Key Sectors' Export and Economic Growth in India

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DECLARATION BY STUDENT

I hereby declare that the data presented in this Dissertation report entitled, “Sectors’ Export and Economic Growth in India” is based on the results of investigations carried out by me in the M.A. in Economics at the Goa Business School, Goa University under the Supervision of Ms Sumita Datta and the same has not been submitted elsewhere for the award of a degree or diploma by me. Further, I understand that Goa University or its authorities will be not being responsible for the correctness of observations / experimental or other findings given the dissertation.

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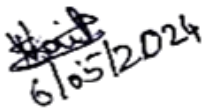

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COMPLETION CERTIFICATE

This is to certify that the dissertation report **"Key Sectors' Export and Economic Growth in India"** is a bonafide work carried out by **Ms SIDDHI SAMBHAJI NAIK** under my supervision in partial fulfilment of the requirements for the award of the degree of **Master of Arts** in the Economics at the Goa Business School, Goa University Goa.

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PREFACE

In the dynamic landscape of the global economy, exports play a pivotal role in driving a nation's economic growth. India, with its vast population and burgeoning industries, has emerged as a significant player in the international trade arena. This research delves into the critical relationship between key sector exports and India's economic growth.

This study explores the specific sectors that contributes most significantly to India's export earnings. The impact of these exports on economic growth will be analysed, focusing on foreign direct investment and overall GDP expansion.

ABSTRACT

This research work examined the empirical relationship between the Economic sector and Economic Growth in India for the period 2013 to 2023 using ordinary least square method to ascertain the relationship between Economic sector and economic growth. The economy is segmented into three main sectors: agricultural (primary), manufacturing (secondary), and service (tertiary). The foremost purpose of this work to study the causal relationship between sectors' export and economic growth and the effect of FDI inflow on sector's export in India is examined using secondary time series data collected from Agriculture and Processed Food Products Export Development Authority and Department for Promotion of Industry and Internal Trade and World Bank development indicator data base.

CHAPTER I

INTRODUCTION

1.1 Introduction of the Study

In the years since its independence, India has made immense progress towards food security. Indian population has significantly increased, and food-grain creation more than doubled. There has been a significant expansion in accessible food-grain per capita.

Before the mid-1960s, India depended on imports and food help to meet homegrown necessities. Nonetheless, two years of extreme dry season in 1965 and 1966 convinced India to change its farming approach and that it couldn't depend on unfamiliar guide and imports for food security. India adopted significant policy reforms focused on the goal of food grain self-sufficiency. This introduced India's Green Revolution. It started with the choice to embrace prevalent yielding, sickness safe wheat varieties in blend with better cultivating information to further develop efficiency. The state of Punjab led India's green revolution and earned the distinction of being the country's breadbasket.

The underlying expansion underway was fixated on the watered region of the provinces of Punjab, Haryana and western Uttar Pradesh. With the farmers and the public government officials focusing in on ranch efficiency and information move, India's all out food grain creation took off. A hectare of Indian wheat ranch that delivered a normal of 0.8 tons in 1948, created 4.7 lots of wheat in 1975 from a similar land. Such quick development in ranch efficiency empowered India to become independent by the 1970s. It likewise engaged the smallholder ranchers to look for additional means to increment food staples created per

hectare. By 2000, Indian farms were adopting wheat varieties capable of yielding 6 tonnes of wheat per hectare.

With farming strategy progress in wheat, India's Green Revolution innovation spread to rice. Nonetheless, since water system framework was exceptionally poor, Indian farmers advanced with tube-wells, to reap ground water. At the point when gains from the new innovation arrived at their cutoff points in the conditions of beginning reception, the innovation spread during the 1970s and 1980s to the conditions of eastern India — Bihar, Odisha and West Bengal. The enduring advantages of the superior seeds and new innovation stretched out essentially to the watered regions which represent around 33% of the collected yield region. During the 1980s, Indian horticulture strategy moved to "development of a creation design in accordance with the interest design" prompting a change in accentuation to other farming products like oilseed, foods grown from the ground. Ranchers started embracing further developed techniques and innovations in dairying, fisheries and domesticated animals, and meeting the expanded food needs of a developing population.

India positions 74 out of 113 significant nations as far as food security index. India's agrarian economy is going through primary changes. Somewhere in the range of 1970 and 2011, the Gross domestic product portion of farming has tumbled from 43% to 16%. This isn't a result of decreased significance of farming or an outcome of rural strategy; rather, it is generally because of the quick financial development in administrations, modern result, and non-horticultural areas in India somewhere in the range of 2000 and 2010. [1]

Agriculture and Allied sector form the bedrock of Indian economy. Agriculture and allied sectors like animal husbandry, forestry and fisheries accounted for 17.5% of the GDP. India is one of the major players in the agriculture sector worldwide and it is the primary source of

[1] "Agriculture in India."

livelihood for ~55% of India's population. India is the world's largest producer of milk, pulses, and spices, has the largest area planted with wheat, rice, and cotton, and has the world's largest cattle herd (buffaloes). It is the second-largest producer of sugar, cotton, sugarcane, wheat, cotton, tea, farmed fish, and fruit and vegetables. The farming area in India holds the record for second-biggest rural land on the planet producing work for about portion of the nation's population. Thus, farmers become an integral part of the sector to provide us with a means of sustenance. Currently, the share of agriculture accounted for 15 percent of Gross Domestic Product (GDP) and 45.76 percent of employment. From food, Indian agriculture has undergone a significant transformation shortage to food security since thirty years. The Indian food processing industry accounts for 32% of the country's total food market, one of the largest industries in India and is ranked fifth in terms of production, consumption, export and expected growth. Foodgrain creation in India contacted 330.5 million metric tons (MT) in 2022-23 (third Advance Estimate). India is the world's second biggest producer of food grains, fruits and vegetables and the second biggest exporter of sugar. A sum of 521.27 LMT rice has been expected for obtainment for the impending KMS 2023-24, up from 496 LMT created during the past KMS 2022-23. [2]

The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth. Still, agriculture is demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India. The total agriculture commodities export was US$3.50 billion in March - June 2020. India exported $38 billion worth of agricultural products in 2013, making it the seventh-largest agricultural exporter worldwide and the sixth largest net exporter. Most of its agriculture exports serve developing and least developed nations. Indian agricultural/horticultural and

[2] "Agriculture in India, Explore India's Thriving Agriculture Sector | IBEF."

processed foods are exported to more than 120 countries, primarily to the Japan, Southeast Asia, SAARC countries, the European Union and the United States.[3]

A dynamic nation of 1.3 billion consumers with rising discretionary incomes, changing food patterns, vast farming area, diverse agriculture and a large population dependent on agriculture has propelled India to the world's centre stage as a big consumer market and also as a key supplier of food products. It has often been suggested that an essential element of "Make in India" has to be "Bake in India", i.e. a renewed focus on value addition and on processed agricultural products. The rapidly growing global population and shrinking farmlands, coupled with changing socio-economic, agro- climatic and dietary patterns, have challenged scientists and policymakers to reconsider how we grow and feed 7.5 billion global citizens. India's quest, then, is to grow sustainably, trade abundantly and progress harmoniously. Agriculture export, if properly supported by infrastructure, institutional back up, packaging, freight transport and connected to the internal production system backed by market access will be in a position to transform the agricultural economy.[4]

The COVID-19 pandemic outbreak in 2020 impacted the global economies severely, taking a toll on the supply chains including for food and agriculture. While the overall agribusiness was adversely impacted during the period, trade of certain agricultural produce rose on account of food security concerns. In India, Covid crisis brought about unprecedented short term & long term challenges for the entire agribusiness fraternity. The entire value chain from farm producers to urban consumers to exporters was disrupted, with many areas facing acute distress. The perishables supply chains like milk, poultry, fruits and vegetables witnessed critical demand supply disruptions. While logistics constraints, labor migration and shortage of inputs impacted the production side; restrictions on trade (inter country), closure of

[3] "Agriculture in India."
[4] "Agriculture Export Policy."

HoReCa segment and lesser spending on grocery and food, impacted the demand side of supply chains.

The Government of India announced a host of incentives for the agricultural sector, which covered not only monetary incentives, but also policy reforms, which were long pending, and much required during these exceptional circumstances. A total of INR 20 lakh crore (USD 266 Bn) Covid stimulus package was announced for India, of which 1 lakh crores (USD 13 Bn) was specifically dedicated to the food and agriculture sector. The announcement of Atmanirbhar package including PM Matsya SAMPADA Yojana, TOP to TOTAL, Animal Husbandry Infrastructure, Development Fund & Agri Infrastructure, Fund along with policy reforms on Essentials, Commodities Act and agricultural marketing, shall definitely be transformative and shall pave the way forward for India's self-reliance and boosting the competitiveness of our agriculture sector. (Enhancing Competitiveness of Indian Agri Exports)

Manufacturing Sector

Manufacturing encompasses the creation of goods intended for use or exchange, employing a combination of human labour, machinery, tools, chemical processes, and biological formulation. It spans a spectrum from traditional craftsmanship to cutting-edge technology, but predominantly pertains to large-scale industrial production, wherein raw materials are converted into finished products. Industrialization is often regarded as a significant avenue for achieving enhanced standards of living and desirable commodities, contributing to an improved quality of life for the population.

