An Analysis of Structural Changes in India's Foreign Trade Since 2001; With Special Reference to Petroleum Products

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Anjali Sharma
Dr. Shweta Upadhyay Dhar
Prof. Manjula Upadhyay

Abstract

This paper examines the major structural shifts in India's foreign trade from 2001 to 2024, with a focus on petroleum products. Since 2001, India's trade basket, direction, and composition have changed significantly. The study finds that petroleum products have moved from a minor export item to one of India's largest export categories, while also remaining the biggest component of imports due to rising domestic energy demand. The paper also looks at how this shift affects India's trade balance, energy security, and dependence on global markets. The study highlights three central changes. First, rapid expansion of domestic refining capacity turned petroleum products into one of India's top export commodities, diversifying the export basket beyond traditional goods. Second, sustained growth in energy demand kept crude oil as the largest import item, making the trade balance highly vulnerable to global oil price volatility. Third, policy measures like de-licensing, SEZs, and FDI in refining, combined with shifting global supply chains, positioned India as a key "refining hub" in Asia. Drawing on trade data from 2001–2024, the analysis shows that petroleum

Anjali Sharma
Research Scholar, Dept. of Economics, University of Lucknow, Lucknow, U.P.
Dr. Shweta Upadhyay Dhar
Assistant Professor, Dept. of Economics, Navyug Kanya Mahavidyalaya (L.U.), Lucknow, U.P.
Prof. Manjula Upadhyay
Principal & Professor, Navyug Kanya Mahavidyalaya (L.U.), Lucknow, U.P.
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products now play a decisive role in India's trade deficit, foreign exchange management, and energy security strategy. The paper argues that while refining-led exports have strengthened India's trade position, heavy crude dependence continues to pose structural risks. The findings underscore the need for balancing export gains with long-term energy diversification.

Keywords: *Structural shifts, composition, energy – diversification, sustained growth, refining hub.*

Introduction

Foreign trade refers to the exchange of goods as well as services across the international borders. For India, it has been a crucial engine for development, modernization, and integration with the global economy. At independence in 1947, India's trade was highly Limited and characterized by colonial dependencies. Over the decades, India's trade structure is changing in terms of volume and trading partners in different time phases.

Trade pattern since independence:1947-1990 **(**The pre-liberalization phase**)-** In this time period, the import substitution strategy was to Focus on self sufficiency and heavy protectionism, Import greater than Exports leads to persistent trade deficit, and in this phase Major imports were capital goods oil and machinery etc**,** the other hand Exports were mainly agricultural based goods like jute, tea and cotton etc which were low value products. And Direction of trade mostly towards U.K., U.S.A and U.S.S.R.

A phase From year 1991 to 2000 ***(****post liberalization Phase****)*****:** In this time period there were Economic reforms introduced in 1991 which was play an important role in Devaluation, trade liberalization removal of quotas, reduction in tariffs, surge in imports and export, Diversification of trade basket (both sides of trade exports and imports), economies shift towards private sector & Global integration, And direction of trade shifted towards Southeast Asia, China and Middle East.

Globalization and trade expansion in 2000-2014: In this time period the World Trade Organization membership (1995) leads to more trade openness, there were some significant increase in trade volume, there was sudden Emergence of Indian economy as a software and service exporter, Export diversification like engineering goods, pharmaceuticals & chemicals etc., Import of oil, gold, electronics and there was stronger trade relations with China, Asian countries and Gulf countries.

The recent phase From 2014 to 2024: Recent trends and strategic shifts Government of India has launched many policies which can boost Indian economy for instance 'Make in India' and Aatmnirbhar Bharat, There was bilateral Free Trade Agreements and strategic diversification, In this phase, there is more focused on export- oriented manufacturing, Focus on reducing oil dependency, increasing value added Exports, Giopolitical shifts like trade diversification from China, strengthening ties with Africa, Asian and European Union.

