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Double Blind Peer Reviewed International Journal

ABOUT THE COLLEGE

Hansraj College is one of the largest constituent colleges of the University of Delhi. The college was founded by the D.A.V. College Managing Committee on 26th July, 1948 in the sacred memories of Maharshi Dayanand Saraswati and Mahatma Hansraj who spent their magnificent lives emphasizing the importance of knowledge. It is one of the leading lights in the D.A.V. family of over 700 institutions.

Hansraj College is a premier institution dedicated to teaching and research. It has highly qualified academicians who impart education in Science, Commerce, and Arts at undergraduate and graduate levels to more than 5000 students. The college has consistently demonstrated outstanding performance in academics, sports, and extracurricular activities.

The college has completed 75 years in the realm of imparting higher education. It has made significant and unparalleled contributions in terms of producing scholars, bureaucrats, intellectuals, and sportsperson serving in different domains not only in our own country but even at international levels.

Hansraj College stands at the cusp between the past and the future today. While it retains inspiring facets of its proud history, with an equally sharp gaze it looks ahead, assimilating the exciting world of new knowledge as it unfolds in front of it, holding the promise of an experience seeped with exhilarating learning and holistic growth for all those who enter its portals.

About the Journal

The ***HRC Journal of Economics and Finance*** is a **double-blind peer–reviewed academic journal** for students, researchers, and faculty to showcase their research pertaining to the discipline of economics and business. It is an international journal. Our mission is to provide a platform through which scholars can publish their scholarly findings to showcase them with the research community at large. We invite research papers and articles on topics related to the field of economics, business and management for its quarterly journal publication.

Message from the Principal

The launch of the *HRC Journal of Economics and Finance* is a milestone that marks our dedication towards providing a platform to young researchers in the field of economics and finance. It is even more fortuitous that the launch has been manifested in the Platinum jubilee year of the college, the Centenary year of the University of Delhi and the 75th year of India's independence.

The New Education Policy, 2020 has launched a paradigm shift that encourages research both at the faculty and student level. Accordingly there is a growing need to provide credible platforms to present research outputs at all levels. This journal fills a significant gap and will contribute to fostering a research ecosystem thereby advancing the objectives of the NEP 2020. This journal will provide an opportunity to students, teachers and scholars, around the world to come together and showcase the links between classroom teaching and their practical training.

I congratulate the authors whose papers/articles have been published in the journal and encourage others to contribute to future issues. Appreciation is due to the editors of this journal, Dr. Apoorva Gupta and Dr. Arjun Mittal who have worked tirelessly for the successful launch of this journal. My best wishes for the success of this venture.

Prof. (Dr.) Rama
Principal
Hansraj College

From the Editor's Desk

Dear Readers,

It is our great pleasure and privilege that we present the third issue of the Journal of the Hansraj College, the *HRC Journal of Economics and Finance*. The journal provides a platform to young researchers in the field of economics, business, social sciences, finance and management to publish their scholarly articles. Our inclusive nature ensures that we cover the wide range of issues in the field. This issue features a diverse range of articles that provide insightful analyses and innovative perspectives on various contemporary economic topics.

We have received around thirty papers relevant to the field of development economics, political economy, macroeconomic policy, financial markets, international trade, and behavioral economics. All the papers went through three rounds of review process, first by the editors and then by the review board. All the papers have gone through double blind peer review process. The authors were communicated with the revisions. The papers were accepted only after the satisfactory revisions were being made. We strictly follow the research ethics and do not tolerate plagiarism. All the selected papers were tested for plagiarism before publication. We have worked tirelessly to bring out the first issue of the journal with high quality research work.

Writing quality research papers takes a lot of time and effort, and the authors must be congratulated for writing their research papers for the journal, which is launched in the Platinum Jubilee year of the college, the Centenary year of the University of Delhi and the 75th year of India's independence. We also take this opportunity to congratulate the review board of this issue for their constant academic support for the timely release of the journal. We also thank the support received from the Principal of the college, Prof. (Dr.) Rama, the Advisory Board and the Editorial Board.

We hope that readers find the articles interesting, informative and engaging, and enjoy reading it. We believe that this effort of ours will stimulate further research and discussion in the field of economics and finance, and encourage readers to write for further issues of the journal. We look forward to receiving your feedback and suggestions for future issues.

Disclaimer: The opinions expressed in this journal belong to the contributors and do not necessarily reflect the viewpoints of the college, the editors, the Advisory Board, the Editorial Board, and the Review Board of the *HRC Journal of Economics and Finance*.

