



COVID-19 AND INDIA'S FOREIGN TRADE: AN EMPIRICAL ANALYSIS OF SELECT COMMODITIES

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ABSTRACT

The Covid-19 pandemic has impacted almost all the nations throughout the globe. The spread of the virus has devastating effect both on human health of masses and the economy as a whole. The nationwide lockdown in India and across the globe, to curb the spread of the pandemic, had disrupted the global supply chain and foreign trade of all the countries including India. Hence it is of utmost importance to measure the impact of lockdown on India's foreign trade. Under the study, the data relating to export and import of select major commodities belonging to the quarters ending June, 2019, March, 2020 and June, 2020 have been collected and statistically analyzed to examine the impact. The results show that there is significant decrease in exports and imports in the lockdown period. The data is analyzed and presented using two sample paired t test for means. Trade surplus/ (deficit) have also been computed to depict the overall impact of the lockdown on India's foreign trade position. Based on the conclusions drawn, certain recommendations have also been provided.

KEYWORDS: Covid-19, Pandemic, Export, Import, paired t test.

JEL Codes: C12, C88, D53, G41, Y10

BACKGROUND

Almost all the countries across the globe are cladding severe health and economic challenges due to the escalation of the fatal Covid-19 pandemic. To curb the spread of the virus among the masses, complete to partial shutdown of socio-economic activities has been implemented by various nations. Manufacturing units has been temporarily locked and the resulting outcome is disruption in demand and supply of goods and services, throughout the world. This has resulted into huge economic mislaying. India is one of them. Practically, all the sectors of Indian subcontinent have been affected by the spread of Covid-19 and the resultant lockdown. India's foreign trade has been drastically impacted due to the shutdown of production units. In this prevailing situation, it is important to analyze the data pertaining to exports from and imports to India, which will help to chalk out the current position of India's foreign trade and to formulate

policies accordingly. Under this study, an effort has been made to empirically analyze the Indian exports and imports of select commodities to understand the current position of foreign trade, which is believed to be having huge socio-economic significance.

REVIEW OF LITERATURE

Agrawal, S. Jamwal, A. Gupta, S. (2020) in their research paper titled 'Effect of COVID-19 on the Indian Economy and Supply Chain' concludes that n-CoV has affected the manufacturing firms and their supply chain over the world and COVID-19 pandemic is affecting supply chains and manufacturing operations daily in India.

Singhal, A. (2020). in the research titled 'Responding to the COVID-19 Crisis: Policy Priorities for India' explained that the government would need to implement more targeted measures over the course of the next 12 months, designed to reduce costs on



business and to promote cooperation and lowering of trade barriers on goods and services used as intermediate inputs for domestic production and exports will also reduce economy wide costs for both consumers and firms, facilitating recovery from both the demand and supply-side.

Kumar, A. (2020). In his research paper titled 'COVID-19: Economic Implications and Trade Policy Responses' revealed that India's trade openness is still comparatively low compared with ASEAN nations, but still it will be difficult to escape the recession in international markets.

Banerjee, P. (2020). The research paper titled 'Enhancing Engineering Exports from India: The Case of Electrical Machinery' concludes that India must encourage domestic manufacturers to expand capacities, venture into new geographies and reach out to global manufacturers, making it attractive for them to invest in the country. This will help in inclusion of India in the global value chains.

RESEARCH GAP

Based on extensive review of literature, it has been found that there is lack of any definite study for gaining an in-depth knowledge regarding India's position in foreign trade with respect to export and import of select commodities in this pandemic situation. The study of data relating to export and import of select commodities will depict the impact of the pandemic and the resulted lockdown on India's foreign trade. Considering this as a major research gap and having a considerable socio-economic significance; the research topic has been selected to fill up the gap through below well-defined research objectives and by conducting a descriptive, analytical and explorative research.

RESEARCH OBJECTIVES

Based on the research gap, the following research objectives have been identified:

1. To measure the impact of lockdown on export of select commodities.
2. To measure the impact of lockdown on import of select commodities.
3. To ascertain India's trade surplus/deficit in current situation with respect to select commodities.

RESEARCH QUESTIONS

Based on the well-defined research objectives, following research questions have been formulated:

1. Does there is any impact of lockdown on export of select commodities?

2. Does there is any impact of lockdown on import of select commodities?
3. Does there is any impact of lockdown on India's foreign trade with respect to select commodities?

