all India Consumer Index of Miscellaneous

Pre-period				Post-Period			
(Base year 2012=100)		year 2016-2017		Base year 2012=100)		year 2017-2018	
Month	Rural	Urban	Combined	Month	Rural	Urban	Combined
July	123.8	119.9	121.9	July	128.6	123	125.9
August	124.2	119.9	122.1	August	129.7	123.8	126.8
September	124.9	120.5	122.8	September	130.3	124.5	127.5
October	125.7	120.9	123.4	October	130.7	124.5	127.7
November	126.1	121.3	123.8	November	131.7	124.9	128.4
December	126.3	121.4	123.9	December	131.9	125.1	128.6
January	126.6	122.1	124.4	January	132.3	125.8	129.1
February	127	122.4	124.8	February	132.5	126.5	129.6
March	127.4	122.6	125.1	March	133.3	127.1	130.3
April	127.5	122.5	125.1	April	134.2	128.2	131.3
May	127.9	122.6	125.3	May	135.1	128.9	132.1
June	128.1	122.7	125.5	June	135.6	129.5	132.6

Source: www.india.gov.in

Paired TEST

Ho: There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of Miscellaneous.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre	126.5667	12	2.41636	.69754
	Post	134.6333	12	3.11078	.89801

The mean of the Pre-Period is 126.5667 and Post-Period is 134.6333, The Std. Deviation of the Pre-Period is 2.41636 and Post-Period is 3.11078, The Std. Error Mean of the Pre-Period is 0.69754 and Post-Period is 0.89801.

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Pre & post	12	.877	.000

The Correlation between Pre-Period and Post Period is 0.877

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	-8.06667	1.52455	.44010	-9.03532	-7.09802	-18.329	11	.000

It was seen that the significance values of t statistics is – 18.329 with associated significance value 0.000 which is less than 0.05 (chosen value), therefore we did not accept the null hypothesis that there is significance difference between pre GST period and the post GST period of all India Consumer Price Index of Miscellaneous.

GENERAL:

Statement of all India Consumer Index of General

Pre-period				Post-Period			
(Base year 2012=100)		year 2016-2017		Base year 2012=100)		year 2017-2018	
Month	Rural	Urban	Combined	Month	Rural	Urban	Combined
July	133	129	131.1	July	136.2	131.8	134.2
August	133.5	128.4	131.1	August	137.8	132.7	135.4
September	133.4	128	130.9	September	137.6	132.4	135.2
October	133.8	128.6	131.4	October	138.3	133.5	136.1
November	133.6	128.5	131.2	November	140	134.8	137.6
December	132.8	127.6	130.4	December	139.8	134.1	137.2
January	132.4	127.8	130.3	January	139.3	134.1	136.9
February	132.6	128.2	130.6	February	138.5	134	136.4
March	132.8	128.7	130.9	March	138.7	134	136.5
April	132.9	129.1	131.1	April	139.1	134.8	137.1
May	133.3	129.3	131.4	May	139.8	135.4	137.8
June	133.9	129.9	132	June	140.5	136.2	138.5

Source: www.india.gov.in

Paired TEST

Ho: There is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of General.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre	124.0083	12	1.24423	.35918
	Post	129.1583	12	2.10041	.60634

The mean of the Pre-Period is 124.0083 and Post-Period is 129.1583, The Std. Deviation of the Pre-Period is 1.24423 and Post-Period is 2.10041, The Std. Error Mean of the Pre-Period is 0.35918 and Post-Period is 0.60634.

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Pre & post	12	.950	.000

The Correlation between Pre-Period and Post Period is 0.950

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	-5.15000	.99590	.28749	-5.78277	-4.51723	-17.914	11	.000

It was seen that the significance values of t statistics is -17.914 with associated significance value 0.000 which is less than 0.05 (chosen value), therefore we did not accept the null hypothesis that there is no significance difference between pre GST period and the post GST period of all India Consumer Price Index of General.

V. CONCLUSION

GST is going to be an efficient tax system and also removing hurdles facing by various sectors leading to cost optimization. Annual growth in 2012 series of CPI was slowest 1.46% in June 2017. After the implementation of GST in July 2017 the inflation cycle turned and we can see from above result, the growth rate in CPI reached 17 months high of 5.21% in December, 2017 and it has continued in subsequent months also. From the above analysis we can see that there is minimal increase in prices

of groups except Pan, Tobacco so for a short time of period it created inflationary pressure in economy. GST is not only the factor which influences inflation at any given point of time. Basic food items which constitute major part of CPI basket having 46% weight have exempted or in many cases tax rates have been lowered compared to other groups. Urban inflation is likely to be higher but researcher may not found any significant impact on combined CPI. However there is a like covering that higher inflation could over a period of time reflect in wages negotiation. The

miscellaneous category in CPI mainly covers services like health, education, transportation. For these services tax rate is increased 15 to 18% in study period. Similarly consumer durables are also slotted under highest rate as a result that inflation of these goods is likely to be higher. Researcher have taken pre and post 12 months of GST implementation so it may not be easy to pass on reduction in cost due to GST. We have only seen neutral to marginal increase in prices of items covered under six groups in a short time of period. In the medium to long run GST should put downward pressure on inflation through reduction in supply chain rigidities, lower transportation of goods, smoothly follow of goods and services etc.

REFERENCES

- [1] India's GST: A home-buyers perspective, www.gstindia.com, April 1, 2016.
- [2] Central Board of Excise and Customs. Central Tariff Schedule 2016-17, www.cbec.gov.in
- [3] Reserve Bank of India, 2016. Monetary Policy Report, October.
- [4] Milandeep Kaur, Kajal Chaudhry, Sujan Singh and Balvinder Kaur (2016), "A study on Impact of GST after its Implementation", International Journal of Innovative studies in Sociology and Humanities, Vol. 1, Issue 2, PP 17-24.
- [5] Business Standard (2016). Barring five, all petroleum items under GST regime, August 4.
- [6] NCAER (2009). Moving to Goods and Services Tax in India: Impact on India's Growth and International trade, December.
- [7] Religare Institutional Research (2015). GST – Rate, Structure, and Rationale, December 14.
- [8] The Hindu (2016). Council Fixes 4-level GST rate structure, November 4.
- [9] Gujarat Commercial Tax – VAT Schedule, www.commercialtax.gujarat.gov.in
- [10] www.mycarhelpline.com, as on November 3, 2016.
- [11] The Economic Times (2016). Budget 2016: Service Tax proposed to be increased from 14.5% to 15%, www.economictimes.indiatimes.com, February 29.
- [12] The Times of India (2016). Centre plans four GST slabs, cess on luxury and sin goods, www.timesofindia.indiatimes.com, October, 19.
- [13] Yogesh Garg and Neeta Anand (2019) "Impact on GST on the Exports of Carpets & Flourings Industry in India", International Journal of Recent Technology and Engineering, Vol.8, Issue 2, PP 1990-1994.
- [14] Kumar (2017) "Goods and Service Tax in India – Problems and Prospects", International Journal in management & Social Science, Issue 5, Vol. 7, PP 488-495.