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CONTENTS

US SANCTIONS AND ITS ECONOMIC IMPACT: AN EMPIRICAL STUDY OF INDIA

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Abstract

The research aims to study the evolution and formation of US hegemony and the behaviour of the hegemon post 1991. It provides a theoretical background on the economic sanctions imposed by the US, its efficacy and particularly the effects of sanctions on the Indian economy. The study examines the repercussions faced by India due to the trade embargo and empirically analyses its impact on major macroeconomic variables such as economic growth, inflation, exchange rate, interest rate, foreign investments and foreign trade. A dummy structural break model for the time periods 1996-Q3 to 2001-Q3 (before and during sanctions) and 1998-Q2 to 2007-Q4 (during and after sanctions) is used to analyse the changes in the variables due to the imposition of sanctions, and its trends after the repeal of sanctions, respectively. Such differentiation is made to compare the trends in the variables in different periods. It further goes to explore the channels through which economic growth and inflation rates were affected. An Autoregressive Distributed Lag (ARDL) model is used to investigate the open economic channels.

Keywords: US hegemony, economic sanctions, economic growth, inflation, exchange rate, interest rate, foreign investments, foreign trade, open economic channels.

JEL Classification: F41, F51

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1. Introduction

With the formation of international organisations such as the United Nations (UN) and World Trade Organisation (WTO), the US has had dominance over the world economy (Devetak et al., 2011). In this light, the study focuses on the sanctions imposed by the US, its rationale, efficacy and particularly the effects of sanctions on the Indian economy. The study examines the repercussions faced by India due to the trade embargo and the impact on major macroeconomic variables such as economic growth, inflation, exchange rate, interest rate, foreign investments and foreign trade. It further goes to explore the channels through which economic growth and inflation rates were affected.

Through its hard power, the US exercises hegemony using its military capabilities, financial power, material strength and its economic foreign policies. Also, it implements leadership strategies through its soft power to convince the world of its superiority by taking their consent subtly. Such methods include its popular culture, language, Hollywood, its approach towards human rights etc.

This is because the US is the largest source of funds to these organisations. Many of the directors and important authorities governing the administration of such organisations are US nationals, or the ones who have a postgraduate degree from US universities. This is done to make sure that the personnel of such organisations have ideologies similar to that of the US and that the policies for foreign trade practices are in line with the policies of the US (Wade, 2002).

However, on the other hand, it feels threatened and conceives its balance of power to be at stake when other countries undertake actions or policies that are unfavourable to it or have the potential to question its power. The US has imposed economic sanctions on many countries since several decades which have retarded their economic growth. It also has negative bilateral relations with them due to ideological differences and conflicting stance on the political front.

One such instance to focus on is with respect to India. The US had imposed a trade embargo on India in June 1998 after it conducted the Pokhran - II nuclear tests the same year in May.

These economic sanctions had a major negative impact on the growth trajectory of the country. The repercussions were that the sanctions terminated US development assistance to India, along with the opposition of loans or assistance by any other international finance institutions such as the World Bank and International Monetary Fund (IMF), due to hostile bilateral relations with the US.

India had also conducted the nuclear tests before 1998 that is, the Pokhran - I tests in 1974. The US had not imposed any economic sanctions then. However, in 1998, it imposed a trade embargo. The difference in the reaction of the US with respect to both the situations is that in 1974, the world was bipolar and the US was not a hegemon. But, by the time of the second nuclear tests in 1998, the US had become a major superpower and it was exercising its hegemonic power over the world. To counter its insecurities, it imposed economic sanctions on India. Ultimately, the sanctions were repealed in September 2001 through dialogues and negotiations.

Given this background, this paper tries to answer two broad research questions. One, how did the economic sanctions imposed by the US on India impact the country's economic prospects after sanctions; two, what are the channels through which economic growth and inflation is affected during the periods of economic sanctions. Thus the objective of this paper is twofold. One, to analyse the impact of sanctions on the trends of economic growth, exchange rate, interest rate, foreign investments and foreign trade in India in two periods - before and during sanctions (1996Q3-2001Q3), and during and after sanctions (1998Q2-2007Q4) for comparison; and two, to investigate the open economic channels through which the economic growth and inflation rates were affected during the sanctions period.

The paper is organised as follows: Section 2 of the paper studies the existing literature on US sanctions and its economic impact on India. Section 3 describes the methodology to conduct the data analysis. Section 4 reveals the empirical findings and interprets the results obtained. Concluding observations and policy implications are discussed in Section 5.

2. Literature Review

2.1 US Hegemony

After the end of the Second World War and the disintegration of the USSR in 1991, the US has enjoyed hegemonic power over the world. Be it in terms of military, technology, economic or soft power, it has been highly influential and directive to the rest of the world. The term hegemony refers to "an institutionalised practice of special rights and responsibilities conferred on a state with the resources to lead" (Clark, 2009, p. 24, as cited in Schmidt, 2019). Hegemony possesses a lot of power and has the goals and means to exercise that power on other nations. After becoming a superpower, the US has used its resourcefulness to cater to other sovereign states and aid them in their journey of economic growth. It has become a leader in the world like that of a big brother to guide his younger siblings to improve their standards of living and the conditions of their countries. It has philanthropically made plans and created organisations to uplift the developing and underdeveloped countries.

