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A Study on the Impact of Import and Export on Indian GDP: Analysis of 10-Year Trends of GDP, Import, and Export of Goods & Services

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Abstract: ***The Indian economy is the fastest-growing in the world in terms of GDP growth and Purchasing Power Parity (PPP). This study aims to explore the impact of the import and export of goods and services on India's GDP. While Indian exports have increased over the last few years, imports have grown at a significantly faster rate. An increase in exports consistently yields a positive impact on the national GDP. To capitalize on this, the Indian government is focused on signing Free Trade Agreements (FTA) globally. Recently, India signed a landmark FTA with the European Union, as well as a Comprehensive Economic Partnership Agreement (CEPA) with Gulf nations, including the UAE (in 2022) and Oman (in 2025). These agreements are expected to grant Indian exporters unprecedented access to new foreign markets, boosting future trade volumes. Although India has maintained a steady GDP growth rate since 2015-16—except the negative growth recorded in FY 2020-21—the widening trade deficit remains a concern. The growth rate of commodity exports is currently on a downward trend, while imports continue to rise. Ultimately, this study finds that both imports and exports contribute positively to the overall growth of the GDP.***

Keyword: GDP, Import, Export, Commodities, Services.

I. INTRODUCTION

India has consistently maintained a negative balance of trade because the total value of its imports exceeds the total value of its exports of goods and services. India primarily imports crude oil and natural gas from foreign nations. Gross Domestic Product (GDP) represents the total value of all goods and services produced within a country during a specific period. It serves as a vital barometer to measure the economic health of a nation. Currently, India is the world's 6th largest economy by GDP. Despite the constant depreciation of the Rupee against the US Dollar, there has been a positive impact on exports. When the Rupee depreciates, Indian exports become more price-competitive (cheaper) in the global market, while imports become more expensive. At present, the Indian economy is valued at $4.15 trillion. According to several economists, India is projected to become the world's 3rd largest economy by 2032, overtaking Japan, Germany, and the UK.

II. LITERATURE REVIEW

Bora, K. et al. (2020) conducted a study on India's import and export trends. They concluded that world trade has expanded rapidly over the past decade. A key factor contributing to this growth has been several rounds of successful multilateral trade negotiations, which led to a considerable reduction in tariffs on goods crossing national borders; India also benefited significantly from these agreements.

Kumari, J. (2014) investigated the linkage between exports, imports, and GDP (at factor cost and constant prices) in India during the post-liberalization period from 1991-92 to 2012-13. The study analyzed how international trade contributed to India's economic growth, finding that imports must be supported by robust exports to achieve sustainable economic expansion.

Raj, A. et al. (2021) analyzed foreign trade as a vital economic driver. This paper explored the correlation between foreign investment, foreign trade, and GDP growth. It concluded that the liberalization, privatization, and globalization (LPG) of the Indian economy shifted the business environment. While traders faced increased competition in selling goods and services, the study noted that trade transactions required careful monitoring. Consequently, the government framed foreign trade policies to encourage exporters to improve the production of various commodities.

Kumar, D. (2023) explored the relationship between international trade and economic growth in India, focusing on import and export patterns. Utilizing comprehensive data analytics and statistical methods, the study provided a nuanced understanding of how these patterns influenced India's overall development.

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The findings indicated that international trade has a significant impact on economic progress, noting that foreign investments expanded due to the liberalization policies adopted by the Indian government.

Kumar, S. (2016) analyzed the import and export of goods and services at both current and constant prices, comparing their respective shares of India's GDP. Using secondary data from the preceding 15 years, the study found that export trends were increasing at a higher rate than imports, leading to an increased share of exports within the national GDP.

Mehta, S. (2015) examined the relationship between GDP, exports, and imports in India using time-series data from 1976 to 2014. The study employed the ADF unit root test, Johansen co-integration, and Vector Error Correction (VEC) techniques to investigate long-run causality. The empirical results revealed a long-run co-integrating relationship between these variables. Notably, it was found that while long-term GDP growth led to increased exports, exports did not necessarily drive GDP, and no direct causality was found between GDP and imports.

Sangani, D. et al. (2023) analyzed the performance of India's exports and the various economic factors contributing to their growth. Manufactured goods comprised a significant share of India's aggregate merchandise exports. The study found that India's export performance improved rapidly due to various government schemes, citing Special Economic Zones (SEZs) as a primary example of successful policy intervention.

Jain, D. (2025) investigated the structure and evolution of India's trade by examining the volume, composition, and direction of exports and imports. The findings showed a significant transformation in India's trade profile between 2000 and 2024. Export composition shifted from traditional sectors, such as agriculture and textiles, to high-value sectors including engineering goods, pharmaceuticals, and precious metals. Regression analysis revealed a strong positive relationship between exports and GDP, whereas imports showed a negative yet statistically meaningful correlation.

Joshi, J. et al. (2020) studied the impact of imports and exports on India's economic growth from 1980 to 2018 using data from the RBI Handbook of Statistics on the Indian Economy. Through Unit Root Tests and Regression Analysis, the study identified a significant relationship between trade volumes and exchange rate fluctuations.

Lakshmi, V. et al. (2020) investigated fluctuations in India's exports, identified their causes, and suggested solutions to achieve a favorable balance of trade. The study found that Indian exports face various internal and external challenges. Production bottlenecks, such as cost diseconomies, inconsistent quality, and rising domestic demand, remain major hurdles to India's export growth.

III. OBJECTIVES

The objectives of this study are –

1) To analyze the trends in India's imports and exports: To examine the growth and patterns of commodity and service trade over the ten-year period from F.Y. 2015-16 to 2024-25.
2) To evaluate the impact of international trade on India's GDP: To determine the statistical relationship and significance between import/export activities and the country's economic growth.
3) To identify the primary commodities driving India's foreign trade: To categorize and rank the top five imported and exported goods to understand the composition of India's trade profile.
4) To assess the status of India's Balance of Trade: To investigate the extent of the trade deficit in commodities and the trade surplus in the service sector over the last decade.
5) To measure the volatility and consistency of trade growth: To apply statistical tools like standard deviation and coefficient of variation to understand how stable India's trade performance has been.
6) To examine the influence of government policies and global events: To explore how factors like Free Trade Agreements (FTAs) and the Covid-19 pandemic have affected trade and GDP trends.

IV. RESEARCH METHODOLOGY

This study is based on data collected from secondary sources like the website of PIB, tradingeconomics.com etc. The data is interpreted using different charts and diagrams. The statistical tools like standard deviation, coefficient of variation, and regression analysis are used to draw the conclusion.

Hypothesis:

H_0 = There is no significant impact of import and export on GDP

H_1 = There is significant impact of import and export on GDP

Regression Equation:

The GDP is influenced by the import and export of goods & services. The functional relationship between GDP and Import & Export can be expressed through the following linear equation:

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \zeta$

Y= Predicted GDP.

α = Constant (Intercept), representing the GDP value when exports and imports are zero.

β_1= Coefficient of Export, representing the change in GDP for every unit change in Exports.

β_2 = Coefficient of Import, representing the change in GDP for every unit change in Imports.

ζ= Error term, representing other factors influencing GDP not captured in this model.

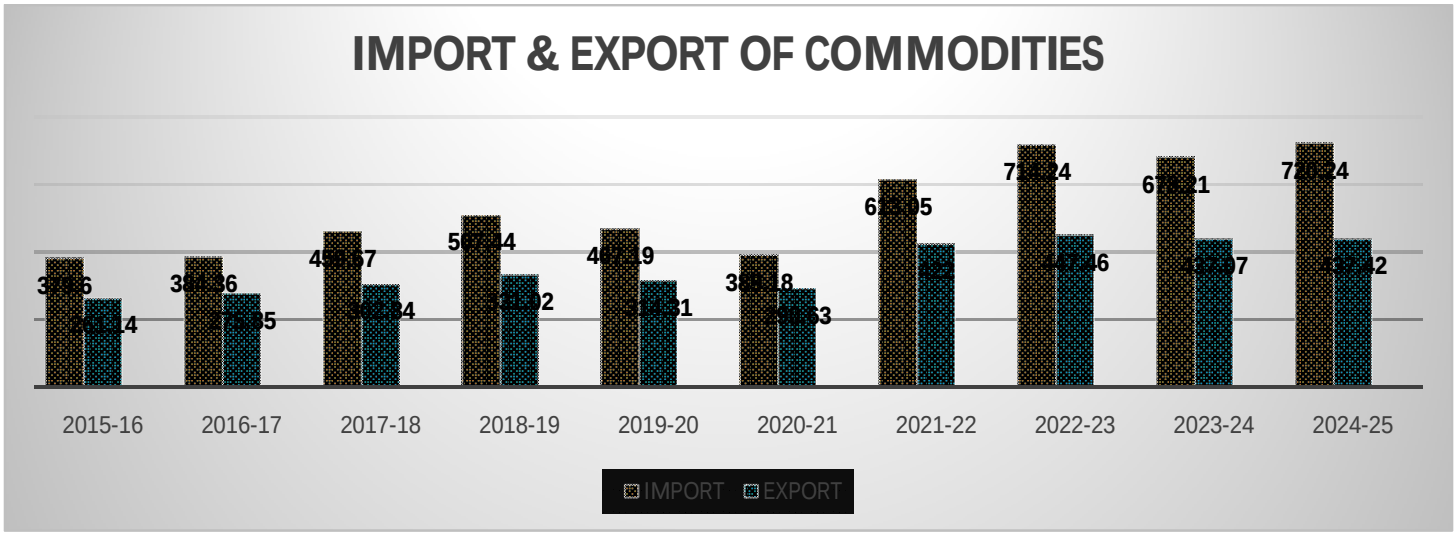
V. RESULT & DISCUSSION

EXPORT AND IMPORT OF COMMODITIES (From F.Y. 2014-15 to 2024-25)