The manufacturing sector in India is significantly important for a developing nation like India that depend on manufacturing from growth and development. Manufacturing stands out as a fundamental cornerstone in the economic advancement of the nation, driven by the robust

performance of pivotal sectors such as automotive, engineering, chemicals, pharmaceuticals, and consumer durables.[5] The machine tool sector historically served as the backbone of India's manufacturing, but contemporary technology has sparked innovation, with digital transformation emerging as a crucial factor in gaining a competitive edge in this dynamic market.

Before the pandemic, the Indian manufacturing sector accounted for 16-17% of the country's GDP and is anticipated to remain one of the most rapidly expanding sectors. The machine tool industry served as the fundamental backbone of India's manufacturing landscape. Presently, technological advancements have innovation, with digital transformation being a critical factor for gaining a competitive advantage in this dynamic market.

In contemporary times, technology has fostered innovation, highlighting the significance of digital transformation in securing a competitive edge within this ever-evolving industry. The Indian manufacturing sector is progressively transitioning towards automated and process-oriented production methods, a move expected to bolster efficiency and elevate productivity levels.

Contributing to 17% of the country's GDP and employing more than 27.3 million workers, the manufacturing sector holds considerable importance in the Indian economy.

Manufacturing is increasingly becoming a cornerstone of the nation's economic development, driven by the robust performance of vital sectors including automotive, engineering, chemicals, pharmaceuticals, and consumer durables.

Recent years have seen the Indian government launch several initiatives to boost the manufacturing industry. The "Make in India" campaign, for instance, aims to elevate the

[5] "Manufacturing Sector In India - Indian Economy Notes."

manufacturing sector's share in the GDP while fostering the growth of domestic manufacturing.

Service Sector

The service sector in India is a pivotal component of the economy, playing a significant role in driving growth and development. It encompasses a wide array of industries and activities, including but not limited to trade, hospitality, transportation, communication, finance, insurance, real estate, business services, community outreach, social welfare, personal services, and construction-related services.

The growth of India's service sector in the 1990s is closely linked with the economic reforms implemented during that period. Although there was some initial expansion in the service sector starting from the mid-1980s, it experienced significant acceleration in the 1990s. This surge was largely triggered by India's initiation of economic reforms, which were in response to a pressing balance of payments crisis.

India's services sector holds a dual significance, being not only the leading contributor to the country's GDP but also a major recipient of foreign investment. It plays a vital role in driving exports and generating substantial employment opportunities. Encompassing diverse activities such as trade, hospitality, transportation, communication, finance, insurance, real estate, business services, community services, and construction-related services, India's services sector is expansive. To bolster India's commercial services exports and increase its share in the global services market beyond the current 3.3%, while also fostering a substantial expansion of GDP, the government is actively pursuing initiatives in this direction.

India's GDP sees a significant contribution of over 50% from the service sector, which experienced a notable growth of 10.8% in the first half of 2021-22. Serving as the primary employment generator, the service sector exhibited a year-on-year growth of 5-7% in 2022.

According to advance estimates for FY24 (April-September), the services sector's share constituted 57% of the total Gross Value Added (GVA). Furthermore, data from the Department for Promotion of Industry and Internal Trade (DPIIT) indicates that the services category secured the top position in Foreign Direct Investment (FDI) inflows. India stands out as an emerging market globally, owing to its distinct expertise and competitive edge in knowledge-based services. Bolstered by various government endeavors such as Smart Cities, Clean India, and Digital India, the Indian services industry is nurturing an ecosystem that fortifies the sector. With the potential to unlock a multi-trillion-dollar opportunity, it promises symbiotic growth for all nations involved.[6]

Exports have acquired added significance in the wake of liberalization wave sweeping across the world. The trend towards market economy in almost all the countries of world has increased the role of exports in developmental efforts. Therefore, exports constitute a key factor in economic development of a country. For a developing country, it is essential to build up a sizeable export surplus. The rate of economic growth is largely determined by the rate at which a country can expand its export capacity. Higher rates of economic growth tend to be associated with higher rates of export growth. A country that tries to promote growth while ignoring its export performance may succeed in the short -run, but it will be hard- pressed to sustain growth over a long period of time. Thus, it can be concluded that exports are a key factor in the growth process, not one of political astrology but of empirical fact.[7]

Every sector of the economy plays very important role in the economic development of the developing and the developed countries. The agricultural sector and its activities control the economic systems of most developing countries, and the advanced industrial sector is

[6] "Services Sector in India: Overview, Market Size, Growth, Companies...IBEF."
[7] Assistant Professor, University College, Kurukshetra University, Kurukshetra - 136119 and Sahni, "Trends In India's Exports."

subordinate, and the economic development of these countries are closely linked with the agriculture field development. Agriculture sector is the backbone of the India's economy. Importance of agriculture sector is more than any other sector in India's economy.[8]

The economic progress of a nation hinges directly on the advancement of its three main economic sectors: the primary sector, the secondary sector, and the tertiary sector. The primary sector involves the direct utilization of natural resources and encompasses activities such as agriculture, fishing, forestry, mining, and dairy production, among others. On the other hand, the secondary sector, also referred to as the industrial sector, pertains to activities focused on transforming raw materials into finished goods.[9]

While the roots of economic liberalization in India can be traced back to the late 1970s, significant economic reforms were initiated in 1991 in response to a balance of payments crisis, prompting the adoption of a comprehensive reform package under an International Monetary Fund (IMF) program. Following these reforms, India shifted its focus towards the services sector rather than agriculture, with the services sector emerging as the primary contributor to the economy from 1978 to 2007. Notably, the services sector experienced substantial growth after the onset of economic reforms in 1991. Agriculture, which was the second highest contributor during the 1978 to 2007 period, witnessed a decline in relative importance. Conversely, manufacturing became the least significant contributor to the Indian economy following the transformation. The contribution of economic sectors to economic growth (real per capita GDP) in India can be evaluated in a different angle.

The evaluation of economic sector contributions to India's economic growth, measured by real per capita GDP, can be approached from a different perspective. From 1978 to 2007, both

[8] "View of IMPACT OF SECTORS (AGRICULTURE, MANUFACTURING, SERVICE & INDUSTRY) ON PAKISTAN'S GDP."
[9] "Role of Service Sector in Indian Economy - GeeksforGeeks."

the manufacturing and services sectors displayed consistent growth alongside the rise in real per capita GDP. However, the ratio of the agriculture sector to real GDP per capita exhibited fluctuations throughout this period. While manufacturing and services sectors demonstrated upward trends, agriculture experienced a marginal decline.

Furthermore, compared to other sectors, the services sector stands out as the most developed. Nonetheless, manufacturing emerges as the most lucrative sector in India, given its significant contribution to real GDP per capita over the thirty-year period.[10]

FDI inflow in India

Indian Economy has been still considered as capital is needed to development and builds the economy of our nation. Hence, a high level of economic growth is not sustainable. At this juncture foreign direct investment is widely recognized as important drive of growth in our country. Foreign Direct Investment (FDI) being a non – debt capital flow, is a leading source of external financing, especially for the developing economies. It not only brings in capital and technical know- how but also increase the competitiveness of the economy. Over all its supplements domestic investment, much required for sustaining the high growth rate of the country. Indian Economy is still considered capital scared one. We need long term capital to develop and build the economy. Foreign Direct Investment (FDI) plays an important role in the developing economy like India.

Since 1991, Foreign Direct Investment has become a main source of foreign capital inflows for India. When, for improving the economy of India, a policy of privatization, globalization and liberalization have been adopted by the finance minister of that time Dr. Man Mohan Singh. Since 1991, FDI inflows in India is on an increasing trend. The FDI Inflows in India increased from Rs.409 crores in 1991-92 to Rs.309867 crores in 2018-19. It showed positive

[10] Hussin and Yoke Yik, "The Contribution of Economic Sectors to Economic Growth."

response. FDI offers a bundle of benefits such as financial and non-financial. It has also impacted to that country's balance of payment and balance of trade account. FDI is one such source of long term international capital.[11]

Role of FDI in India's Service Sector: The Service Sector has played a dominant role in the Indian Economy with a 57.3 per cent share in the GDP and a growth of 10.1 per cent in 2009 -10 (Economic Survey 2010-2011, RBI). Foreign Direct Investment (FDI) has been instrumental behind the growth of service sector in India. Since the opening up of the economy in 1991, FDI in India has grown in leaps and bound. From a mere 45.46 million dollars in 1970, FDI has grown into a mammoth 40418.39 million dollars in 2008. The FDI inflow between 1991 and 2008 had increased by a staggering 53791.2 million dollars. A substantial part of the FDI has gone into the service sector. In addition, FDI's contribution to this sector has only grown overtime. The flow of FDI in Indian service sector has boosted the growth of Indian economy; this sector has contributed a large share in the growth of India's GDP. The service sector has attracted a significant portion of total FDI in Indian economy which is visible especially in the second decade (2000 - 2011) of economic reforms in India. The economic role of FDI is increasingly becoming significant in the Indian economy with the transition of FDI policy from a restrictive phase of seventies and early eighties to a relatively liberal phase of nineties. FDI is an important indicator of economic growth and stimulator of competitiveness. Foreign Direct Investment has been seen as a dominant determinant to achieve high rate of economic growth because it brings in scarce capital resource, raise technological capability and increase efficiency through enhancing domestic competition. After liberalization, FDI inwards flows in India have increased tremendously.[12]

[11] Meena and Kumar, "A STUDY ON FOREIGN DIRECT INVESTMENT IN SERVICE SECTOR IN INDIA."
[12] "Impact of FDI on Services Export."