Objectives of the study:

To analyze structural changes of India In the composition direction and magnitude. To analyze the export of petroleum products by sub - category, to trace changes in trade partners. To detect and structural breaks in trade variables (composition, import dependency, export growth) and link them with policy changes external shocks oil price Clashes, supply description, sanctions, Global demand shift). To forecast future trajectories of petroleum product trade in different policies or global environment scenarios (example Clean Energy, transition, electronic vehicle growth biofuel, renewable substitution) to inform policy.

A mixed method, quantitative - dominant approach, using secondary data analysis to identify and interpret structural changes in India's foreign trade patterns with a special focus on petroleum products. The design will be exploratory, descriptive and analytical in nature. The study is based entirely on secondary data, collected from credible and authoritative national and international databases, Reserve Bank of India bulletin: provided foreign exchange data, inflation and indices, Economic Survey of India: policy narrative and macro - trade indicators, World Bank / International Monetary Fund databases

Composition of India's foreign trade ;

During 1950 to 1970s, there were mainly agricultural based exports like jute, cotton, textiles and Spices etc., In between 1980's to 90's time period some different products like Gems and Jewellery leather and Marine Products have started for Exports, And further in 2000 there were some different goods and services added for Exports, like software services, petroleum product pharmaceuticals and Engineering goods, And in 2004 - 2024 exports broaden its Horizon and add machinery, electronic mobile phones, refined petroleum, chemicals organic compounds and process food etc.

In the import sector, during 1950 to 1970s India's foreign trade specifically in terms of imports were capital goods which were highly valued products, and also some kind of food grains and raw materials imports, in the time period from 1980's to 90's specifically crude oil, fertilizers machinery and edible oil were imported, in the time period of 2000 India had imported crude oil, electronics goods and Chemicals, in the time period from 2014 to 2024 India has started to import new innovated goods like semiconductors, defense equipment, crude oil, natural gas, electronic goods, machinery parts etc. And the Direction of India's foreign trade early period (1950 - 1980) were dominated by U.K., U.S.A. and U.S.S.R. and trade mostly with developed economies in Soviet bloc.

In post-liberalization period there were started to increasing trade with East Asia, USA and European Union remain major export destinations, and the economy shifted from Euro centric to Asia Centric trade, trade is now Global with Asia, Europe and North America. Direction of export and imports key trends (2000 to 2014) in this time period the USA remained India's top export destination due to IT and service Exports, the UAE emerged as a major trade partner both oil related trade and re-export to other Gulf countries, and china became a growing export market for minerals, cotton and Chemicals, Asian and Africa rising exports due to economic co-operation and out reach programs for example, India & Africa forum summit, Apart from it china became India's largest source of imports like electronics, machinery and intermediate goods and Middle East, Saudi Arab, Iraq and U.A.E .became crucial for oil imports.

Direction of export and imports (2014 to 2024) in this time period, India's trade direction saw a significant shift toward diversification, increased trade with U.S.A.and growing persistent trade deficit with China. The decade was characterized by record breaking export growth, strategic trade policy changes and significant boosts to India's manufacturing and service sector. The USA became top trading partners Surpassing China and UAE. In Year 2023-24, bilateral trade with USA reached $131.84 billion largly and China remained a major supplier of goods to India, it is the top source of imports especially electronics and machinery. Following the