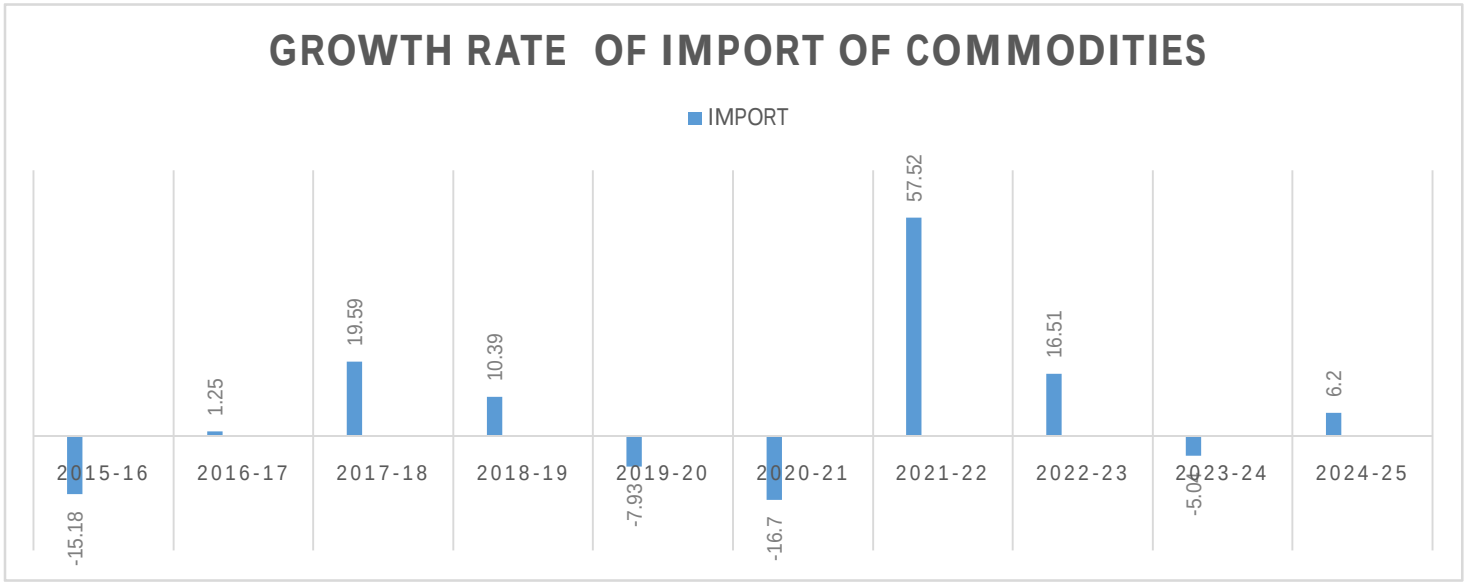
TABLE 1.1

FINANCIAL YEAR	IMPORT		EXPORT		BALANCE OF TRADE
	AMOUNT (US DOLLAR [BILLION])	GROWTH (%)	AMOUNT (US DOLLAR [BILLION])	GROWTH (%)	AMOUNT (US DOLLAR [MILLION])
2024-25	720.24	6.20	437.42	0.08	288.82
2023-24	678.21	-5.04	437.07	-2.32	241.14
2022-23	714.24	16.51	447.46	6.03	266.78
2021-22	613.05	57.52	422.00	45.20	191.05
2020-21	389.18	-16.70	290.63	-7.53	98.56
2019-20	467.19	-7.93	314.31	-5.05	152.88
2018-19	507.44	10.39	331.02	9.31	176.42
2017-18	459.67	19.59	302.84	9.78	156.83
2016-17	384.36	1.25	275.85	5.63	108.51
2015-16	379.60	-15.18	261.14	-15.85	118.46
MAXIMUM	720.24	57.52	447.46	45.2	288.82
MINIMUM	379.6	-16.70	261.14	-15.85	98.56
AVERAGE	531.32	6.66	351.97	4.53	179.95
STANDARD DEVIATION	138.26	21.77	75.01	16.42	66.71
CO-EFFICIENT OF VARIATION	26.02	326.88	21.31	362.68	37.07

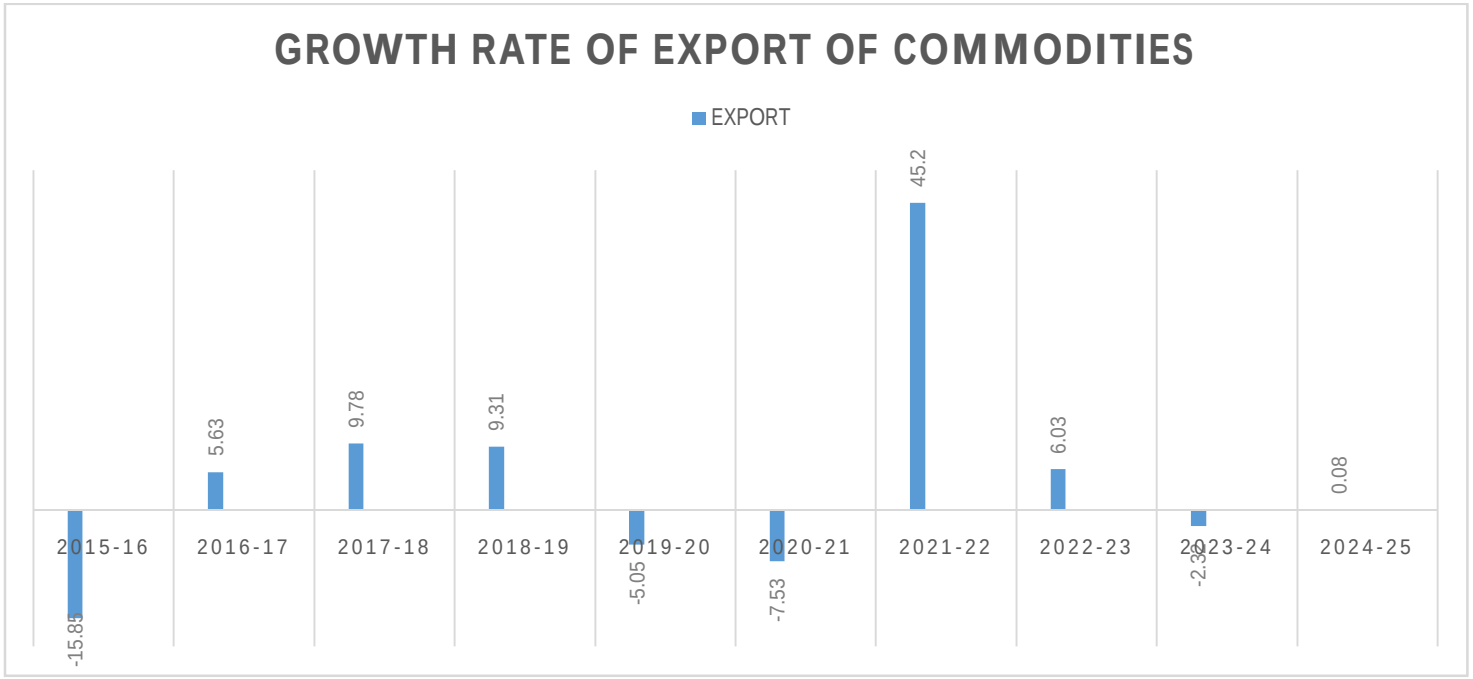
SOURCE: Press Information Bureau



INTERPRETATION: The average growth of exports is 4.53% during the last 10 years while the average growth of imports is 6.66%. The average growth of imports is greater than the average growth of exports. There is high volatility in the import pattern as the coefficient of variation in import value is greater than 25%, i.e. 26.02%. There is moderate volatility in the export pattern as the coefficient of variation in export value ranges between 15–25%, i.e. 21.31%. The standard deviation of import, i.e.138.26, is greater than the standard deviation of export, i.e. 75.01, which indicates that there is higher volatility in import than export. The maximum growth of imports was observed in the financial year 2021-22, i.e. 57.52%, and the maximum growth of exports was observed in the same financial year, i.e. 45.2%. In the financial year 2024-25, India has the maximum imported value, i.e. 720.24 USD billion, and India has the maximum exported value, i.e. 447.46 USD billion in the financial year 2022-23. From the current trend, it is observed that though the export and import of goods and services are increasing, but export is growing at a slower speed than import in India.