Role of FDI in India's Agricultural sector: Agriculture plays an important role in economic development of any nation including India. Performance of Indian economy is dependent upon the growth of agriculture sector. The contribution of agricultural sector to national Gross Domestic Product (GDP) has continued to decline over the years; while that of other sectors, particularly services, has increased. Presently, agriculture contributes 13.9 per cent of India's Gross Domestic Product (GDP) yet; agriculture forms the backbone of the economy, as 52 per cent of India's work force is still engaged in agriculture for its livelihood and is important for food security and inclusive growth. All Countries need investment for their development, especially emerging countries. The two main source of investment are public and private investment, but the amounts required are generally above the capital that is available within the country's boundaries. Therefore, Foreign Direct Investment (FDI) becomes an important financial source for capital projects, vital for Emerging Country's development. To improve agriculture productivity and streamline it with manufacturing and services sector, there is a strong need to promote FDI inflow in agriculture sector in Indian economy. FDI in agriculture sector raises investment in agriculture sector of the host country and leads to increase in employment, income and savings. It also provides technological infrastructure, capital and managerial skill into the sector. Keeping in above backdrop, the present study is a humble attempt to analyze the foreign direct investment and agriculture in India.[13]

1.2 Aims and Objectives

1) To study the impact of sectors export on India's Economic growth.

2) To study the long run impact of FDI inflow sector wise on India's growth.

[13] Singh and Walia, "Foreign Direct Investment (FDI) & Agriculture Sector in India."

1.3 Research Question

1) What is the impact of exports from sectors (such as services, agriculture, and manufacturing) on India's economic growth?

2) What has been the long-run impact of FDI inflows on the growth of different sectors in India?

1.4 Hypothesis

Objective1

H0 (Null Hypothesis): Exports from key sectors (e.g., manufacturing, services, and agriculture) do not have a significant impact on India's economic growth.

H1 (Alternative Hypothesis): Exports from key sectors significantly contribute to India's economic growth.

Objective 2

H0 (Null Hypothesis): Sector-wise FDI inflows do not have a long-run impact on India's economic growth.

H1 (Alternative Hypothesis): Sector-wise FDI inflows significantly affect India's economic growth in the long run.

1.5 Scope

This research paper aims to analyse the key sectors propelling India's exports, evaluate their contributions to the nation's economic growth, and explore how Foreign Direct Investment (FDI) inflows influence the export performance within these sectors.

CHAPTER II

REVIEW OF LITERATURE

2.1 Introduction

The Chapter compiles scholarly articles, books, published thesis and other sources which are relevant

to the study. It provides context for the present study by identifying previous studies. The chapter

shows the previous researches conducted in the field of the present study.

2.2 Review of Literature

Studies by Sahni and Dr. Priyanka (2014), This research paper delves into the impact of economic reforms on India's export trends across various sectors. Collectively highlight a noticeable improvement in India's export performance in the post-reform period. These improvements encompass changes in export value, composition, and destination markets. However, there are also indications of sector-specific effects, such as slower growth in manufacturing post-liberalization and evolving patterns in agricultural exports following the WTO period. The literature underscores the necessity for further research to comprehend the long-term ramifications of these trends on India's overall economic growth and development.

Ogen and Olukoya (2007) this article underscores the pivotal role of Nigeria's agricultural sector in driving economic development, drawing comparisons with the Brazilian agro-industrial economy from 1960 to 1995. Highlight the significance of this sector in various aspects of Nigeria's development, including poverty reduction, food security, and overall economic growth. The analysis emphasizes the need for focused investment and support for the agricultural sector to ensure sustainable development in Nigeria. Additionally, studies on related topics such as food importation, forestry ventures, and the contribution of deposit

money banks further underscore the importance of prioritizing agricultural development for Nigeria's socio-economic progress.

Smidt and H.A.R. (1996) specifically focuses on, providing insights into the agricultural export activities of these two countries during the war. However, other related documents touch on broader agricultural and economic issues. For example, Patton (1941) discusses the impact of the war on North American agriculture, highlighting the challenges faced by farmers during this period. Oppenheimer (1985) explores the migration of peasants to urban centers in Mexico and the United States due to deteriorating living and working conditions in agriculture. Schiff et al. (1998) examine the effects of structural adjustment programs on agriculture in developing countries post-World War II. Daviron (2002) delves into the production of tropical agricultural exports and the role of peasant farming in supplying international markets. Kolkman et al. (2002) discuss the renewed link between urban and rural areas, while Brink et al. (2008) explore the origins of rural planning in the Netherlands. Overall, the literature review on Dutch and Danish agricultural exports during the First World War is sparse, with Smidt (1996) being the primary source of information on this specific topic.

Abu Nurudeen, Abdullahi Usman (2010) In an attempt to investigate the effect of government expenditure on economic growth, we employed a disaggregated analysis. The results reveal that government total capital expenditure (TCAP), total recurrent expenditures (TREC), and government expenditure on education (EDU) have negative effect on economic growth. On the contrary, rising government expenditure on transport and communication (TRACO), and health (HEA) results to an increase in economic growth.

Awokuse (2005) re-examined the export-led growth hypothesis for Korea using the vector error correction modeling (VECM) approach. Afolabi et al. (2016) conducted a multivariate

Granger causality test using the VECM approach to analyze the causal links between trade, political instability, foreign direct investment (FDI), and economic growth in Nigeria. Fahimi et al. (2018) examined the causal relationship between tourism, investment in human capital, and economic growth using the Granger causality testing approach. Tadesse et al. (2019) investigated the linkage between financial development and economic growth in Ethiopia using the Autoregressive Distributed Lag (ARDL) approach. Gizaw (2019) focused on the performance of sectors' export and their effects on economic growth in Ethiopia using a disaggregate approach. Shahbaz et al. (2019) studied the impact of human capital and export diversification on energy demand in the United States. In a more recent study, Gizaw (2020) explored the causal relationship between sectors' export and output growth in Ethiopia using the VECM causality approach. The results indicated the existence of unidirectional causality running from economic growth to agriculture, industry, and service exports in the long run, supporting the growth-led export hypothesis for Ethiopia. Furthermore, Gashu (2021) examined the impact of capital flow on economic growth in Ethiopia using the ARDL approach. Gizaw et al. (2022) investigated the impact of coffee exports on economic growth in Ethiopia, highlighting the importance of increasing efficiency in the sector for sustaining domestic economic growth. Finally, Derouez et al. (2024) analyzed the effects of energy, technology, population, FDI, energy export, energy price, and carbon dioxide emissions on economic growth in Saudi Arabia using the ARDL and VECM approaches. Overall, these studies contribute to the understanding of the relationship between sectors' export and economic growth in different countries, highlighting the importance of various factors such as trade, political stability, financial development, and sector-specific exports in driving economic growth.

Christopher Ehinomen and Oguntona Olalekan Danie (2012) The review utilized the yearly time series information from 1970 to 2010 for the accompanying factors: Genuine total

national output (y), send out values (exhibition), swapping scale (exr), imports esteem (devil), gross capital development (cap), and workforce populace (lbr); involving econometric systems in testing for causality with the utilization of granger causality test and autoregressive dispersed slack (ARDL) to determine on the off chance that there exists a longrun relationship. The outcomes got shown that there exist a uni directional connection among send out and financial development; while the consequences of the ARDL showed a co-reconciliation (long-run connection) between trade also, monetary development in Nigeria.

EAC Priyankara (2018) This study tests the ELGH on account of service exports investigating yearly time series information from 1984 to 2013 in Sri Lanka. The review utilizes Granger no-causality strategy created by Toda and Yamamoto in a vector autoregressive model (VAR) to distinguish the causality connection between service export and Gross domestic product. The discoveries demonstrate that unidirectional causality is running from service export to financial development in Sri Lanka. In this manner, ELGH holds for administrations commodities of Sri Lanka. Din (2004) highlights the increasing outward orientation and adoption of export promotion policies in South Asian countries, contrary to earlier findings that questioned the long-term applicability of the export-led growth hypothesis in the region. Parida et al. (2007) further support the export-led growth hypothesis for India, Pakistan, Bangladesh, and Sri Lanka, establishing a long-run equilibrium relationship between GDP and exports. Devi (2013) focuses on India, emphasizing the importance of exports in the growth process post-economic reforms in the 90s, supporting the economic strategy of export-led growth. Kumari et al. (2015) extend this analysis to select South Asian countries, concluding that the export-led growth hypothesis holds for Bangladesh and Sri Lanka in the long run. Shafiullah et al. (2016) compare the export-led growth in Bangladesh and Sri Lanka, reaffirming the positive relationship between

exports and economic growth in these two small South Asian economies. Priyankara (2018) specifically delves into services exports and economic growth in Sri Lanka, finding a unidirectional causality from services exports to economic growth. The study also identifies the impact of services exports on GDP components, highlighting the export-led growth hypothesis for services exports in Sri Lanka. Similarly, Hanson et al. (2018) investigate the service export-led growth hypothesis in Mauritius, establishing a unidirectional causality from economic growth to total service exports. Furthermore, ONOSE et al. (2021) broaden the scope to emerging economies, including India, to examine the validity of the export-led growth hypothesis for services exports. This study reaffirms the positive relationship between export growth and long-run economic growth in these emerging economies. Overall, the literature review suggests that the export-led growth hypothesis holds for services exports in Sri Lanka and other South Asian countries, emphasizing the significant role of exports in driving economic growth.