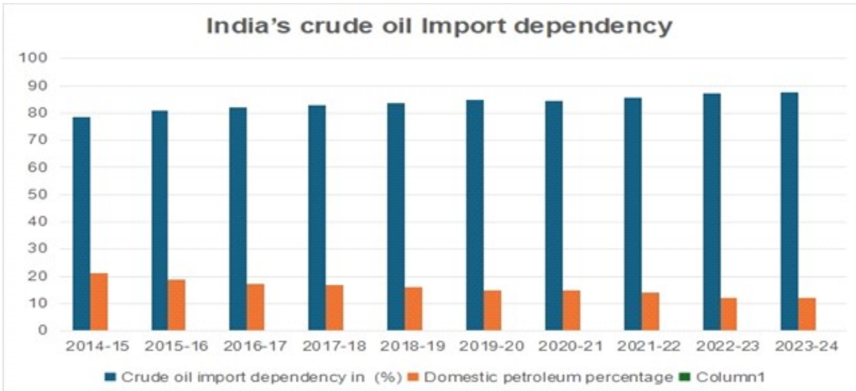
Russia-Ukraine conflict, India's imports from Russia, particularly crude oil. Russia emerged as India's second largest import partner in 2023-24. And the U.A.E and Netherlands grew into key trading hubs for petroleum products, gems and engineering goods. The crude oil & petroleum products remained the largest component of India import bill throughout the decade. Services export financial driven by India's robust by IT, financial and business services sectors. And the other hand, 'Make in India' and Production-Linked Incentive (PLI) schemes fostered growth and diversified in manufacturing mobile phone exports saw explosive growth in 2023-24.

Table no. 1: India's Crude Oil Import Dependency (From 2014 to 2024)

Financial Year	Crude oil import dependency (%)	Domestic petroleum percentage (%)
2014-15	78.5	21.05
2015-16	81.0	19.00
2016-17	82.1	17.09
2017-18	82.8	17.02
2018-19	83.8	16.02
2019-20	85.0	15.00
2020-21	84.4	15.06
2021-22	85.5	14.05
2022-23	87.4	12.06
2023-24	87.7	12.03

Source: petroleum planning and analysis cell (ppac)

Table no.1 shows the data for India's crude oil & import dependency from the FY 2014 to 2024 in percentage form. The table shows that in 2014 -15 India's crude oil import was 78.5% its domestic petroleum was 21.05%. Further in 2015-16 crude oil import slightly change by 81.0% and domestic share was 19%. In 2016-17 there was change a little bit by 82.1 % and domestic share was 17.9%. In 2017-18 crude oil import became 82.8% with domestic share of 17.2% whereas in 2018-19 it was 83.8% and domestic share was 16.2%. In 2019-20 there was 85% of crude oil import and its domestic side was 15%. Following 2020-21 it was 84.4% and the hand 2021-22 the crude oil import was 85.5%. In 2022-23 crude oil import risen by 87.4% and domestic figure became 12 .06% and in 2023-24 there was slightly change in crude oil import approx 87.7% whereas domestically abled by 12.3

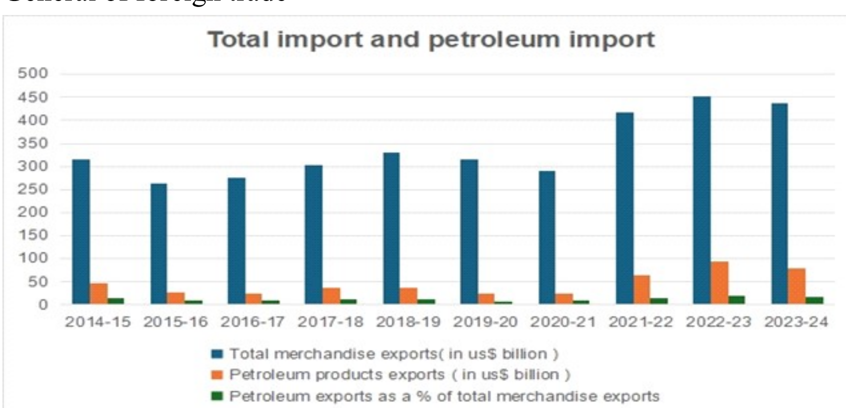


Source: Table-1

Table no. 2: Total export and Petroleum export (From 2014 to 2024)

Financial year	Total merchandise exports(in us$ billion)	Petroleum products exports (in us$ billion)	Petroleum exports as a % of total merchandise exports
2014-15	314.40	47.30	15.05
2015-16	262.29	27.40	10.45
2016-17	275.85	25.80	9.35
2017-18	303.53	37.47	12.35
2018-19	330.07	38.20	11.57
2019-20	314.31	25.40	8.08
2020-21	290.63	25.80	8.88
2021-22	417.81	65.04	15.57
2022-23	451.07	94.63	20.98
2023-24	437.10	79.90	18.28