INTERPRETATION: The average growth of imports is 6.66%. The growth rate of imports of commodities was highest in the financial year 2021-22, i.e. 57.52%. The growth rate of imports was lowest during the financial year 2020–21, i.e. -16.7%. The average growth rate of imports during the last 10 years is 6.66%. The standard deviation is 21.77, which is more than 3 times higher than the average growth of imports, which indicates that there has been high volatility in imports during the last 10years.



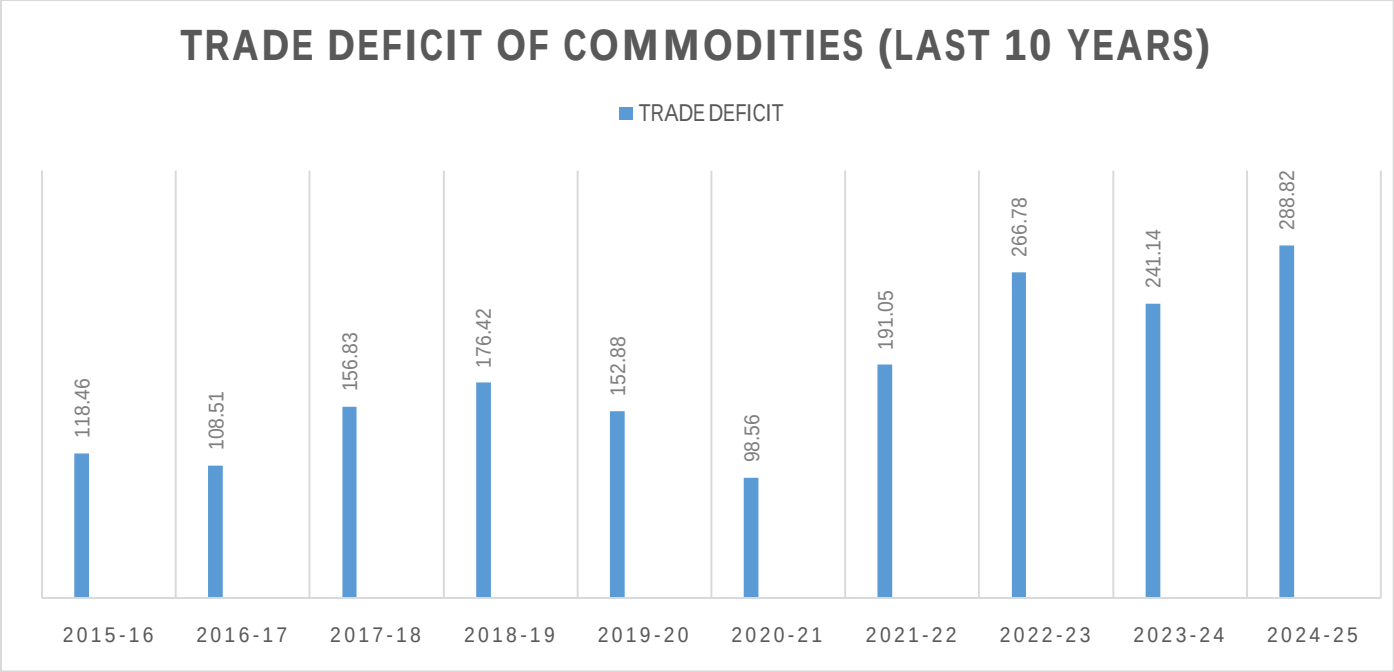
INTERPRETATION: The average growth rate of exports of commodities during the last 10 years is 4.53 and standard deviation is 16.42. So, the standard deviation is greater than the average. It indicates that the growth rate of export is highly inconsistent and highly volatile. The growth rate of exports was the lowest in the financial year 2015-16, i.e. -15.85, and it was highest in the financial year 2021-22, i.e. 45.2. The growth rate of exports decreased to 0.08 during the financial year 2024-25. The recent trend of growth of export is not satisfactory.

Trade Deficit (commodities):

Trade deficit refers to the excess of the value of import over the value of export. A lower trade deficit indicates a strong position of a country in international trade.

Formula:

Trade Deficit of commodities = Import value of commodities – export value of commodities



INTERPRETATION: The average trade deficit of commodities during the last 10 years is 179.95. The standard deviation during the last 10 years is 66.71, which is less than the average. It indicates that there is moderate consistency and moderate variability in trade deficit. The trade deficit was the highest during the financial year 2024-25 i.e. 288.82 and was the lowest during the financial year 2020-21 i.e. 98.56.

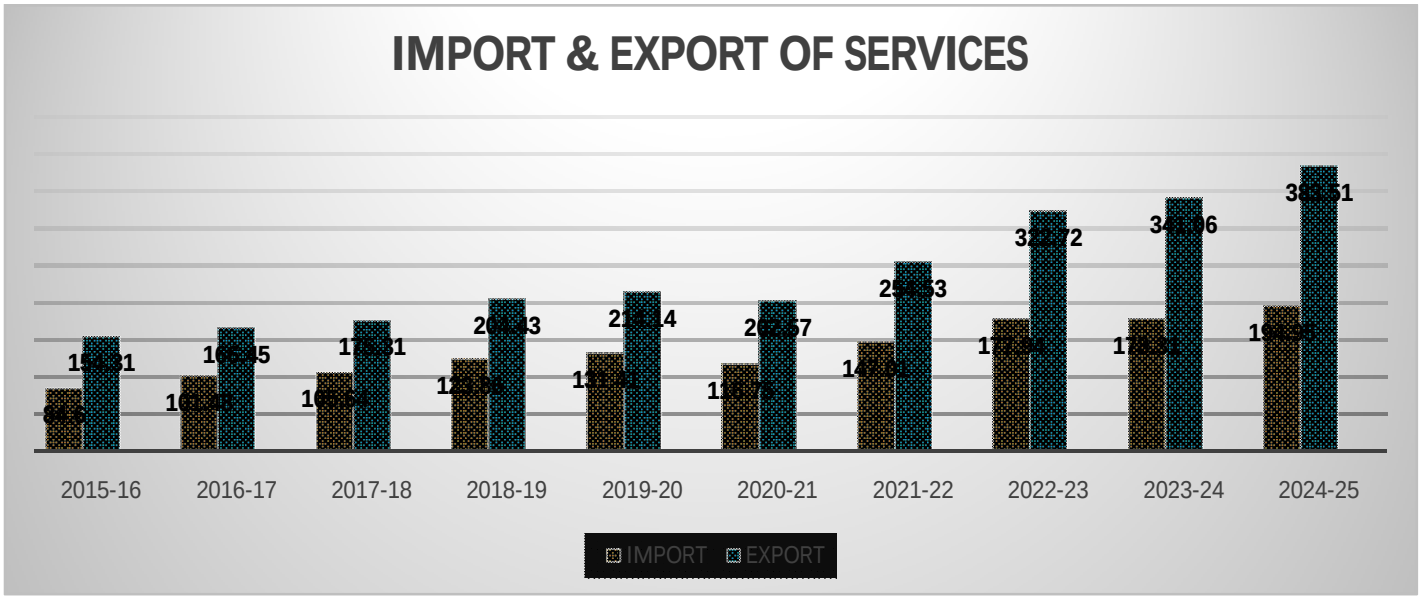
EXPORT AND IMPORT OF SERVICES (From F.Y. 2014-15 to 2024-25)

TABLE 1.2

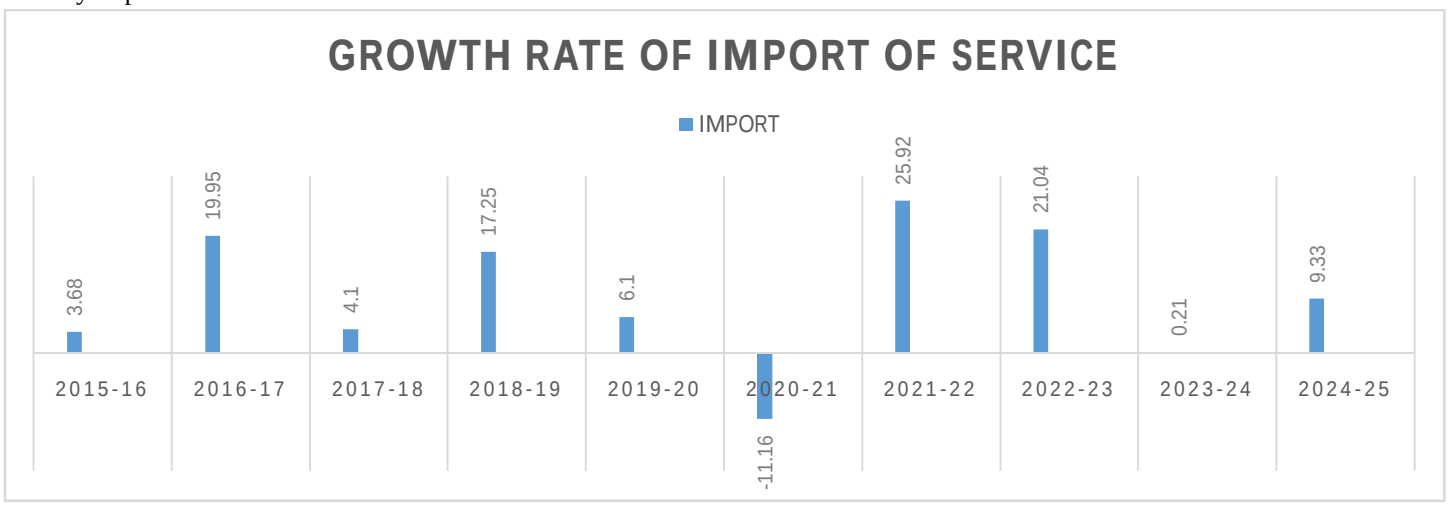
YEAR	IMPORT		EXPORT		BALANCE OF TRADE
	AMOUNT (US DOLLAR [BILLION])	GROWTH (%)	AMOUNT (US DOLLAR [BILLION])	GROWTH (%)	AMOUNT (US DOLLAR [MILLION])
2024-25	194.95	9.33	383.51	12.45	188.56
2023-24	178.31	0.21	341.06	5.68	162.75
2022-23	177.94	21.04	322.72	26.79	144.78
2021-22	147.01	25.92	254.53	25.65	107.52
2020-21	116.75	-11.16	202.57	-5.40	85.81
2019-20	131.41	6.10	214.14	4.75	82.72
2018-19	123.86	17.25	204.43	16.61	80.57
2017-18	105.64	4.10	175.31	5.32	69.66