Rhoda Mayawa (2024) The aim of this research was to examine the role of various sectors identified as pivotal in Vision 2030 in driving economic growth, with a particular focus on understanding the impact of the manufacturing sector. Utilizing quarterly time-series secondary data spanning from 2014Q1 to 2021Q4, the study employed the ARDL model for regression analysis. The findings revealed a sustained relationship between the dependent and independent variables, as determined by the ARDL bounds testing approach. However, contrary to expectations, the research concluded that there is no statistically significant correlation between economic growth and manufacturing sector output over the long term.

Sharma and Dr. Hemant's (2019) article "Arising Worldwide Financial Circumstance: Effect on Exchange and Agribusiness India" discusses how the global economic landscape has been impacted by the emergence of China and India, the Coronavirus pandemic, foreign direct investment, innovation and competitiveness for SMEs, the "Make in India" initiative, sea

trade issues, and the status and trends of goods and investments in Assam and North-East India. It emphasizes the importance of understanding and addressing the evolving global economic situation for trade and agriculture in India.

Enilolobo S. Oluwafemi, Rufai S. Oluwatobi and Oraka F. Kesiena(2021) examined the impact of the agro-allied industry performance on the growth of the agricultural sector in Nigeria. It used secondary data from the annual financial statements of the firms in the agro-allied industry from 2010 to 2019. The data for the study were analysed using the panel least square method of regression. The study concluded that the performance of the agro-allied industry in relation to efficiency and firm size has a positive and significant effect on agricultural sector growth, while the performance of the agro-allied industry to liquidity, solvency and profitability has an inverse effect.

Gamit and Pooja in their article (2019) The livestock sector is an important segment of the Indian economy, contributing 4.6% to total GVA. This study analyzed the status and growth trend of livestock production and population in India and different states. Milk production has increased from 112.2 million to 176.3 million tonnes in 2017-18. Uttar Pradesh ranked first in terms of milk and meat production, and Andhra Pradesh registered maximum growth rate in milk production.

Oji-Okoro Izuchukwu (2011) This paper is an endeavor to look at the effect of the agrarian area on the Nigerian economy. The board of information utilized was obtained from the factual release of the National Bank of Nigeria and World Bank's turn of events pointers, numerous relapse was utilized to break down the information, the outcome showed a positive connection between GDP (Gross domestic product) opposite homegrown saving, government consumption on horticulture and unfamiliar direct speculation between the period of 1986-2007. It was additionally uncovered in the review that 81% of the variety in Gross domestic

product could be made sense of by Homegrown Reserve funds, Government Consumption and Unfamiliar Direct Venture. To work on the horticultural area.

Abrham Tezera Gessesse1, Zheng Xungan and He Ge3 (2018) A Time Series Evidence from Ethiopia and China" The aim of this paper is to investigate the inter-sectorial linkage of economic sectors and their contribution to the economic growth using time series data from 1978-2014 and 1992-2014. Design/methodology/approach: This study employed a Johansen cointegration test and Ordinary Least Square (OLS) model. Findings: The Johansen cointegration and multiple regression results indicate that all economic sectors have strong, positive and significant long-run and short-run relationship with economic growth during the study period in both countries. The result revealed that MNF giant is an engine for Chinese economic growth while agriculture took the lion-share for Ethiopian economy. The MNF has bi-directional Granger cause with economic growth, agriculture and SRV for China, while GDP and AGR are the only bi-directional Granger causes variables for Ethiopia.

Osabohien, Akinpelumi , Matthew , Okafor, Iku , Olawande, Okorie (2002) This study utilized the Autoregressive Dispersion Slack (ARDL) econometric strategy to break down the long run relationship and the effect of agricultural export on Nigeria's economic development. Economic development is the dependent variable, and is proxied by the real gross domestic product, the logical factors include: agrarian commodity, unfamiliar direct speculation, expansion rate and the workforce. The outcomes from the ARDL strategy uncovered that agricultural export essentially influence Nigeria's financial development.

Begalov Bahodir Abdusalomovich1 , Mamadaliev Odiljon Toirovich2 , Abdusalomova Nodira Bahodirovna (2022)studies the impact of economic sectors on the gross domestic product of Uzbekistan was studied based on data released by the State Committee of the Republic of Uzbekistan on Statistics in 2010-2021. The descriptive-analytical approach and

stepwise multiple regression model used to analyze the economic sectors and regions. The study results showed that the impact factor of the Transportation and storage sector was (0,722) being the least efficient in the economy of Uzbekistan. At the same time, the study calls for starting more investments in the economic sectors, specially the agricultural and industrial one, as they play a vital role in gross domestic product.

Basel J. A. Ali, Hafnida Hasan and Mohammad Salem Oudat (2021) The significance of exports in fostering sustainable economic growth, whether in developing or developed nations, has drawn considerable attention from researchers. This study focuses on examining the relationship between exports and economic growth in Bahrain, analyzing data spanning from 1986 to 2018. Employing Johansen co-integration and Granger causality tests, the research reveals the existence of co-integration among all variables at a 5% significance level. However, the Granger causality test suggests the absence of causal relationships between exports, imports, capital, and economic growth. Consequently, these findings offer valuable insights for policymaking aimed at regulating exports to prevent unsustainable economic growth. The results underscore the ongoing ambiguity in prior empirical studies concerning the effects of exports, imports, and capital on economic growth, indicating the need for further investigation and policy refinement.

Kelikume et al. (2020) found that all sectors, except the industrial sector, are positively impacted by the agricultural sector. Osa-Afiana et al. (2016) examined the impact of banking sector reforms and credit supply on agricultural output in Nigeria. This paper explores the causal connection between the Agrarian area result and Industry, Development, Exchange and Administrations areas yield utilizing quarterly times series information removed from the yearly factual release of the National Bank of Nigeria from the primary quarter 2010 to the final quarter 2018. The review leaves from the customary static Leontief Information Result approach by utilizing dynamic current procedures like the Granger Causality, Vector

Autoregression, Drive Reaction and Difference Disintegration examinations. The outcomes show the presence of bi-directional causal chain impact linkages between agrarian area yield, administrations.

DANKUMO, ALI MADINA1 , RITI, JOSHUA SUNDAY2 , AYENI, BASHIR SAKA (2015) This research delved into the influence of Nigeria's Agricultural and Industrial sectors on its economic development during the period of 1995 to 2012. Utilizing data from secondary sources, the analysis employed the ordinary least squares econometric technique, specifically utilizing Gretl econometric software.The initial premise of the study was that both the Agricultural and Industrial sectors should positively impact GDP growth. The coefficient associated with Agricultural contribution was found to be positive and statistically significant (2.21125), indicating a substantial contribution to Nigeria's economic development, as evidenced by the significant percentage of the population engaged in this sector. Conversely, the coefficient for the Industrial sector was negative (-0.166812) and insignificant. This suggests that the Industrial sector's contribution to economic development is limited, likely hindered by factors such as inadequate raw materials, insufficient power supply, and high costs of black oil, rendering many industries non-functional.

Emine KILAVUZ and Betül ALTAY TOPCU in their study examines the impact of various classifications of exports and imports on economic growth across 22 developing countries during the period of 1998–2006, employing two distinct models through panel data analysis. The initial model, encompassing variables such as exports from high and low-tech manufacturing industries, investment, and population, unveils that solely two variables—exports from the high-tech manufacturing sector and investment—exhibit a positive and statistically significant influence on economic growth. Additionally, the second model expands the analysis to include the effect of imports from high and low-tech manufacturing industries on growth. Notably, the results indicate that high-tech manufacturing exports,

investment, and imports from the low-tech manufacturing sector demonstrate a positive and significant impact on economic growth.

Adisu and Abebaw Degu (2019) This study examined the intersectoral linkages in Ethiopian economy utilizing a period series information going from 1975 to 2017. The review utilized Johanson co-joining test, vector mistake amendment model, granger causality test, motivation reaction and fluctuation disintegration capabilities. The review tracked down a stable long run relationship among horticultural, modern and administration areas of the economy. Just modern area is viewed as endogenous to the framework suggesting long-run causality runs structure rural and administration areas to modern area. As indicated by short run granger causality results, there is bi-directional causality among modern and horticultural areas, and among modern and administration areas. The consequences of Motivation reaction and Change disintegration capabilities recommend that the rural area improvement assumes a part in deciding the development of the economy by means of its linkages to the rest areas of the economy.

ELMI HASSAN SAMATAR (2020) in their article examines how development in Somalia was formed by horticulture utilizing timeseries information throughout the long stretches of 1970 to 2020. Horticulture holds Somalia's economy, and it fills in as an impetus for business and pay age exercises. The review laid out the connection among Gross domestic product and farming result utilizing Autoregressive Circulated Slack (ARDL) assessment methods, Johansen Cointegration approach, Mistake Rectification Model (ECM), and Expanded Dickey-Fuller (ADF) Unit-root Test. The discoveries of the observational examination give convincing help for the suggestion that horticultural result exercises could act as a development motor for the economy. This exploration laid out that development is moulded emphatically by gross capital arrangement, industry esteem added, administration esteem added, and work in agribusiness.