Source: PIB, Ministry of statistics and program implementation, directorate General of foreign trade



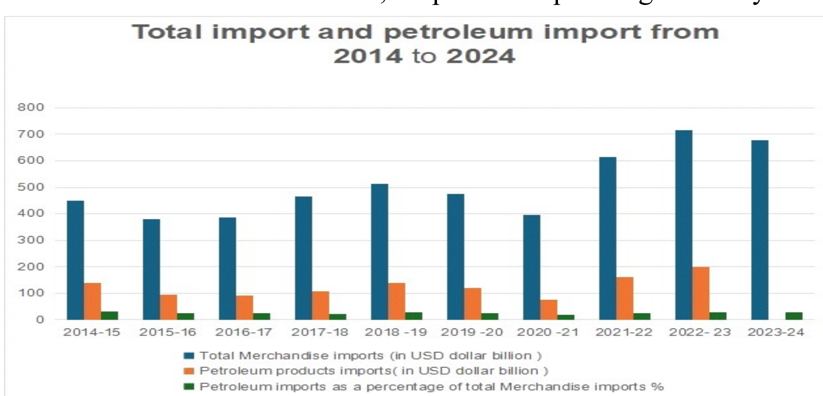
Source: Table-2

The Table no.2 has included the data from 2014- 2024 of total Merchandise exports, petroleum products exporting US dollar billion and percentage of Petroleum export. The table no.2 shows that in 2014-15 total export was US Billion $ 314.40 and petroleum products was US Billion $ 47.30 approximate and its percentage was 15.05% and in 2015-16 total export was 262.29, whereas 27.40 was petroleum products. In 2016-17 total export was 275.85 and petroleum products exports 25.80 and its percentage was 9.35%. In 2017-18 the total Merchandise export was 303.53 and share of Petroleum export was 37.47 and the other hand in 2018-19 the total export was 33.07 and petroleum export 38.20. In 2019-20 it was 314.31billion and petroleum export was 25.40. in 2020 - 21 total export was 290.63 and share of Petroleum export 25.80 billion. In 2021- 22 it was $ 417.07 billion and 2022 -23 total export was 451.07 and petroleum export was 94.63 and in 2023 -24 the total Merchandise was $ 437. 10 billion and 79.90 billion of Petroleum Exports.

Table no. 3: Total import and petroleum import (From 2014 to 2024)

Financial year	Total Merchandise imports (in USD billion)	Petroleum products imports (in USD billion)	Petroleum imports as a percentage of total Merchandise imports (%)
2014-15	448.5	138.03	30.87
2015-16	380.7	95.07	25.12
2016-17	384.8	91.03	23.75
2017-18	465.6	108.09	23.39
2018 -19	514.0	140.04	27.31
2019 -20	474.7	119.05	25.07
2020 -21	394.4	77.00	19.52
2021-22	613.4	160.00	26.10
2022- 23	715.95	200.00	27.93
2023-24	677.4	195 .00	28.79

Source : Press Information Bureau, the petroleum planning and analysis cell.



Source: Table-3

The Table no.3 shows that the data of total imports, petroleum imports and its percentage of imports as a total import in US dollar billion. In FY 2014 - 15 448.03 billion was total import and 138.3 billion was petroleum import. In 2015-16 the total import was 381 billion and petroleum import was 95.7 billion. And in 2016-17 it was 384.36 and petroleum import share was 91.3 billion. In 2017-18 it was 465.5 it billion and petroleum import was 108.9 billion and its percentage was 23.39%. In 2018-19 total import was 514.07 and in 2019 -petroleum import was 119.0 million. In 2020- 21 the total import was 394.44 billion due to covid-19. In 2021- 22 it was 613.05 billion and in 2022-23 715.97 billion was total import and petroleum import was 200 billion and in 2023-24 again dropped total import 677.24 billion and petroleum was 195.0 and then its percentage Was 28.79%.