RESEARCH HYPOTHESIS

The following research hypothesis has been formulated based on the research objectives:

1. H_{01} : There is no significant difference in mean export of select commodities relating to quarter ending June, 2020 compared to quarter ending March, 2020.
2. H_{02} : There is no significant difference in mean export of select commodities relating to quarter ending June, 2020 compared to quarter ending June, 2019.
3. H_{03} : There is no significant difference in mean import of select commodities relating to quarter ending June, 2020 compared to quarter ending March, 2020.
4. H_{04} : There is no significant difference in mean import of select commodities relating to quarter ending June, 2020 compared to quarter ending June, 2019.

RESEARCH METHODOLOGY

The present research work is based on empirical analysis of secondary data relating to export from and import to India, collected from the website of Press Information Bureau, Government of India. The study objectifies to identify the impact of Covid-19 pandemic and the resultant lockdown on export and import of select commodities and to access the overall trade position of India. Under the study, data regarding exports and imports of selected commodities relating to the quarter ending June, 2019; March, 2020 and June, 2020 have been collected. To measure the impact of nation-wide lockdown on India's foreign trade, the means of the export and import of select commodities relating to the quarter ending June, 2020 has been compared with that relating to March, 2020 and June, 2019. The comparison of means of import and export relating to select commodities will reveal that whether there is any significant impact of lockdown on India's foreign trade. For the purpose of analysis, thirty commodities related to Exports and thirty commodities relating to Imports has been selected. The paired data collected as mentioned above, are analyzed and presented using two sample paired t test for means, as the sample size is thirty, through MS Excel 2010. The sample selected is assumed to be normally distributed and hence parametric test is used here. The quarters,



mentioned above, are selected on the rationale that it will depict the true scenario of the lockdown period. Under the study, quarter ending March, 2020 represents three months relating to the pre lockdown period as the nation-wide lockdown was announced on 24th march, 2020 in India. The quarter ending June, 2020 represents three months relating to lockdown period. The quarter ending June, 2019 has been selected on the basis that the comparison made with the quarter ending June, 2020 will reveal the true year-on-year picture of foreign trade. Further, to analyze the present position of foreign

trade, six months trade surplus/deficit is also calculated and analyzed.

DATA PRESENTATION AND ANALYSIS

To fulfill the research objectives and to answer the research questions based on the above well-defined research methodology, data regarding export and import of select commodities relating to the quarters selected are presented and analyzed below by applying two sample paired t test for means.

Table 1: Export of Select Commodities (Rs. In Crores)

Sl. No.	Commodities	Quarter Ending June'19	Quarter Ending March'20	Quarter Ending June'20
1	Tea	1416.77	1228.12	1023.09
2	Coffee	1554.05	1420.96	1429.99
3	Rice	12098.32	14197.88	14520.87
4	Other cereals	398	388.36	340.29
5	Tobacco	1709.63	1370.75	1382.93
6	Spices	6114.13	5904.85	6679.48
7	Cashew	897.05	936.33	564.44
8	Oil Meals	1478.4	1326.63	1365.78
9	Oil seeds	1871.53	2716.11	1751.27
10	Fruits & Vegetables	4096.63	5571.57	4435.24
11	Cereal preparations & miscellaneous processed items	2590.8	2732.63	2358.22
12	Marine Products	10653.72	9160.31	8924.77
13	Meat, dairy & poultry products	6593.96	5728.2	3667.79
14	Iron Ore	4456.97	4919.67	7919.57
15	Mica, Coal & Other Ores, Minerals including processed minerals	6509.28	6967.32	4841.15
16	Leather & leather products	8127.73	7566.29	2828.14
17	Ceramic products & glassware	4898.72	5156.87	3224.11
18	Gems & Jewellery	65392.32	57121.9	20168.38
19	Drugs & Pharmaceuticals	35113.77	36684.53	41914.87
20	Organic & Inorganic Chemicals	40259.49	39561.14	37700.72
21	Engineering Goods	144019.46	136717.63	106692.29
22	Electronic Goods	17794.41	21098.27	10815.05
23	Cotton Yarn/Fabs./made-ups, Handloom Products etc.	17533.15	17954.11	10412.12
24	Man-made Yarn/Fabs./made-ups etc.	8033.1	8872.92	3603.72



25	RMG of all Textiles	29008.41	29200.95	10955.42
26	Jute Mfg. including Floor Covering	546.37	587.78	269.58
27	Carpet	2406.54	2277.87	1350.49
28	Handicrafts excl. handmade carpet	3216.22	3112.55	1259.34
29	Petroleum Products	80540.24	66342.47	35940.62
30	Plastic & Linoleum	14428.42	12133.29	13894.06

Source: <https://pib.gov.in/PressReleasePage>.