Jong-Wha Lee, Warwick, Mckibbin in this paper investigates the verifiable experience of efficiency development in the Asian economies over late many years, with an emphasis on the service sector. In light of this historical experience, the paper then, at that point, assesses the effect of more quick development in labor efficiency in the service sector in Asia utilizing an exact general balance model that considers merchandise and capital developments across areas and economies, and utilization and speculation elements. We find that quicker efficiency development in the service sector in Asia adds to supported and adjusted development of Asian economies.

Sami Ullah , Bedi-uz-Zaman, Muhammad Farooq and Asif Javid (2009) Trade drove development is reinvestigated by time series econometric methods (Unit root test, Co-joining and Granger causality through Vector Blunder Rectification Model) over the time of 1970 to 2008 for Pakistan. In this paper, the outcomes uncover that trade development prompts monetary development. It is additionally made sure that whether there is uni-directional or bidirectional causality between monetary development, genuine commodities, genuine imports, genuine gross fixed capital arrangement and genuine per capita pay. The customary Granger causality test recommends that there is uni-directional causality between monetary development, products and imports. Then again Granger causality through vector mistake rectification is checked with the assistance of F-worth of the model and t-worth of the blunder revision term, what to some degree accommodates the conventional Granger causality test.

Lele (1984) highlights the distinct comparative advantage that African countries have in export crops, suggesting that an agriculturally led strategy could be beneficial. However, the neglect of risks associated with such a strategy has been criticized (IDS Bulletin). In Cameroon, Ndoye et al. (2000) discuss the macroeconomic implications of the humid forests on the economy from 1967 to 1997. Gbetnkom (2005) explores the effects

of deforestation in Cameroon on agricultural activities and economic growth, pointing out consequences such as erosion of agricultural lands and modifications of climatic conditions. Incorporating sustainable practices in agricultural value chains has gained traction, with major companies supporting agroforestry approaches to conserve forested landscapes and improve local livelihoods (Millard, 2011). Blakeney et al. (2012) discuss the protection of geographical indications for agricultural products in Africa, emphasizing the importance of recognizing the unique characteristics of products. Yifru (2015) examines the impact of agricultural exports on economic growth in Ethiopia, finding a bi-directional relationship between coffee and oilseed exports and economic growth. Siaw et al. (2018) conducted a disaggregated analysis in Ghana, revealing a unidirectional causality between banana exports and economic growth, a bi-directional relationship between cocoa exports and economic growth, and no causality between pineapple exports and economic development. Herve et al. (2018) evaluate the impact of different cultural approaches on cocoa yields in Cameroon, highlighting the importance of agricultural policy choices. Apolo (2020) investigates the impact of agricultural exports on agricultural economic growth in Ecuador, focusing on banana and cocoa exports. Overall, the literature suggests that agricultural exports play a significant role in economic growth, but the specific impacts can vary depending on the country and the crop in question. Sustainable practices, policy choices, and market dynamics all influence the relationship between agricultural exports and economic development.

P P Situmorang and N Agustina (2021) This study aims to analyze the performance of service export in 10 ASEAN part nations from 2010 to 2019. The consequences of panel data regression utilizing the WLS fixed impact model show that unfamiliar direct investment, ostensible conversion standard, GDP, administrations esteem added, total national output, workforce, human resources and correspondence offices altogether affect ASEAN's service export.

Fauzi Hussin and Chee Wuan Ching (2013) this study looks at the commitment of financial areas to monetary development in Malaysia and China by utilizing time series information from year 1978 until 2007. There are three financial areas that will be dissected, which are agriculture sector, manufacturing sector and service sector. Expanded Dickey Fuller (ADF) unit root test is utilized in this review and it showed that the time series information is fixed at the first differences. Then, correlation analysis demonstrated that agriculture sector, manufacturing sector and service sector had positive relationship with Gross domestic product per capita in Malaysia and China. Also, consequences of model multiple regression showed that services create the most noteworthy commitment to Malaysia's monetary development while manufacturing area gave the greatest commitment to Chinas financial development.

Ekiran Joseph Ojo , Awe, I.T, Ogumjobi, Joseph Olufemi (2014) The review utilized time series information covering the period in the range of 1980 and 2012. The research model was determined in the spirit of Hwa (1988). Phillips-Peron unit root, multivariate Johansen cointegration and error correction methods were utilized to appraise the stationarity, the long-run and the short-run elements of the exploration models individually. The exact discoveries in the review uncovered that agriculture export, agricultural output, net capital flow and world value of Nigeria's major agrarian items are for quite some time run determinants of financial development in Nigeria.

Uddin and Mirza Moyen(2015) This study analyzes the commitment of farming, industry and administrations areas to monetary development in Bangladesh by utilizing time series information from 1980 to 2013. Increased Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests show that the time series information fixed at first distinction. Then, at that point, the cointegration investigation demonstrates that each financial area has solid, positive and huge straight relationship with monetary development. Granger causality test tracked down

bi-directional causality among agribusiness and Gross domestic product and furthermore industry and horticulture. This exact concentrate likewise tracked down the unidirectional granger causality from administrations area to horticulture and industry area to administrations area. At last, the Vector Blunder Revision Model (VECM) likewise used to analyze the short and long run balance connections among the factors. This study gives the rule to the financial backers and strategy producers

Dr. Syed Wahid Ali, Kanwal, Nadia (2020) in the research paper "IMPACT OF SECTORS (AGRICULTURE, MANUFACTURING, SERVICE & INDUSTRY) ON PAKISTAN'S GDP" Objective of the study is to check the impact of the Pakistan's sectors on the economic growth. For this purpose, econometric techniques such as Ordinary Least Square (OLS) analysis and Johanson Cointegration analysis are applied for the era of 1972 to 2019. Outcomes of the OLS indicate that AGRI, SRV, DI and LFPR has statistically positive impact on GDP of Pakistan. While, the MNF and IND are insignificant in this research.

Fauzi Hussin1, & Soo Yoke Yik1(2016) in their research paper" The Contribution of Economic Sectors to Economic Growth: The Cases of China and India" This study seeks to assess the impact of different economic sectors on the economic growth of China and India between 1978 and 2007. Specifically, it focuses on analyzing the contributions of agriculture (primary sector), manufacturing (secondary sector), and services (tertiary sector). The primary objective is to determine which sector plays a more significant role in driving economic growth in both countries. Methodology --Augmented Dickey-Fuller (ADF) unit-root test, correlation analysis. The findings from the multiple regression analysis reveal a positive correlation between GDP per capita and the agriculture, manufacturing, and services sectors in both China and India. Nevertheless, the extent of each sector's contribution to economic growth varies between the two countries. In China, the manufacturing sector emerges as the primary driver of economic growth, whereas in India, it is the services sector

that holds this distinction, making the most significant contribution to the country's economic advancement.

Solanki, Sandip, INUMULA, Krishna Murthy, CHITNIS, Asmita (2020) Sectoral Contribution to Economic Development in India: A Time-Series Co-Integration Analysis -The Journal of Asian Finance, Economics and Business | Korea Science Johansen's method of cointegration is used to study the cointegration between sectoral contributions to Indian GDP and economic growth. Time-series data from 1960 to 2015 showed a dynamic co-relationship between industrial and agricultural sector contribution and economic development. Policymakers should monitor and control the changing composition of sector contribution.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

The chapter provides basic research plan of the study. The chapter provides research information of the study including population and samples of the study, data sources, data analyses methods etc.

3.2 Methodology

The data used in this study were secondary data obtained from the World Development Indicator (WDI) website and Agricultural and processed Food Products Export Development Authority (APEDA). This study uses annual time series data from 2013 to 2022. As this study examines the contribution of economic sectors (agriculture, manufacturing and services) to economic growth in India, secondary data is appropriate for the study. To check the impact of the sectors on India's economy, ADF test, Ordinary Least Square (OLS) and Co-integration test (Engle- Granger) is applied.

The mathematical model of the study is:

GDP= f (AGRI, MNF, SRV, L, C)

And the Econometric model of the study is;

$GDPt = \alpha o + \alpha 1\ AGRIt + \alpha 2\ MNFt + \alpha 3\ SRVt + \alpha 4L + \alpha 5C + \varepsilon t$

Details of variable;

GDP= Gross Domestic Product

AGRI= Agriculture, forestry, and fishing export at time t

MNF= Manufactured export at time t

SRV= Services, export at time t

L= Labour

C= Capital

ε= Error Term

t= time series

CHAPTER IV

FINDINGS

4.1 Introduction

This chapter discuss summary of all the chapters, the main findings of the study**.**

4.2 ADF test for GDP

Null Hypothesis: GDP has a unit root, indicating non-stationarity.