Key Challenges:

1. High Import Dependence on Crude Oil: India imports over 85% of its crude oil needs. This makes the trade balance very sensitive to global oil price shocks and exchange rate fluctuations.

2. Trade Deficit Pressure: Crude oil is the single largest import item. Even with strong exports of refined products, high oil bills often widen India's trade and current account deficit.

3. Price Volatility Risk: Global crude prices are unstable due to geopolitics, OPEC decisions, and wars. This creates uncertainty for export earnings, import costs, and inflation.

4. Refining Margin Fluctuations: India exports refined fuels, but profit margins depend on the global "crack spread" between crude and products. Low spreads hurt refinery profitability and export value.

5. Energy Security Concerns: Heavy reliance on few supplier countries in the Middle East creates strategic risk. Supply disruptions can directly impact domestic availability and trade.

6. Policy & Taxation Issues: Frequent changes in export duties, windfall taxes on petroleum exports, and domestic pricing controls create uncertainty for exporters and refiners.

7. Global Energy Transition: Shift toward renewables and electric vehicles may reduce long-term global demand for petroleum products, threatening India's refining-led export model.

8. Environmental & Compliance Pressure: Stricter global emission norms and carbon taxes could raise costs for Indian refineries and limit market access for petroleum exports.

9. Infrastructure Bottlenecks: Port capacity, pipeline networks, and storage constraints sometimes limit efficient import-export of crude and products.

10. Geopolitical Sanctions & Trade Barriers: Sanctions on major oil producers like Russia, Iran, or Venezuela affect sourcing options and create compliance risks for Indian refiners exporting to Western markets.

Way Forward / Future Scope:

1. Diversify Energy Sources: Reduce crude oil dependence by expanding renewable energy, biofuels, green hydrogen, and strategic oil reserves. This lowers trade deficit risk.

2. Move Up the Value Chain: Shift from just exporting basic fuels to petrochemicals, specialty chemicals, and high-value refined products that have better margins and stable demand.

3. Strengthen Energy Security: Diversify crude import sources beyond the Middle East. Increase long-term contracts and invest in overseas oil assets to secure supply.

4. Upgrade Refining for Energy Transition: Modernize refineries to produce low-carbon fuels, SAF (Sustainable Aviation Fuel), and cleaner products to meet future global demand and emission norms.

5. Strategic Trade Agreements: Use FTAs and bilateral deals to get better market access for petroleum exports and preferential crude import terms.

6. Build Strategic Infrastructure: Expand port handling, pipeline networks, and strategic petroleum reserves to improve trade efficiency and manage price shocks.

7. Policy Stability: Maintain consistent export-import policy for petroleum. Avoid sudden duties or windfall taxes that hurt long-term contracts and investment**.**

8. Focus on Energy Diplomacy: Leverage India's position as a major buyer and refining hub to negotiate better prices, payment mechanisms, and supply security.

9. Promote R&D in Alternatives: Invest in research for battery tech, hydrogen, and carbon capture to prepare for global decline in oil demand post-2040.

10. Data-Driven Trade Strategy: Use real-time global oil data and AI forecasting to manage procurement, hedging, and export decisions more efficiently.

Conclusion

Since 2001, petroleum products have become central to India's foreign trade story. The period marks a clear structural shift: India evolved from a net importer of refined fuels to a global refining hub, making petroleum products a leading export. At the same time, rising domestic demand has deepened its dependence on crude oil imports, keeping energy at the heart of India's trade deficit. This dual role creates both strength and vulnerability. Refining-led exports have diversified India's export basket, earned foreign exchange, and enhanced global trade linkages. Yet, exposure to oil price volatility, geopolitical risks, and the global energy transition remains a major challenge.

Going forward, India's petroleum trade strategy must balance short-term gains with long-term resilience. Diversifying energy sources, moving up the value chain into petrochemicals, and aligning with clean energy goals will be critical. Overall, the experience since 2001 shows that petroleum products are not just a trade commodity for India—they are a key determinant of its economic security, external balance, and global trade position.

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