Analysis

H₀₁: There is no significant difference in mean export of select commodities relating to quarter ending June, 2020 compared to quarter ending March, 2020.

H₁₁: There is significant difference in mean export of select commodities relating to quarter ending June, 2020 compared to quarter ending March, 2020.

Table 2: t-Test: Paired Two Sample for Means

	<i>Quarter Ending March'20</i>	<i>Quarter Ending June'20</i>
Mean	16965.275	12074.460
Variance	795081272.553	445855204.665
Observations	30.000	30.000
Pearson Correlation	0.953	
Hypothesized Mean Difference	0.000	
df	29.000	
t Stat	2.598	
P(T<=t) one-tail	0.007	
t Critical one-tail	1.699	
P(T<=t) two-tail	0.015	
t Critical two-tail	2.045	

Source: Computed through Microsoft Excel 2010

It has been observed from the above table that t Stat (=2.598) > t Critical one-tail (1.699), with a P value of 0.007 (P < 0.05 & P < 0.01). Hence the H₀ (Null Hypothesis) is rejected both at 5% and 1% level of significance. This implies that there is significant difference in mean export of select commodities relating to quarter ending June, 2020 compared to quarter ending March, 2020 and the mean exports has declined considerably. This outcome is confirmed by the mean export values. The mean export value relating to quarter ending March, 2020 (=16965.275) > mean export value relating to quarter ending June, 2020 (=12074.460).

H₀₂: There is no significant difference in mean export of select commodities relating to quarter ending June, 2020 compared to quarter ending June, 2019.

H₁₂: There is significant difference in mean export of select commodities relating to quarter ending June, 2020 compared to quarter ending June, 2019.

**Table 3: t-Test: Paired Two Sample for Means**

	<i>Quarter Ending June'19</i>	<i>Quarter Ending June'20</i>
Mean	17791.920	12074.460
Variance	936100827.978	445855204.665
Observations	30.000	30.000
Pearson Correlation	0.936	
Hypothesized Mean Difference	0.000	
df	29.000	
t Stat	2.382	
P(T<=t) one-tail	0.012	
t Critical one-tail	1.699	
P(T<=t) two-tail	0.024	
t Critical two-tail	2.045	

Source: Computed through Microsoft Excel 2010

It has been observed from the above table that t Stat (=2.382) > t Critical one-tail (1.699), with a P value of 0.012 (P < 0.05). Hence the Ho (Null Hypothesis) is rejected at 5% level of significance. This implies that there is significant difference in mean export of select commodities relating to quarter ending

June, 2020 compared to quarter ending June, 2019 and the mean exports has declined considerably. This outcome is confirmed by the mean export values. The mean export value relating to quarter ending March, 2019 (=17791.920) > mean export value relating to quarter ending June, 2020 (=12074.460).

Table 4: Import of Select Commodities (Rs. In Crores)

Sl. No.	Commodities	Quarter Ending June'19	Quarter Ending March'20	Quarter Ending June'20
1	Cotton Raw & Waste	2057.96	792.07	788.72
2	Vegetable Oil	15244.51	17354.86	14641.98
3	Pulses	1680.69	2004.02	1709.3
4	Fruits & vegetables	3770.49	4615.42	2797.39
5	Pulp and Waste paper	2248.94	1952.47	1482.54
6	Textile yarn Fabric, made-up articles	3356.72	2969.6	1652.3
7	Fertilisers, Crude & manufactured	12920.72	9380.79	11766
8	Sulphur & Unroasted Iron Pyrites	189.78	131.06	138.68
9	Metaliferrous ores & other minerals	9787.34	7429.79	6760.55
10	Coal, Coke & Briquettes, etc.	47735.04	37201.09	26231.37
11	Petroleum, Crude & products	242398.55	243858.69	99259.42
12	Wood & Wood products	10897.69	8589	7511.24
13	Leather & leather products	1797.21	1681.13	900.72
14	Organic & Inorganic Chemicals	42098.91	32976.03	30533.88
15	Dyeing/tanning/colouring materials	5756.72	4674.54	3818.23



16	Artificial resins, plastic materials, etc.	28000.35	24370.57	17793.92
17	Chemical material & products	13994.81	12956.22	12519.33
18	Newsprint	1409.85	1008.22	944.03
19	Pearls, precious & Semi- precious stones	41174.9	38302.78	7716.84
20	Iron & Steel	30515.74	21655.86	19194.98
21	Non-ferrous metals	24811.35	22063.24	15367.4
22	Machine tools	8183.27	6631.41	4397.74
23	Machinery, electrical & non-elcetrical	65902.37	64731.11	40855.7
24	Transport equipment	22703.62	45464.2	14697.54
25	Project goods	3178.81	4945.09	2154.46
26	Professional instrument, Optical goods, etc.	8819.89	8611.97	6258.11
27	Electronic goods	97069.65	81870.55	58094.72
28	Medicinal & Pharmaceutical products	11886.17	10378.43	11839.54
29	Gold	79652.75	37315.94	5208.41
30	Silver	7293.91	3078.41	4358.11

Source: <https://pib.gov.in/PressReleasePage>.