Alternative Hypothesis: The variable is stationary.

	estimated value of (a - 1)	t- statistic	Auto correlation	p- value
No trend	-3.26872	-4.46143	-0.152	0.0002257
With trend	-3.27167	-4.21181	-0.153	0.004228

The estimated values of ($a-1$) in both models are significantly different from 1, indicating a lack of unit root. The test statistics have large absolute values, providing strong evidence against the null hypothesis of a unit root. The p-values associated with the test statistics are very small, further supporting the rejection of the unit-root null hypothesis. The autocorrelation coefficients for the residuals are relatively low, indicating little autocorrelation in the model's errors. Therefore, based on the ADF test results, we can conclude that the first difference of GDP series is likely stationary.

4.3 AFD test for Agriculture Export

Null Hypothesis: Agriculture Export has a unit root, indicating non-stationarity.

Alternative Hypothesis: Agriculture Export is stationary.

	estimated value of (a - 1)	t- statistic	Auto correlation	p- value
No trend	-1.23393	-5.16423	-0.034	0.0001809
With trend	-1.23355	-4.99981	-0.034	9.304e-06

The estimated coefficient of the lagged variable is significantly different from 1, indicating strong evidence against the presence of a unit root. The test statistic has a very large absolute value, and the associated p-value is extremely small, providing strong evidence against the null hypothesis of a unit root. There is a slight negative autocorrelation (-0.034) in the model's errors. Both models provide strong evidence against the presence of a unit root in the first difference of Agriculture Export, suggesting that the series is likely stationary.

4.4 ADF test Service Export

Null Hypothesis: Service Export has a unit root, indicating non-stationarity.

Alternative Hypothesis: Service Export is stationary.

	estimated value of (a -1)	t- statistic	Auto correlation	p- value
No trend	-1.96668	-3.82053	-0.209	0.002716
With trend	-1.92389	-3.6525	-0.194	0.02558

Test with constant: The estimated value of the coefficient is approximately -1.96668. Test Statistic: -3.82053. p-value: 0.002716 (significant at conventional levels, suggesting rejection of the null hypothesis). The first-order autocorrelation coefficient for the error term is approximately -0.209.

With trend and constant: The estimated value of the coefficient is approximately -1.92389. Test Statistic: -3.6525. Asymptotic p-value: 0.02558 (significant at conventional levels, suggesting rejection of the null hypothesis). The first-order autocorrelation coefficient for the error term is approximately -0.194. The first difference of the variable Service Export is found to be stationary, as evidenced by the rejection of the null hypothesis of a unit root in both the tests with a constant and with a constant and trend.

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4.5 ADF test for Manufacture Export

Null Hypothesis: Manufacture Export has a unit root, indicating non-stationarity.

Alternative Hypothesis: Manufacture Export is stationary.

	estimated value of (a -1)	t- statistic	Auto correlation	p- value
No trend	-2.69191	-6.30358	-0.143	2.154e-08
With trend	-2.69507	-6.12204	-0.145	5.802e-07

Interpretation: The first difference of Manufacture Export is stationary.

Test Statistic: -6.30358

p-value: 2.154×10^{-82}

1st-order autocorrelation coefficient for the error term: -0.143

The first difference of the variable Manufacture Export is found to be stationary, as indicated by the rejection of the null hypothesis of a unit root in both tests with a constant and with a constant and trend.

4.6 ADF test for Labour

Null Hypothesis: Labour has a unit root, indicating non-stationarity.

Alternative Hypothesis: Labour is stationary.

	estimated value of (a -1)	t- statistic	Auto correlation	p- value
No trend	-1.02118	-4.2163	-0.006	0.0006141
With trend	-1.06393	-4.34275	-0.012	0.002637

The test statistic is -4.2163 with an asymptotic p-value of 0. 0006141.The estimated value of (a - 1) is approximately -1. 02118.With a constant term only, the test strongly rejects the null hypothesis of a unit root, indicating that the variable Labour is likely stationary.

With constant and trend: The test statistic is -4.34275 with an asymptotic p-value of 0.002637. The estimated value of (a - 1) is approximately -1.06393. Including a constant and trend, the test also rejects the null hypothesis of a unit root, supporting the stationary nature of the variable. The results from both models provide strong evidence against the presence of a unit root in the variable Labour. Therefore, we conclude that the Labour variable is stationary time series.

4.7 Johansen Co-Integration Test Result

Johansen co-integration tests (Trace)

Rank	Eigenvalue	Trace test	p-value	Lmax test	p-value
0	0.99066	193.62	0.0000	98.144	0.0000
1	0.82740	95.478	0.0001	36.892	0.0174
2	0.77200	58.586	0.0030	31.047	0.0142
3	0.53745	27.539	0.0909	16.191	0.2225
4	0.37637	11.348	0.1937	9.9161	0.2219
5	0.065919	1.4320	0.2314	1.4320	0.2314

The Trace test results suggest:

- Rank 0: Eigenvalue = 0.99066, Trace test statistic = 193.62, p-value < 0.0000 (highly significant).
- Rank 1: Eigenvalue = 0.82740, Trace test statistic = 95.478, p-value = 0.0001 (significant).
- Rank 2: Eigenvalue = 0.77200, Trace test statistic = 58.586, p-value = 0.0030 (significant).
- Rank 3: Eigenvalue = 0.53745, Trace test statistic = 27.539, p-value = 0.2219 (not significant).
- Rank 4: Eigenvalue = 0.37637, Trace test statistic = 11.348, p-value = 0.1937 (not significant).
- Rank 5: Eigenvalue = 0.065919, Trace test statistic = 1.4320, p-value = 0.2314 (not significant).

These results suggest that there are at least 3 cointegrating relationships among the variables, as indicated by the ranks with significant p-values in the Trace test. The remaining ranks have

p-values above conventional significance levels, indicating insufficient evidence to reject the null hypothesis of fewer cointegrating relationships.

Rank 0: p-value < 0.0001 (highly significant)

Rank 1: p-value = 0.0001 (significant)

Rank 2: p-value = 0.0030 (significant)

For all these ranks, the p-values are less than 0.05, indicating statistically significant evidence of cointegration. Therefore, we can conclude that there is cointegration present in the dataset at a significance level of 5% for ranks 0, 1, and 2.

4.8 Regression model

Variable	Coefficient	Std. Error	t-statistic	p- value
Constant	-4.407e+12	1.113e+12	-3.958	0.00102 **
Agriculture	4.916e+00	4.603e+00	1.068	0.30048
Service	1.160e+04	2.942e+03	3.942	0.00105 **
Manufactured	1.849e+00	6.615e-01	2.796	0.01242 *
Labour	-1.846e+00	9.736e-01	-1.896	0.07511
Capital	1.200e-02	3.812e-02	0.315	0.75670

Multiple R-squared: 0.9914, Adjusted R-squared: 0.9888

Dependent Variable: Gross Domestic Product

Independent variable: Agriculture Export, Service Export, Manufacture Export, Labour, Capital

Agriculture Export: This variable represents the export value of agricultural products. The coefficient (4.916e+00) indicates that, on average, for a one-unit increase in Agriculture Export, the dependent variable increases by approximately 4.916 units. Manufacture Export: This variable represents the export value of manufactured products. The coefficient (1.849e+00) suggests that, on average, for a one-unit increase in Manufacture Export, the dependent variable increases by approximately 1.849 units. Service Export: This variable represents the export value of services. The coefficient (1.160e+04) suggests that, on average, for a one-unit increase in Service Export, the dependent variable increases by approximately 11600 units. Capital: This variable is not explicitly defined, but it likely represents some measure of capital investment or capital stock. The coefficient (1.200e-02) indicates that, on

average, for a one-unit increase in Capital, the dependent variable increases by approximately 0.012 units. Labour: This variable likely represents some measure of labor input or employment. The coefficient (-1.846e+00) suggests that, on average, for a one-unit increase in Labour, the dependent variable decreases by approximately 1.846 units. Intercept: The intercept term represents the value of the dependent variable when all independent variables are zero. In this case, it's -4.407e+12. Residuals: The residuals represent the differences between the observed values of the dependent variable and the values predicted by the model. The minimum, maximum, and quartiles of the residuals indicate the spread and distribution of these differences. Among these variables, "Service Export" has the largest coefficient (1.160e+04), indicating that, on average, a one-unit increase in service exports contributes significantly more to GDP compared to changes in the other variables. Therefore, based on the coefficients provided, "Service Export" is the variable that contributes most to GDP in this model.

4.9 Granger Causality

Null hypothesis	F. Statistic	p- value
AGRI does not Granger Cause GDP GDP does not Granger cause AGRI	4.12753 4.44381	0.05031 0.04271
SRV does not Granger cause GDP GDP does not Granger cause SRV	7.74494 9.93324	0.0208** 0.0000*
MNF does not Granger cause GDP GDP does not Granger cause MNF	6.86498 0.93147	0.0323** 0.6277

1. Agriculture (AGRI) and GDP

- Null hypothesis: AGRI does not Granger Cause GDP

F. Statistic: 4.12753

p-value: 0.05031

- Null hypothesis: GDP does not Granger cause AGRI

F. Statistic: 4.44381

p-value: 0.04271

Interpretation:

For AGRI causing GDP, the p-value is 0.05031, which is very close to the common significance level of 0.05. This suggests marginal evidence against the null hypothesis, indicating that AGRI might Granger-cause GDP, though this conclusion is not robust.

For GDP causing AGRI, the p-value is 0.04271, below 0.05, providing evidence to reject the null hypothesis and suggesting that GDP Granger-causes AGRI.