2016-17	101.48	19.95	166.45	7.87	64.97
2015-16	84.60	3.68	154.31	-0.83	69.71
MAXIMUM	194.95	25.92	383.51	26.79	188.56
MINIMUM	84.6	-11.16	154.31	-5.4	64.97
AVERAGE	136.20	9.64	241.90	9.89	105.71
STANDARD DEVIATION	37.18	11.35	80.35	10.56	44.04
CO-EFFICIENT OF VARIATION	27.30	117.72	33.21	106.78	41.67

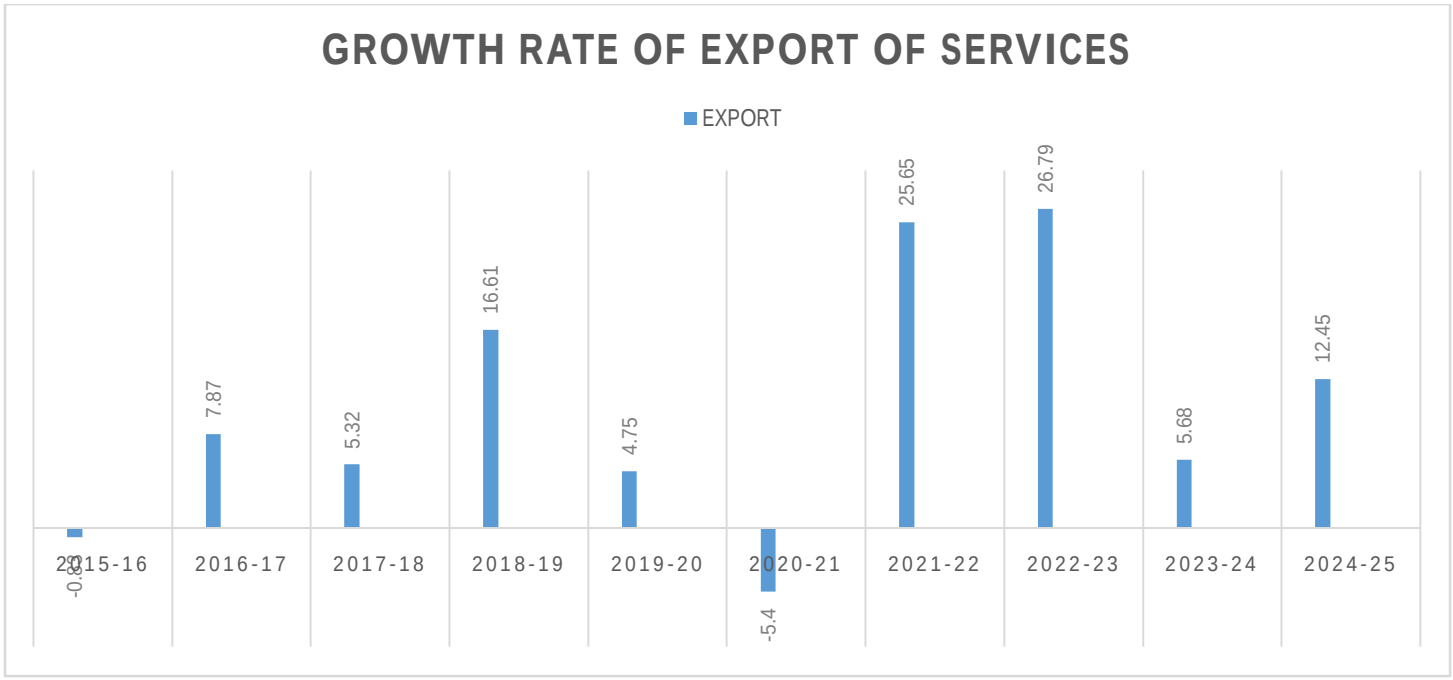
SOURCE: Press Information Bureau



INTERPRETATION: The average import of services is 136.20 USD billion and the average export of services has been 241.90 USD billion during the last years. The average of export is more than the average of import. The standard deviation of import of services is 37.18 and the standard deviation of export of services is 80.35, which indicates that the variation in import of services is less than the export of services during the last 10 years. India's exports of services were maximum during the financial year 2024-25, which is 383.51 USD billion, and exports were minimum during the financial year 2014-15, i.e. 154.31 USD billion, which indicates that exports of services increased almost 2.5 times during the last decade. During the financial year 2024-25, the export of services was 1.96 times the import. As the import of services has been less than the export of services during the last 10 years, there is always a positive balance of trade.



INTERPRETATION: The average growth rate of import of services is 9.64 and standard deviation is 11.35 during the last 10 years. As the standard deviation is higher than the average growth rate of import, it can be concluded that there is high variation in the growth rate of import of services. The growth rate was negative or lowest during the financial year 2020-21 i.e. -11.16 and was maximum during the financial year 2021-22 i.e. 25.52. The coefficient of variation is 27.30, which indicates that there is high inconsistency in the growth rate of import of services.

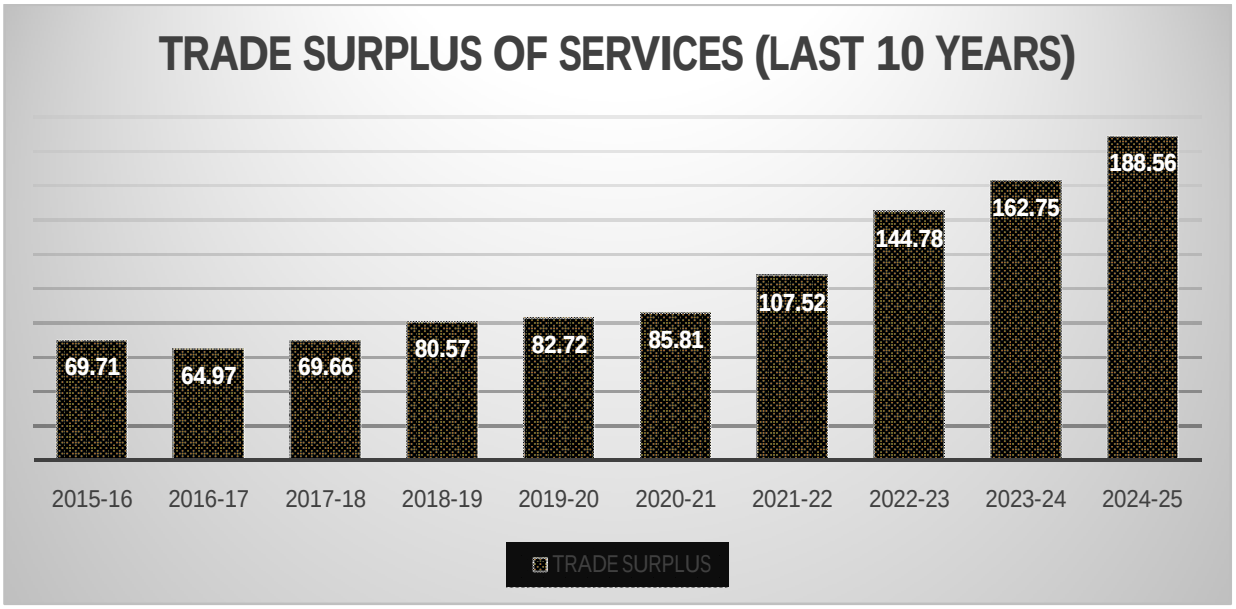


INTERPRETATION: The average growth rate of export of services is 9.89% and standard deviation is 10.56%. There has been high variation in export of services during the last 10 years. India achieved the highest growth rate in services during the financial year 2022-23, i.e. 26.79%. The lowest growth rate of export of services was during the financial year 2020-21, i.e. -5.4%, which is also negative.

TRADE SURPLUS (SERVICE):

The trade surplus of a country refers to an excess of export over import during a particular period of time.