Analysis:

H₀₃: There is no significant difference in mean import of select commodities relating to quarter ending June, 2020 compared to quarter ending March, 2020.

H₁₃: There is significant difference in mean import of select commodities relating to quarter ending June, 2020 compared to quarter ending March, 2020.

Table 5: t-Test: Paired Two Sample for Means

	Quarter Ending March'20	Quarter Ending June'20
Mean	25299.819	14379.772
Variance	2107422090.222	427731122.333
Observations	30.000	30.000
Pearson Correlation	0.942	
Hypothesized Mean Difference	0.000	
df	29.000	
t Stat	2.189	
P(T<=t) one-tail	0.018	
t Critical one-tail	1.699	
P(T<=t) two-tail	0.037	
t Critical two-tail	2.045	

Source: Computed through Microsoft Excel 2010

It has been observed from the above table that t Stat (=2.189) > t Critical one-tail (1.699), with a P value of 0.018 (P < 0.05). Hence the Ho (Null

Hypothesis) is rejected at 5% level of significance. This implies that there is significant difference in mean import of select commodities relating to quarter ending



June, 2020 compared to quarter ending March, 2020 and the mean imports has declined considerably. This outcome is confirmed by the mean import values. The mean import value relating to quarter ending March, 2020 (=25299.819) > mean import value relating to quarter ending June, 2020 (=14379.772).

H₀₄: There is no significant difference in mean import of select commodities relating to quarter ending June, 2020 compared to quarter ending June, 2019.

H₁₄: There is significant difference in mean import of select commodities relating to quarter ending June, 2020 compared to quarter ending June, 2019.

Table 6: t-Test: Paired Two Sample for Means

	<i>Quarter Ending June'19</i>	<i>Quarter Ending June'20</i>
Mean	28217.957	14379.772
Variance	2234736594.836	427731122.333
Observations	30.000	30.000
Pearson Correlation	0.928	
Hypothesized Mean Difference	0.000	
df	29.000	
t Stat	2.602	
P(T<=t) one-tail	0.007	
t Critical one-tail	1.699	
P(T<=t) two-tail	0.014	
t Critical two-tail	2.045	

Source: Computed through Microsoft Excel 2010

It has been observed from the above table that t Stat (=2.602) > t Critical one-tail (1.699), with a P value of 0.007 (P < 0.05 & P < 0.01). Hence the H₀ (Null Hypothesis) is rejected both at 5% and 1% level of significance. This implies that there is significant difference in mean import of select commodities relating to quarter ending June, 2020 compared to

quarter ending June, 2019 and the mean imports has declined considerably. This outcome is confirmed by the mean import values. The mean import value relating to quarter ending June, 2019 (=28217.957) > mean export value relating to quarter ending June, 2020 (=14379.772).

Table 7: Monthly Exports, Imports and Trade Surplus/ (Deficit) (Rs. In Crores)