2. Services (SRV) and GDP

- Null hypothesis: SRV does not Granger cause GDP

F. Statistic: 7.74494

p-value: 0.0208

- Null hypothesis: GDP does not Granger cause SRV

F. Statistic: 42.9324

p-value: 0.0000

For SRV causing GDP, the p-value is 0.0208, clearly below the threshold of 0.05, strongly suggesting that SRV Granger-causes GDP.

For GDP causing SRV, the p-value is extremely low (0.0000), providing very strong evidence to reject the null hypothesis. This indicates a significant Granger causality from GDP to SRV.

3. Manufacturing (MNF) and GDP

- Null hypothesis: MNF does not Granger cause GDP

F. Statistic: 6.86498

p-value: 0.0323

- Null hypothesis: GDP does not Granger cause MNF

F. Statistic: 0.93147

p-value: 0.6277

Interpretation:

For MNF causing GDP, the p-value is 0.0323, below the significance level of 0.05, suggesting evidence to reject the null hypothesis. This indicates that MNF Granger-causes GDP.

For GDP causing MNF, the p-value is 0.6277, much higher than 0.05, indicating no evidence to reject the null hypothesis. This suggests that GDP does not Granger-cause MNF.

SRV Granger-causes GDP: Essentially, changes in the services export precede and can forecast changes in the overall economy (represented by GDP). This is supported by the F-Statistic of 7.74494 and a p-value of 0.0208, indicating strong statistical significance.

GDP Granger-causes SRV: It suggests that the overall economic condition, as reflected by GDP, affects the performance of the services export. This relationship is even stronger, with an F-Statistic of 42.9324 and a p-value effectively at 0.0000, showing very strong statistical significance.

4.10 Descriptive statistics of variables:

	GDP	AGRI	MNF	SRV	Labour	Capital
Mean	1.3401e+011	2.3237e+009	1.4137e+010	1.3304e+010	7.2943e+006	1.3986e+011
Median	1.1556e+011	9.7146e+008	1.3700e+010	1.1944e+010	6.1274e+006	1.1944e+010
Maximum	4.7871e+011	1.2700e+010	1.1902e+011	6.8716e+010	1.9119e+007	2.2034e+012
Minimum	-1.6401e+011	-6.5705e+009	-5.4743e+010	-1.3165e+010	2.4828e+005	-7.6525e+010
Std, Dev.	1.4331e+011	4.6058e+009	4.0185e+010	1.7149e+010	3.8708e+006	4.8382e+011
Skewness	0.47046	0.43283	0.52346	1.4012	1.3273	3.8300
Kurtosis	0.32340	0.071787	0.70556	3.2197	2.6074	13.596

GDP: It has a very large mean and median, indicating a high average economic output. The maximum and minimum values are quite extreme, suggesting a wide range of GDP values. The standard deviation is also large, indicating considerable variability in GDP across observations. Skewness and kurtosis are relatively low, indicating a fairly symmetric distribution.

AGRI (Agriculture Export): AGRI has a much smaller scale compared to GDP, as seen from its mean and median. The skewness and kurtosis are low, indicating a relatively symmetric distribution. The standard deviation is moderate, suggesting some variability in agricultural expenditure.

MNF (Manufactures Export): MNF has a mean and median similar to AGRI but with a larger standard deviation, indicating higher variability. Skewness and kurtosis are moderate, suggesting a somewhat symmetric distribution with slightly heavier tails. SRV (Service Export): SRV has a mean and median similar to AGRI but with a larger standard deviation,

indicating higher variability. Skewness and kurtosis are higher than other variables, indicating a distribution with a longer right tail and heavier tails compared to a normal distribution.

Labour: Labour has the smallest scale among the variables, with a mean and median in the order of millions. Skewness and kurtosis are moderately high, indicating a distribution with a longer right tail and heavier tails compared to a normal distribution. The standard deviation is relatively small compared to the mean, suggesting less variability compared to the other variables.

Capital: Capital has the largest mean and median among the variables, indicating its significant economic importance. Skewness and kurtosis are extremely high, indicating a highly skewed distribution with heavy tails. The standard deviation is very large compared to the mean, suggesting considerable variability in capital across observations.

4.11 Correlation Matrix

Correlation Coefficients, using the observations 2001 - 2022

Two-tailed critical values for n = 22: 5% 0.4227, 1% 0.5368

GDP	Agriculture Export~	Service Export	Labour	
1.0000	0.2958	0.6108	0.6250	GDP
	1.0000	0.1519	0.0990	Agriculture Export
		1.0000	0.7433	Service Export
			1.0000	Labour

Manufacture Export~	Capital	
0.5457	0.5658	GDP
0.4162	0.3000	Agriculture Export~
0.3674	0.5113	Service Export
0.1686	0.6116	Labour
1.0000	0.4543	Manufacture Export~
	1.0000	Capital

This correlation matrix provides insight into the relationships between various economic indicators, based on observations from 2001 to 2022.

1. GDP (Gross Domestic Product)

- Positive correlation with Agriculture Export (0.2958), Service Export (0.6108), Labour (0.6250), Manufacture Export (0.5457), and Capital (0.5658).

- Indicates that as GDP increases, there tends to be an increase in these economic factors.

2. Agriculture Export

- Positively correlated with GDP (0.2958) and Capital (0.3000).

- Indicates that as agriculture exports increase, GDP and capital tend to increase as well.

3. Service Export

- Strong positive correlation with GDP (0.6108) and Labour (0.7433).

- Indicates that as service exports increase, GDP and labour tend to increase significantly.

4. Labour

- Positively correlated with GDP (0.6250), Service Export (0.7433), and Manufacture Export (0.6116).

- Indicates that as the labour force grows, GDP and exports of services and manufactured goods tend to increase.

5. Manufacture Export

- Moderately correlated with GDP (0.5457) and Capital (0.4543).

- Indicates that as manufacturing exports increase, GDP and capital tend to increase as well.

6. Capital

- Positively correlated with GDP (0.5658) and Manufacture Export (0.4543).

- Indicates that as capital investment increases, GDP and manufacturing exports tend to increase.

The correlation matrix suggests that GDP is positively correlated with various economic indicators such as agriculture exports, service exports, labour force, manufacturing exports, and capital investment. Positive correlations imply that these factors tend to move in the same direction, indicating a degree of interdependence among them in the observed time period.

CHAPTER V

IMPACT OF FDI INFLOW ON ECONOMIC SECTOR EXPORT

5.1 Introduction

This chapter discuss summary of all the chapters, the main findings of the study.

5.2 Impact of FDI on Services Export

The following data are as follows

5.2.1 ADF Test for Service Export

Null Hypothesis: Service Export has a unit root, indicating non-stationarity.

Alternative Hypothesis: Service Export is stationary.

	estimated value of (a -1)	t- statistic	Auto correlation	p- value
No trend	-1.96668	-3.82053	-0.209	0.002716
With trend	-1.92389	-3.6525	-0.194	0.02558

Test with constant: The estimated value of the coefficient is approximately -1.96668. Test Statistic: -3.82053. p-value: 0.002716 (significant at conventional levels, suggesting rejection of the null hypothesis). The first-order autocorrelation coefficient for the error term is approximately -0.209.

With trend and constant: The estimated value of the coefficient is approximately -1.92389. Test Statistic: -3.6525. Asymptotic p-value: 0.02558 (significant at conventional levels, suggesting rejection of the null hypothesis). The first-order autocorrelation coefficient for the error term is approximately -0.194. The first difference of the variable Service Export is found to be stationary, as evidenced by the rejection of the null hypothesis of a unit root in both the tests with a constant and with a constant and trend.

5.2.2 ADF Test for Service sector FDI inflow

Null Hypothesis: Service sector FDI inflow has a unit root, indicating non-stationarity.

Alternative Hypothesis: Service sector FDI inflow is stationary.

	estimated value of (a -1)	t- statistic	Auto correlation	p- value
No trend	-1.29403	-5.59241	-0.056	1.074e-06
With trend	-1.29687	-5.435	-0.056	2.313e-05

Both the test with a constant and the test with a constant and trend reject the null hypothesis of a unit root at conventional significance levels. The estimated values of (a - 1) are negative, indicating that the series is stationary. Additionally, the test statistics have large absolute values, and the p-values are very small, providing strong evidence against the presence of a unit root.

5.2.3 OLS Regression

Null Hypothesis: There is no positive relationship between FDI inflows and service export.

Alternative hypothesis: There is positive relationship between inflows and service export.

Variable	Coefficient	Std. Error	t-statistic	p- value
Constant	5.60193e+010	1.32494e+010	4.228	0.0005 ***
Service sector FDI	0.606765	0.0779591	7.783	2.51e-07 ***

R-squared 0.761237 Akaike criterion 1084.378
Adjusted R-squared 0.748671 Hannan-Quinn 1084.832
Durbin-Watson 1.482012

The R-squared value indicates that approximately 76.12% of the variance in the dependent variable is explained by the independent variable in the model. The adjusted R-squared value, which takes into account the number of predictors in the model, is also high, indicating a good fit.

The F-statistic tests the overall significance of the model. With a very low p-value of 2.51e-07, the model is statistically significant at conventional significance levels (e.g., 0.05).