Trade Surplus of service = Export of service – Import of service



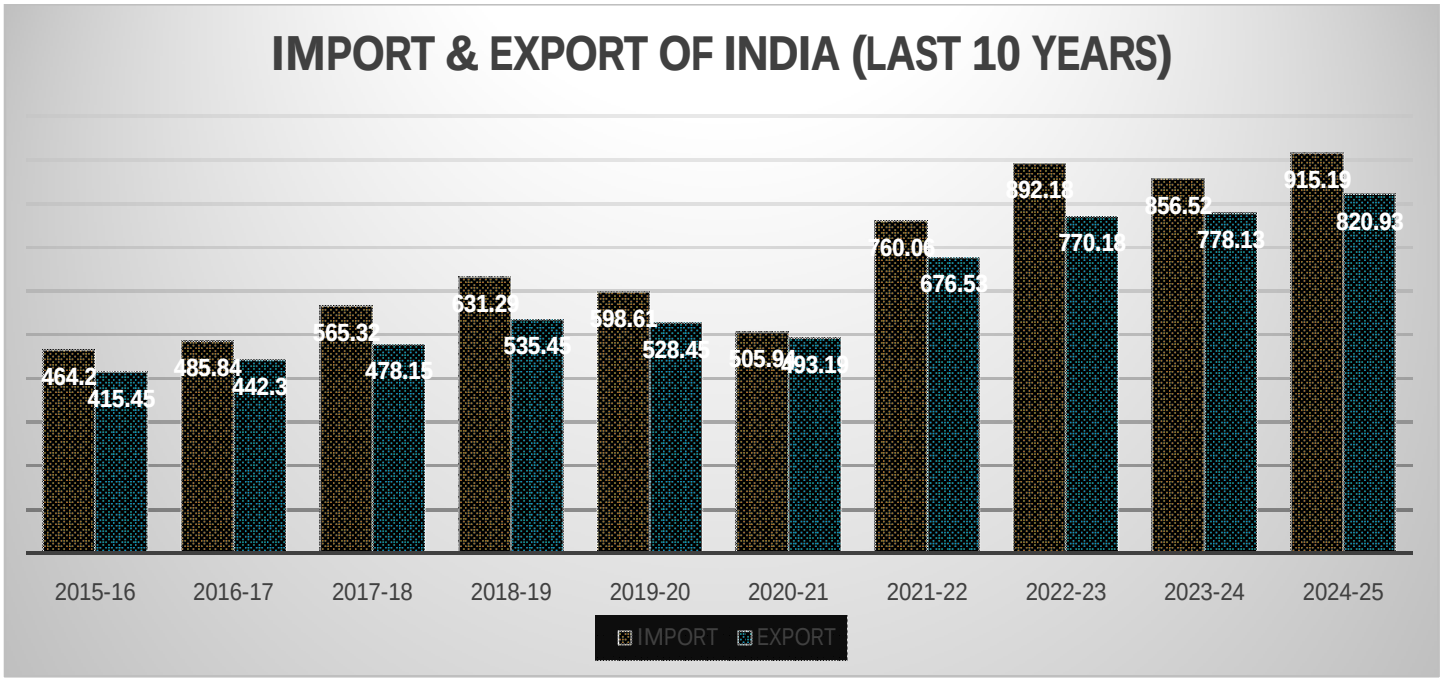
INTERPRETATION: The average trade surplus of services is 105.71. The trade surplus was maximum during the financial year 2024-25, i.e. 188.56 USD billion, and it was lowest during the financial year 2016-17, i.e. 64.97. The standard deviation of trade surplus is 44.04 and coefficient of variation is 41.67. The standard deviation is less than the average which indicates that there is moderate variation in trade surplus of services.

TOTAL TRADE (MERCHANDISE + SERVICE)

TABLE 1.3

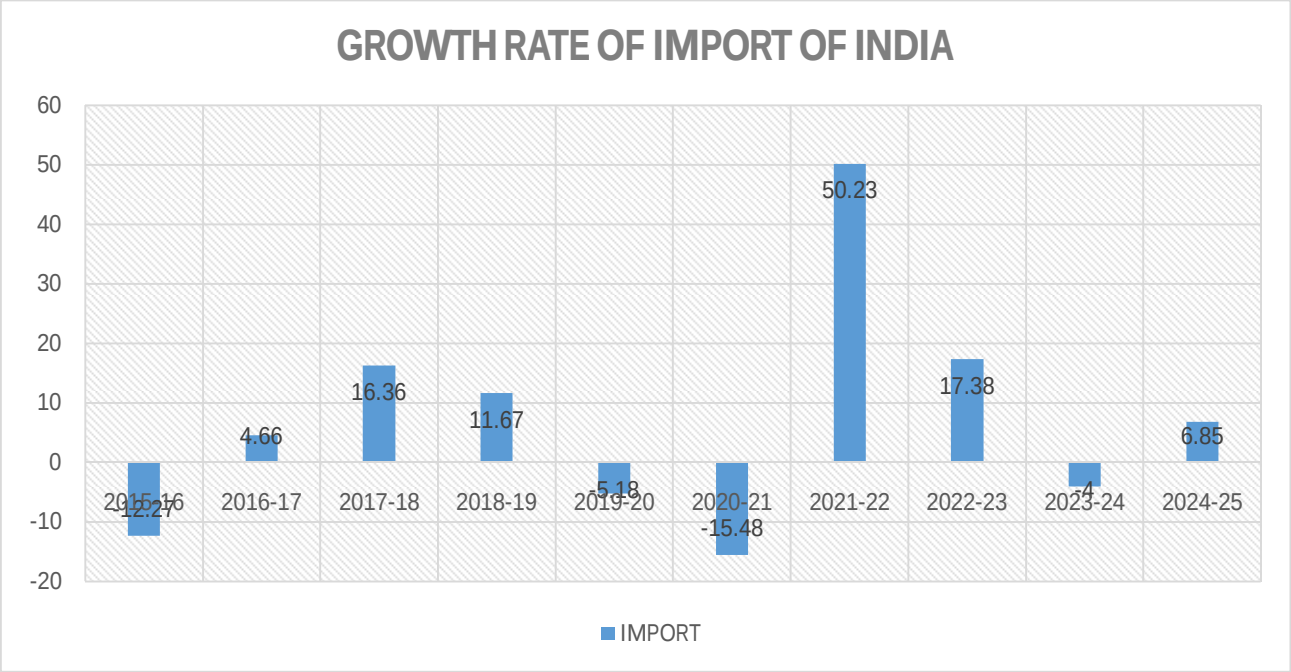
YEAR	IMPORT		EXPORT		BALANCE OF TRADE
	AMOUNT (US DOLLAR [BILLION])	GROWTH (%)	AMOUNT (US DOLLAR [BILLION])	GROWTH (%)	AMOUNT (US DOLLAR [MILLION])
2024-25	915.19	6.85	820.93	5.50	-94.26
2023-24	856.52	-4.00	778.13	1.03	-78.39
2022-23	892.18	17.38	770.18	13.84	-122.00
2021-22	760.06	50.23	676.53	37.17	-83.53
2020-21	505.94	-15.48	493.19	-6.67	-12.74
2019-20	598.61	-5.18	528.45	-1.31	-70.16
2018-19	631.29	11.67	535.45	11.98	-95.85
2017-18	565.32	16.36	478.15	8.11	-87.17
2016-17	485.84	4.66	442.30	6.46	-43.54
2015-16	464.20	-12.27	415.45	-10.84	-48.75
MAXIMUM	915.19	50.23	820.93	37.17	-12.74
MINIMUM	464.2	-15.48	415.45	-10.84	-122
AVERAGE	667.52	7.02	593.88	6.53	-73.64
STANDARD DEVIATION	174.18	18.97	152.55	13.30	31.28
CO-EFFICIENT OF VARIATION	26.09	270.10	25.69	203.84	-42.48