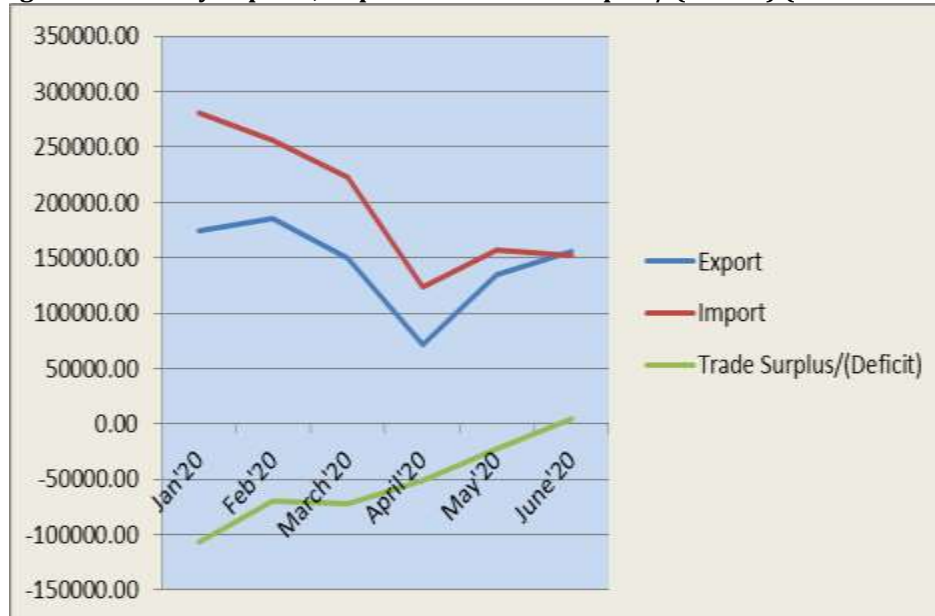
Months	Export	Import	Trade Surplus/(Deficit)
Jan'20	173695.54	281041.71	(107346.17)
Feb'20	185677.20	255883.97	(70206.77)
March'20	149585.52	222068.88	(72483.36)
April'20	71822.64	123031.18	(51208.54)
May'20	134797.31	156890.36	(22093.05)
June'20	155613.84	151471.61	4142.23

Source: <https://pib.gov.in/PressReleasePage>.

Analysis:

It is observed from the above table that there was trade deficit for all the five months, that is, from January, 2020 to May, 2020. But, in the month of June, 2020 there is trade surplus of Rs. 4142.23. It is also observed that both the exports from and imports to

India has declined significantly from the month of January, 2020 to June, 2020. The month of April, 2020 was the worst hit in terms of foreign trade as both export and import of select commodities have declined significantly. This is depicted in the figure below:

**Figure 1: Monthly Exports, Imports and Trade Surplus/ (Deficit) (Rs. In Crores)**

Source: Computed through Microsoft Excel 2010

CONCLUSION

The empirically analysis of data relating to exports from and imports to India with respect to select commodities and the statistical results clearly indicates that both exports and imports have decreased in the quarter ending June, 2020, that is, the lockdown period as compared to its previous quarter ending March, 2020, that is, pre lockdown period as well as the quarter ending June, 2019. The overall foreign trade has declined in the lockdown period, that is, for the months of April, May and June, 2020. The month of April, 2020 is worst hit because of the complete shutdown of the manufacturing units. This has resulted in reduction in demand for raw materials from abroad leading to reduced imports. The reduced production has disrupted the supply side also. Moreover, the lockdown has resulted into reduced purchasing power of the masses, the outcome for which is decrease in imports of non-essential commodities. The demand for crude oil has also reduced considerably resulting into lower imports. Moreover, the lockdown throughout the world has hampered the global supply chain which has impacted India's foreign trade also. The month of May and June, 2020 reflects that there is some recovery in the foreign trade position. The major cause of such outcome is that the government allowed operating some manufacturing units with reduced manpower. In the month of June, 2020, India witnessed trade surplus with respect to select major commodities, which is a positive signal for the Indian economy.

RECOMMENDATION

On the basis of the conclusions drawn from the statistical results, it is evident that both the exports from and imports to India have reduced significantly relating to select major commodities. However the trade deficit is also reducing which is an eminent point of discussion. The month of June, 2020 experienced a trade surplus which is considered to be a positive breakthrough for the Indian economy. The government of India has initiated certain steps for export promotion such as Remission of Duties or Taxes on Export Products (RoDTEP) which will help those exporters who have already taken orders, tax credit to MSMEs, to fulfill the demands for more export finance, the export credit guarantee corporation will offer higher insurance cover and will expand the funds disbursed to banks which are ultimately lent to exporters. Other measures initiated by the central government such as the daily monitoring of exports data, qualitative support, export aids and grants to IT sector operating in SEZs, etc. will have positive impact on exports. Apart from this, it is recommended that this is the time to encourage and extend considerable support to the MSME sector so that they can re-start their operations, which will help in increasing exports. Industries operating in the preview of producing import substitute products must be supported with adequate financial and technical assistance. It is also recommended to focus on developing local supply chains which will definitely decrease international dependence for raw material



requirements and will reduce imports and will improve the overall foreign trade position of India.

LIMITATION AND FUTURE RESEARCH SCOPE

The present research is based on the empirical analysis of select major commodities relating to exports and imports. The analysis of export and import of services and other components of Balance of Payment has not been considered under the present study. The accurate assessment impact of such deadly Covid-19 pandemic on India's foreign trade will require a time frame of six to twelve months. There is an enormous future scope of research under this subject with more components and expanded time frame.

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