Coefficients:

cost (Intercept): The coefficient is 5.60193e+010 with a standard error of 1.32494e+010. The t-ratio is 4.228 with a p-value of 0.0005. This suggests that the intercept term is statistically significant at conventional levels.

Service sector FDI inflow: The coefficient is 0.606765 with a standard error of 0.0779591. The t-ratio is 7.783 with a p-value of 2.51e-07. This indicates that the coefficient for the

independent variable Service sector FDI inflow is highly statistically significant at conventional levels.

Overall, both the intercept term and the coefficient for the independent variable Service sector FDI inflow are statistically significant. The model's explanatory power, as indicated by the high R-squared value, is also very high, suggesting that this model provides a good fit to the data.

5.2.4 Johansen Co-Integration Test Result

Johansen co-integration tests (Trace)

Rank	Eigenvalue	Trace test	p-value	Lmax test	p-value
0	0.59804	19.363	0.0111	18.228	0.0096
1	0.055157	1.1347	0.2868	1.1347	0.2868

Rank 0: The Trace test and Lmax test provide evidence against the null hypothesis of no cointegration (rank = 0) at conventional significance levels ($p < 0.05$). Therefore, there is statistical evidence supporting at least one cointegrating relationship between the variables at the 5% significance level.

Rank 1: The Trace test and Lmax test do not provide significant evidence against the null hypothesis of rank = 1 (no additional cointegrating relationship). Therefore, there is insufficient evidence to reject the hypothesis that there is only one cointegrating relationship between the variables at the 5% significance level.

In summary, based on the Johansen test results, there is at least one cointegrating relationship between the variables at the 5% significance level.

5.2.5 Granger Causality

The Granger Causality test shows the cause and effect relationship between the two variables. Granger Causality type analysis permits us to conclude that the relationship between FDI and Service Export variables is found to be significant; FDI has positively influenced the growth of services export in the Indian economy, after the liberalization period. The null hypothesis that FDI does not Granger Cause Services Export is tested using the logarithmic value of both the variables, in their first difference form. It can be seen that FDI does not Granger Cause Services Export at 0.00319 probability. Here it is also seen that there is presence of unidirectional causality from FDI inflows to services export and there is no causality running from services export to FDI inflows.

Null hypothesis	F-Statistic	p- value
FDI inflow does not Granger Cause SEREXP	9.23632	0.00319
SEREXP does not Granger cause FDI inflow	0.25906	0.77567

After examining the impact of FDI on services export by using various econometric tools like ADF test, OLS model and Granger Causality test, it is evident that FDI has a positive impact on the services export. In other words, FDI influences the growth of the service export. Therefore, we reject the null hypothesis, that is, FDI does not have any significant impact on the services export of India. Thereby accepting the alternate hypothesis, that is, FDI does

have significant impact on the services export of India. We reject H0 = 0 i.e. FDI has no significant impact on SEREXP and accept H1 ≠ 0 i.e. FDI has a significant impact on SEREXP. The relationship between FDI and services export variables is found significant from the Granger Casualty Test. The analysis reveal that services export does not Granger cause FDI whereas FDI does Granger cause services export. Therefore, a unidirectional causality is observed from FDI inflows to services export. Thus from the analysis we can say that FDI has a significant impact on the services export of India. FDI inflow affects the growth of services export of India. One of the main causes for the tremendous growth of the services export and the service sector as a whole is the inflow of FDI.

5.3 Impact of FDI on Manufacture Export

5.3.1 ADF test for Manufacture Export

Null Hypothesis: Manufacture Export has a unit root, indicating non-stationarity.

Alternative Hypothesis: Manufacture Export is stationary.

	estimated value of (a -1)	t- statistic	Auto correlation	p- value
No trend	-2.69191	-6.30358	-0.143	2.154e-08
With trend	-2.69507	-6.12204	-0.145	5.802e-07

Interpretation: The first difference of Manufacture Export is stationary.

Test Statistic: -6.30358

p-value: 2.154×10^{-82}

1st-order autocorrelation coefficient for the error term: -0.143

The first difference of the variable Manufacture Export is found to be stationary, as indicated by the rejection of the null hypothesis of a unit root in both tests with a constant and with a constant and trend.

5.3.2 ADF test for Manufacture Sector Inflow

Null Hypothesis: Has a unit root, indicating non-stationarity.

Alternative Hypothesis: Manufacture sector inflow is stationary.

	estimated value of (a -1)	t- statistic	Auto correlation	p- value
With constant	-0.992931	-2.58661	-0.038	0.043

The p-value of 0.043 indicates that at a 5% significance level, the null hypothesis of a unit root can be rejected. This suggests that the time series does not have a unit root and is likely stationary. The very small value of -0.038 suggests there is minimal autocorrelation in the residuals of the regression used in the ADF test, which supports the validity of the test results. The ADF test results suggest that the first difference of the Manufacturing sector FDI inflow series is stationary.

5.3.3 Regression Analysis

Impact of the independent variables on the dependent variable are checked through the Ordinary Least Square (OLS) method. Manufacture export is dependent variable while the Manufacture sector FDI inflow is independent variable.

Results of Multiple Regression analysis

Variable	Coefficient	Std. Error	t-statistic	p- value
Constant	1.97742e+011	2.89160e+010	6.839	1.58e-06 ***
Manufacture FDI inflow	34.9708	15.8023	2.213	0.0393 **

R-squared: 0.204936
Adjusted R-squared 0.163091

Akaike criterion 1125.119
Hannan-Quinn 1125.572
Durbin-Watson 2.693216

The coefficient is 34.9708, with a standard error of 15.8023. The t-ratio is 2.213, which results in a p-value of 0.0393. This suggests that there is a statistically significant relationship between Manufacture sector FDI inflow and Manufacture Export at the 5% significance level. For every unit increase in, Manufacture sector FDI inflow, Manufacture Export increases by approximately 34.9708 units. The R-squared value is 0.204936, indicating that about 20.49% of the variability in Manufacture Export is explained by the model. The adjusted R-squared is slightly lower at 0.163091, which adjusts for the number of predictors in the model and suggests a moderate fit. The F-value is 4.897448 with a corresponding p-value of 0.039334, indicating that the model as a whole is statistically significant at the 5% level. The model suggests that the Manufacturing sector FDI inflow has a positive impact on Manufacture Export

5.3.4 Johansen Co-integration Test Result

Johansen co-integration tests (Trace)

Rank	Eigenvalue	Trace test	p-value	Lmax test	p-value
0	0.70103	40.324	0.0000	22.941	0.0012
1	0.59943	17.382	0.0000	17.382	0.0000

Eigen value

For rank 0: The eigenvalue is 0.70103, which is relatively high, suggesting a strong cointegrating relationship.

For rank 1: The eigenvalue is 0.59943, also indicating a significant but slightly weaker relationship than the first.

Trace test

Rank 0: The trace statistic is 40.324 with a p-value of [0.0000], strongly rejecting the null hypothesis of no cointegration ($r = 0$), suggesting at least one cointegrating relationship.

Rank 1: The trace statistic is 17.382 with a p-value of [0.0000], rejecting the null hypothesis of at most one cointegrating relationship ($r \leq 1$), suggesting there are at least two cointegrating relationships.

Maximum Eigenvalue (Lmax) Test

The Maximum Eigenvalue Test examines the null hypothesis of r cointegrating vectors against the alternative of $r + 1$ cointegrating vectors.

Rank 0: The Lmax statistic is 22.941 with a p-value of [0.0012], rejecting the null hypothesis of no cointegrating relationship, indicating strong evidence of at least one cointegrating relationship.

Rank 1: The Lmax statistic is 17.382 with a p-value of [0.0000], rejecting the null hypothesis of no more than one cointegrating relationship, indicating strong evidence of a second cointegrating relationship.

Conclusion

The study analysed intersectoral linkages in Indian economy using a time series data on manufacturing, agricultural and service sectors export ranging from 2000 to 2022. The study employed Johanson cointegration test, granger causality test, Ols regression.

The growth of India's manufactured exports is a key driver of economic progress, providing substantial benefits in terms of GDP growth, employment, and technological advancement. The impact of service exports on India's economic growth is multifaceted. Not only do these exports bring substantial foreign exchange revenues, but they also play a crucial role in attracting foreign direct investment (FDI). This influx of capital and technology enhances the country's economic infrastructure and boosts its overall economic landscape. Moreover, the growth in service exports has led to the development of urbanization, and higher standards of living.

The service sector's role in India's exports and its consequent impact on economic growth. As one of the world's fastest-growing service economies.

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The Indian government recognizes the strategic importance of service exports and has implemented policies aimed at promoting sectoral growth. Initiatives such as the 'Services Export from India Scheme' (SEIS) aim to make Indian services more globally competitive by

providing incentives. Additionally, efforts to enhance skills training and improve infrastructure further bolster the sector’s prospects.

In conclusion, service exports are a cornerstone of India’s economic strategy, driving growth, employment, and global engagement.

Analysis underscores the significant role that key sector exports play in driving economic growth in India. Through our examination of major export sectors such as service, manufacturing and agriculture, have identified their substantial contributions to the country's export revenue and overall economic development. Furthermore, the study highlights the crucial influence of Foreign Direct Investment (FDI) inflows on enhancing sectoral export performance in India.

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