SOURCE: Press Information Bureau

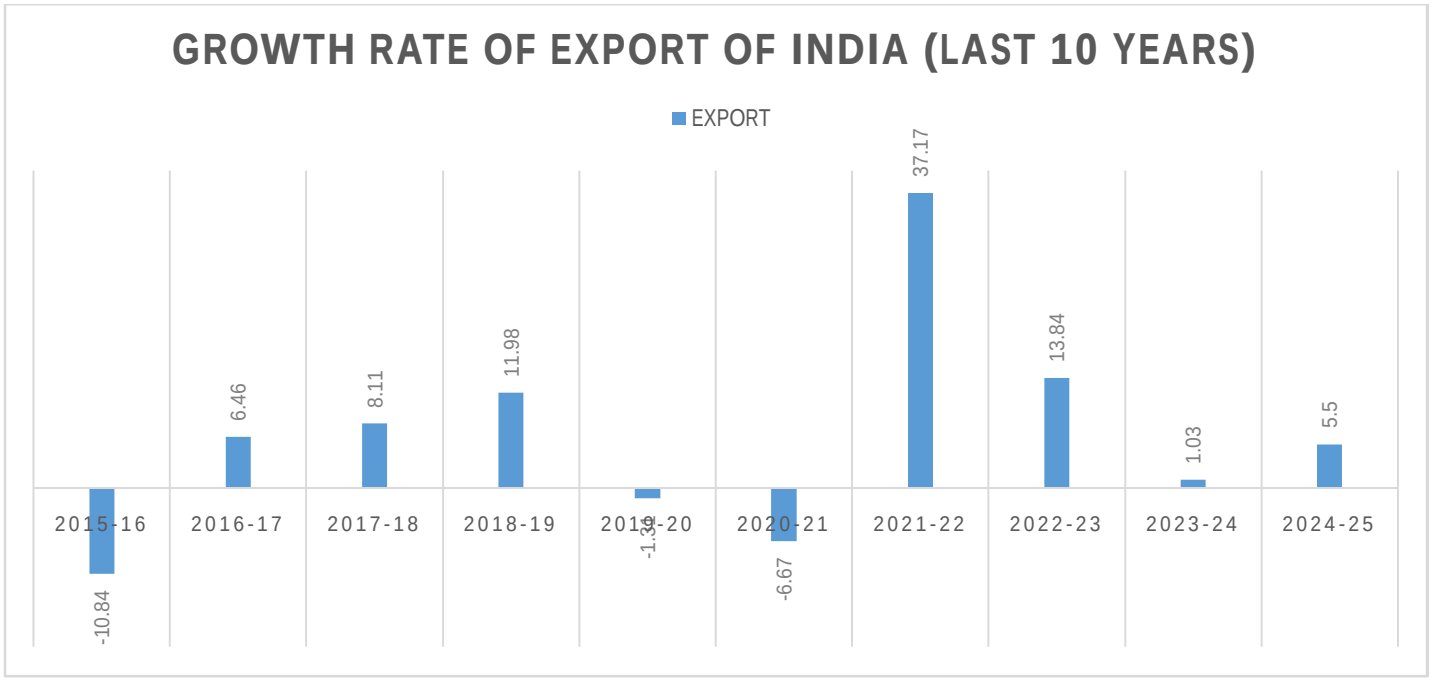


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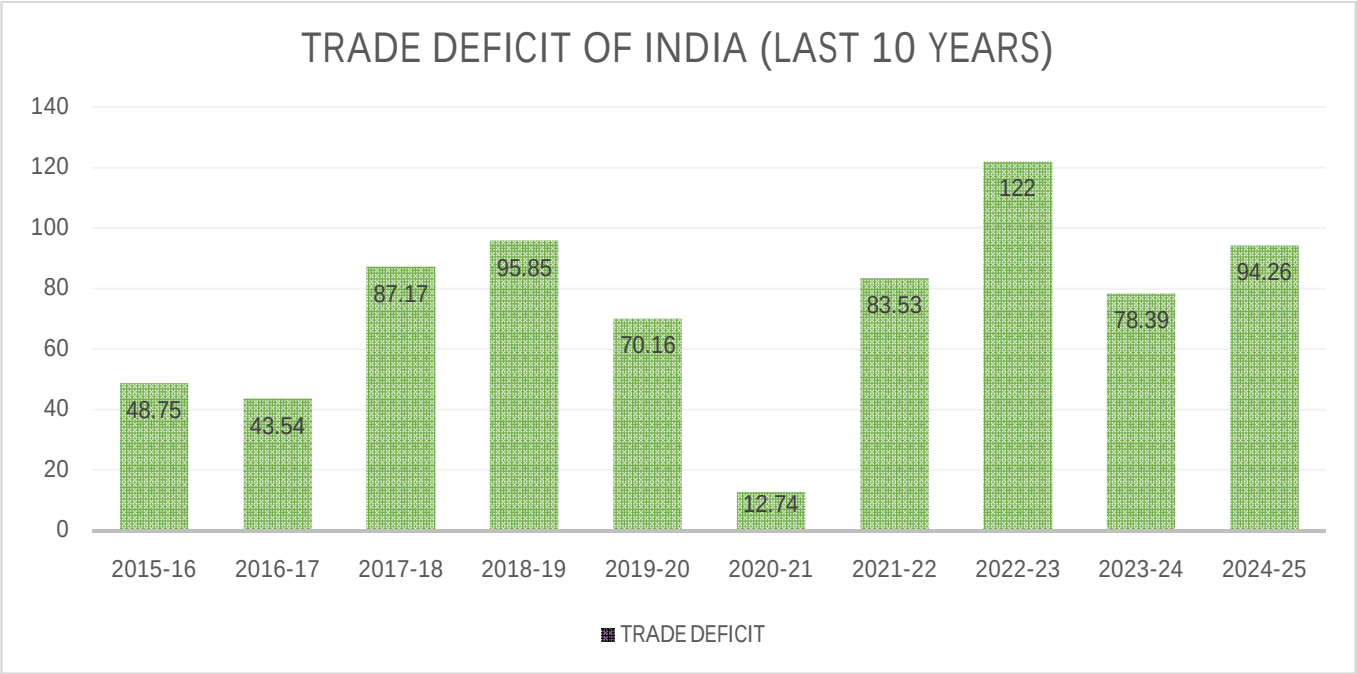
INTERPRETATION: The average import is 667.52 USD billion and average export is 593.88 USD billion during the last 10 years. The highest import was recorded during the financial year 2024-25, i.e. 915.19 billion, and the lowest import was recorded during the financial year 464.2 USD billion. The exports were the highest during the financial year 2024-25, i.e. 820.93 USD billion and the exports were the lowest during the financial year 2015-16, i.e. 415.45 USD billion. The imports and exports constantly increased from the financial year 2015-16 to 2024-25.



INTERPRETATION: The average growth rate of import is 7.02% and the standard deviation is 18.97. The average growth rate is less than the standard deviation, which indicates that there is the highest variation in growth rate of import in India. The lowest growth rate of imports was -15–48% during the financial year 2020-21, and it was the highest during the financial year 2021-22, i.e. 50.23%.i.e. 50.23%.



INTERPRETATION: The average growth rate of export is 6.53% and the standard deviation is 13.30. There is high variation in growth rate of export. The growth rate of exports was lowest during the financial year 2015-16 i.e. -10.84% and was highest during the financial year 2021-22 i.e. 37.17%.



INTERPRETATION: The trade deficit of India was the lowest during the financial year 2020-21, i.e. -12.74, and it was the highest during the financial year 2022-23, i.e. -122. The average trade deficit during the last 10 years is -73.64 and standard deviation is 31.28. The variation of trade deficit during the last 10 years is high because the coefficient of variation is -42.48 which is quite high. The trade deficit during the financial year 2015-16 was 48.75, but it increased to 94.26 during the financial year 2024-25.

Terms of Trade (TOT)

TABLE 2

YEAR	VALUE POINT	CHANGE	% OF CHANGE	NEGATIVE/POSITIVE
2024-25	122.56	-24.74	-16.8	NEGATIVE
2023-24	147.3	0.3	0.2	POSITIVE
2022-23	147	16.4	12.6	POSITIVE
2021-22	130.6	23.4	21.8	POSITIVE
2020-21	107.2	-17.5	-14	NEGATIVE
2019-20	124.7	-1.5	-1.2	NEGATIVE
2018-19	126.2	2.9	2.4	POSITIVE
2017-18	123.3	11.4	10.2	POSITIVE
2016-17	111.9	0.5	0.4	POSITIVE
2015-16	111.4	7.7	7.4	POSITIVE
MAXIMUM	147.3	23.4	21.8	
MINIMUM	107.2	-24.74	-16.8	
AVERAGE	125.22	1.89	2.30	
STANDARD DEVIATION	13.73	14.53	11.67	
CO-EFFICIENT OF VARIATION	10.96	770.30	507.36	

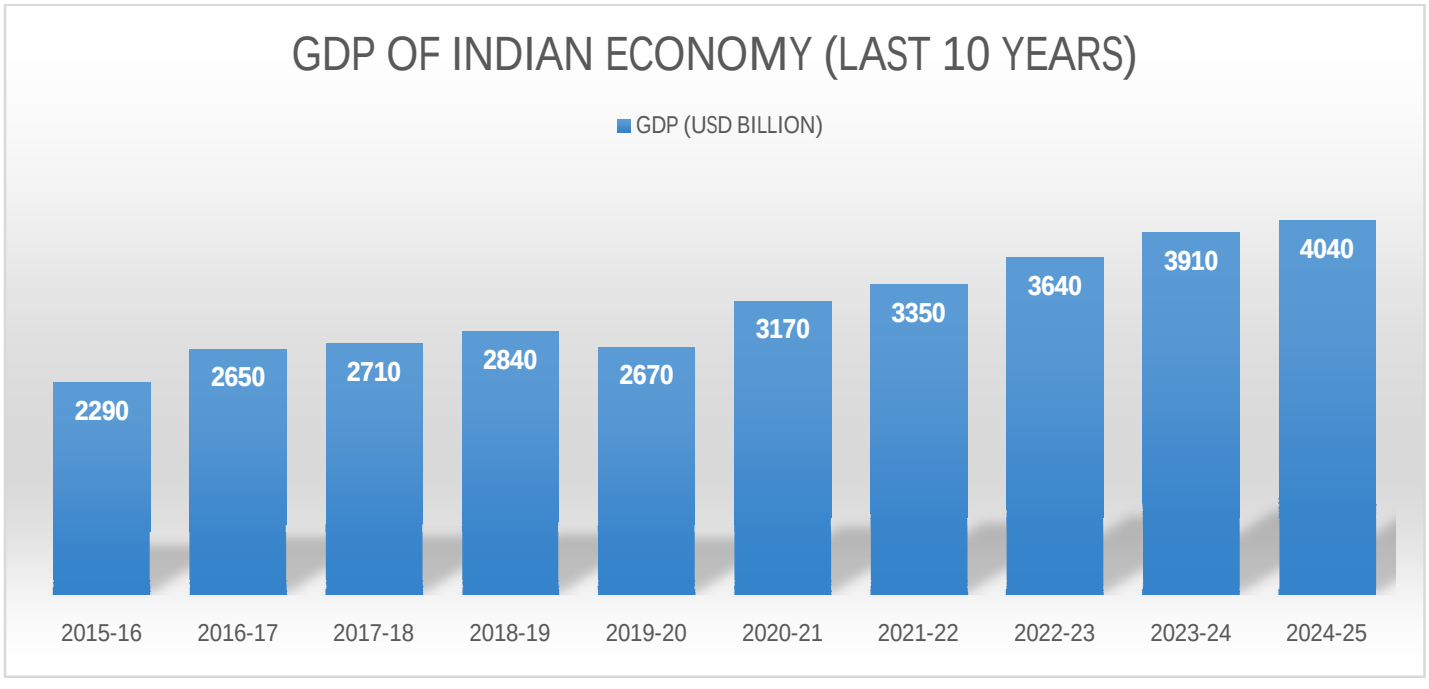
Source: https:// tradingeconomics.com

GDP OF INDIAN ECONOMY (VALUE IN US DOLLAR BILLION) (COMPUTED BY EXPENDITURE METHOD)

TABLE 3

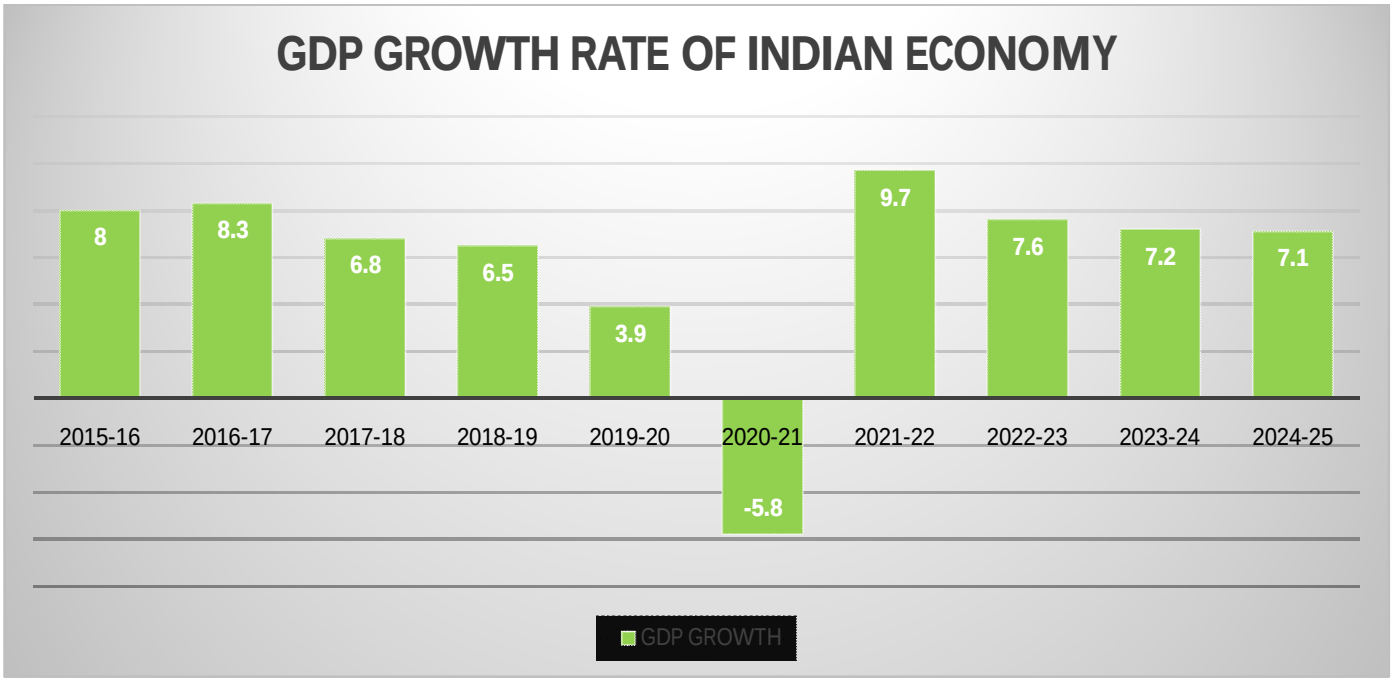
YEAR	VALUE (US DOLLAR BILLION)	CHANGE	CHANGE %	GROWTH RATE OF GDP (%)
2024-25	4040	127.15	3.2	7.1
2023-24	3910	274.2	7.5	7.2
2022-23	3640	292.38	8.7	7.6
2021-22	3350	178.84	5.6	9.7
2020-21	3170	492.42	18.4	-5.8
2019-20	2670	-160.76	-5.7	3.9
2018-19	2840	132.68	4.9	6.5
2017-18	2710	51.46	1.9	6.8
2016-17	2650	356.67	15.5	8.3
2015-16	2290	191.21	9.1	8
MINIMUM	2290	-160.76	-5.7	-5.8
MAXIMUM	4040	492.42	18.4	9.7
AVERAGE	3127.00	193.63	6.91	5.93
STANDARD DEVIATION	592.04	178.35	6.81	4.38
CO-EFFICIENT OF VARIATION	18.93	92.11	98.60	73.87

Source: https:// tradingeconomics.com



INTERPRETATION: The average GDP of India during the last 10 years is US Dollars 3127 Billion. GDP was the lowest during the financial year 2015-16, i.e. US dollars 2290 billion. Indian GDP has increased continuously since financial year 2015-16 except financial year 2019-20, which experienced a decrease in GDP i.e. US dollars 2670 billion.

The decrease in GDP was due to a sudden slowdown in private consumption and investment. The Indian economy has been experiencing rapid growth in GDP since the financial year 2019-20. The Indian economy has the highest GDP during the financial year 2024-25 I.e. US dollars 4040 billion.



INTERPRETATION: The average growth rate of GDP during the last 10 years is 5.93%. The standard deviation is 4.38%, which is less than the average growth of GDP. It indicates that there is low variability in the growth rate of GDP in the Indian Economy. The growth rate of GDP during the financial year 2021-22 was the highest, i.e. 9.7%, whereas the Indian economy experienced negative GDP growth, i.e. -5.8% during the financial year 2020-21. The negative growth rate of GDP was due to shrink in domestic consumption of goods and services due to advent of COVID-19 pandemic. In 2024-25, Indian GDP was growing at a rate of 7.1%.

STEP-WISE REGRESSION ANALYSIS:

TABLE 4.1

YEAR	GDP (IN USD BILLION)	EXPORT (IN USD BILLION)	IMPORT (IN USD BILLION)
2024-25	4040	820.93	915.19
2023-24	3910	778.13	856.52
2022-23	3640	770.18	892.18
2021-22	3350	676.53	760.06
2020-21	3170	493.19	505.94
2019-20	2670	528.45	598.61
2018-19	2840	535.45	631.29
2017-18	2710	478.15	565.32
2016-17	2650	442.30	485.84
2015-16	2290	415.45	464.20

TABLE 4.2

Constant Predictor	R VALUE	R SQUARE VALUE	ADJUSTED R SQUARE VALUE	F-VALUE	P-VALUE
IMPORT	0.910[a]	0.828	0.806	38.440	0.000[a]
Import, Export	0.978[a]	0.956	0.943	75.993	0.000[a]

Dependent variable: GDP
Independent variable: Import & Export
INTERPRETATION: R-value indicates the strength and direction of a linear relationship. The value of R is greater than 0, and it is near to 1, i.e. 0.978, which indicates the model is significant. The R square denotes the change in % of the dependent variable due to a 1% change in the independent variable. The value of the R-square is 0.956, which indicates that there will be a 95.6% change in the dependent variable, i.e. GDP, due to a 1% change in the independent variables, i.e. Import & Export. The value of P<0.05, i.e. 0.00a, indicates that the model is significant. The F-value is greater than 2.5, which indicates the goodness of fit this model. So, we cannot accept the null hypothesis (H_0).

TOP 5 IMPORTED COMMODITIES IN INDIA DURING THE LAST 10 YEARS
TABLE 5.1

FINANCIAL YEAR	Crude Oil(in Billion)	Gold(in Billion)	Electronic Goods(in Billion)	Coal & Coke(in Billion)	Machinery(in Billion)
2015-16	$64.00	$31.70	$40.00	$13.20	$23.10
2016-17	$70.70	$27.50	$41.90	$15.70	$24.80
2017-18	$87.40	$33.60	$51.50	$22.90	$28.60
2018-19	$114.00	$32.80	$55.60	$26.10	$32.40
2019-20	$102.70	$28.20	$54.00	$22.40	$31.80
2020-21	$62.20	$34.60	$54.40	$15.70	$28.80
2021-22	$120.40	$46.10	$73.10	$34.10	$41.20
2022-23	$209.40	$35.00	$77.30	$49.80	$45.60
2023-24	$179.60	$45.50	$84.20	$38.90	$51.40
2024-25	$190.50	$48.20	$89.50	$41.50	$55.80
MAXIMUM	$209.40	$48.20	$89.50	$49.80	$55.80
MINIMUM	$62.20	$27.50	$40.00	$13.20	$23.10
AVERAGE	$120.09	$36.32	$62.15	$28.03	$36.35
STANDARD DEVIATION	54.59	7.53	17.53	12.45	11.43

INTERPRETATION: It is found that India has the highest average imports of crude oil (i.e. USD Dollar 120.09), followed by Electronics goods, machinery, gold, and Coal & coke. There was a huge surge in imports of crude oil from 2015-16 to 2024-25, which is about 198%. The imports of other commodities have significantly increased during the last 10 years. Among the imported commodities, crude oil has the highest standard deviation, i.e. 54.59, which means there is high volatility in crude oil imports.

TOP 5 EXPORTED COMMODITIES IN INDIA DURING THE LAST 10 YEARS
TABLE 5.2

FINANCIAL YEAR	Engineering Goods (in Billion)	Petroleum Products(in Billion)	Gems & Jewellery(in Billion)	Electronic Goods(in Billion)	Drugs & Pharma(in Billion)
2015-16	$58.40	$30.80	$39.50	$6.00	$16.90
2016-17	$65.20	$31.80	$43.20	$5.70	$16.70

2017-18	$76.20	$37.50	$41.50	$6.40	$17.30
2018-19	$81.00	$46.50	$40.20	$8.80	$19.10
2019-20	$76.30	$41.30	$35.80	$11.70	$20.60
2020-21	$76.80	$25.80	$26.00	$11.10	$24.40
2021-22	$112.10	$67.40	$39.30	$15.60	$24.60
2022-23	$107.00	$94.50	$38.00	$23.60	$25.40
2023-24	$109.30	$84.10	$32.70	$29.10	$27.80
2024-25	$116.70	$85.50	$33.20	$38.50	$31.20
MAXIMUM	$116.70	$94.50	$43.20	$38.50	$31.20
MINIMUM	$58.40	$25.80	$26.00	$5.70	$16.70
AVERAGE	$87.90	$54.52	$36.94	$15.65	$22.40
STANDARD DEVIATION	21.25	25.89	5.13	11.19	5.03

INTERPRETATION: It is found that India has the highest average export of engineering goods (i.e. USD Billion 87.90) followed by petroleum products, Gems & Jewelry, Drugs & Pharma, and Electronic goods. The export of petroleum products has the highest volatility among the top 5 exports of commodities, i.e. standard deviation is 25.89. The export of gems and jewelry shows the decreasing trend since the financial year 2016-17. The export of engineering goods, electronic goods, petroleum products, and drugs & pharma shows the increasing trend since 2015-16.

VI. CONCLUSION

From the above analysis, it can be concluded that-

1) India always has a negative balance of trade due to excess of total import over total export during the period of study.
2) The average growth rate of import (i.e. 7.02) is greater than the average growth rate of export (i.e. 6.53). This is the reason for the continuous trade deficit of India.
3) Both the import and export had high volatility. But the volatility of import (i.e. standard deviation is 174.18 & coefficient of variation is 26.02) is greater than the volatility of export (i.e. standard deviation is 152.55 & coefficient of variation is 25.69). While India faced a constant trade deficit in commodities, India's service sector acted as a vital economic hedge. India had achieved a constant trade surplus in service. The trade surplus in service increased from US dollars 69.71 billion to US dollars 188.56 billion, which is a significant rise in trade surplus during the last 10 years.
4) The efficiency of the service sector is highlighted by its export-to-import ratio. In the most recent financial year (2024-25), the export of services was 1.96 times the value of service imports, contributing to a record trade surplus in services of $188.56 billion.
5) India had the highest crude oil imports in the financial year 2022-23, which is USD 209.40 billion. The average value of the import of crude oil is US dollars 120.09 billion. The import of crude oil has surged about 198% during the last 10 years. It might be due to the growth and expansion of our economy. India has a greater dependency on electronic goods imported next to crude oil. Electronic goods had the second-highest average import of USD 62.15 billion during the period of study.
6) Engineering goods have emerged as the powerhouse of primary export with an average export value of USD Dollar 87.90 billion. Other leading sectors in Indian exports include petroleum products, drugs and the pharmaceutical sector.
7) The growth rate of commodity exports is highly "inconsistent and volatile." The standard deviation of the growth rate (16.42) is nearly four times higher than the average growth rate (4.53%), as evidenced by the sharp drop to a mere 0.08% growth in 2024-25.

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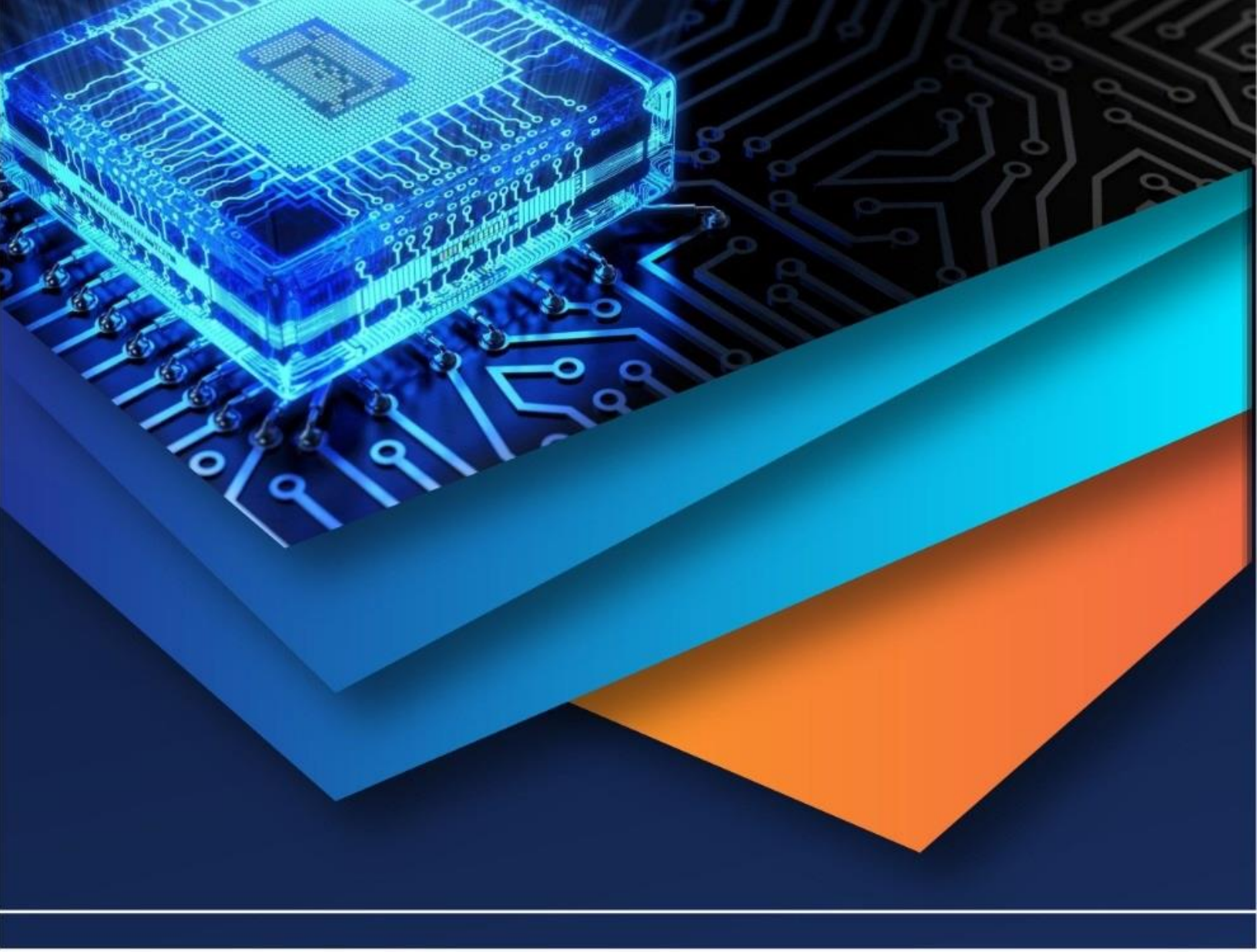
8) As noted in the literature review, India's export profile has undergone a "significant transformation". There is a clear shift away from traditional sectors like agriculture toward high-value sectors such as pharmaceuticals (which reached a peak of $31.20 billion in 2024-25) and engineering goods.

9) The statistical analysis confirms that imports and exports are highly reliable predictors of India's GDP. The R-square value of 0.956 indicates that 95.6% of the change in GDP can be explained by changes in import and export levels, proving a "strong positive relationship".

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