The world saw the concentration of power in the hands of the US which gave the means to dominate in the matters of global economy and politics. Schmidt (2019) mentions that hegemony incorporates the dual elements of force and consent. The US as a hegemon has been successful in taking coercive measures as well as being polite and using its soft power to become highly influential in the world. The utilisation of soft power through western culture, clothing, Hollywood, pop culture etc. is convincing the world to accept its dominance. Other countries' voluntary compliance, or their acquiescence regarding the projects of the hegemon, are achieved either in exchange for rewards, from dread of penalty, or out of ideological affinity (Puchala, 2005).

It has the most dominant voice in the UN and WTO, making policies for world trade and the politics of the world economy. Litan (2016) writes that since 1995, most cases in which the US has been involved in international organisation, returns in their favour. All the more, such subtle governance has been accepted by the world and the US dollar is accepted as the standard currency for foreign exchange.

Puchala (2005) states that organisations such as the World Bank, WTO and the IMF "Establish, monitor, maintain, and enforce global regimes that further Northern and Western goals". Moreover, it is worthwhile noticing that "the United Nations remained a frequently used instrument of US foreign policy, as for example in episodes having to do with Atoms for Peace, Korea, Suez, UNEF, the Congo, decolonization, the condemnation of Iran in 1979, and censuring the Soviet invasion of Afghanistan. US goals were pursued in the United Nations via threatened vetoes in the Security Council, preponderant influence over the selection of successive Secretaries General, key positions and general overrepresentation in the Secretariat, and a deferential majority, consisting mostly of West Europeans and Latin Americans, in the General Assembly" (Puchala, 1982-1983, as cited in Puchala, 2005).

The goal of hegemony is to maintain and promote capitalism and the inequality pattern that follows through it in order to economically dominate and increase their wealth through international trade. Economically, the West is a cluster of capitalist countries, committed to private enterprise and open markets; politically, it is a club of democracies; ideologically, it is the source and centre of liberal internationalism; hegemonically, it is a transnational coalition of elites sharing interests, aims, and aspirations stemming from similar institutions and a common ideology (Puchala, 2005).

2.2 Economic Sanctions and its Impact

Sanctions are imposed by international organisations or countries to discourage countries whose actions are not in line with their interests or transgress the international norms of behaviour. Sanctions have been used to advance a range of foreign policy goals, including counterterrorism, counternarcotics, non-proliferation, democracy and human rights promotion, conflict resolution, and cyber security (Masters, 2019). The US executes sanctions through the president launching the process by issuing an executive order that declares a national emergency in response to an "unusual and extraordinary" foreign threat, which affords the president special powers to regulate commerce with regard to that threat

for a period of one year, unless extended by the president or terminated by a joint resolution of Congress (Masters, 2019).

The enactment effect of an embargo undergoes various steps. Initially, it hampers the bilateral relations between the countries. The effect of such sanctions depend on the intensity of trade relations between them and their dependence on the same, along with the availability of other alternative sources its geographical conditions, resource endowments, and the economic position of the country (Amerongen, 1980; Dashti-Gibson et al., 1997; Peksen, 2019). In addition to it, a trade embargo can alter the trade relations between the allies of the countries and the non-aligned nations.

Another factor determining the impact of trade sanctions on a country is the share of international trade in its Gross Domestic Product (GDP). If foreign trade constitutes a major share of the national income, the effect of sanctions will be significant. On the other hand, if foreign trade constitutes a small share in the GDP, a trade embargo will have a minor impact. Some of the determinants of sanctions are the political and economic stability of the target nation, duration of the sanctions, and the types and goals of sanctions.

Dashti-Gibson et al., (1997) observe in their empirical analysis that the likelihood of success of sanctions is greater when the duration is short, the target nation is politically and economically weak and it faces greater costs when financial sanctions are imposed. Moreover, international support for institutionalised sanctions reduces the extent of ‘sanctions-busting’ by opportunistic third-party government and private actors, which in turn undermines the target’s ability to find alternative markets to shift its trade and investment transactions to survive sanctions (Peksen, 2019).

The impact of economic sanctions can be manifold, rather than only focusing on the financial front. Sanctions can harm the bilateral ties between countries and jeopardise the national prestige and reputation of the country on which it is imposed (Malloy et al., 1990). Sanctions can also be detrimental to the development process that requires a steady input to produce multiplier effects in the country, which are hampered.

As far as the effectiveness of sanctions is concerned, most authors are critical of them being able to achieve the objective for which they were imposed. Economic sanctions aimed at curtailing the political behaviours of the countries often end up harming them economically and affecting their economic growth rather than containing their actions. Amerongen (1980) is of the opinion that a trade embargo causes huge economic losses for both countries, but never achieves its political objectives. Studies suggest that "sanctions might result in more authoritarianism, increased state repression, poor governance, worse public health conditions, widespread poverty, and higher levels of income inequality in target countries" (Peksen, 2019).

However, another view that should be accounted for is that trade sanctions should not be directly correlated with a fundamental and immediate change in a significant policy of a target state (Malloy et al., 1990). This is because sanctions intend to discourage such actions and have its own pace to take its course. Sanctions more often represent the resentment of the imposing country practically, than actually having an intended effect on the country it is imposed.

2.3 US Economic Sanctions on India

After the Pokhran - II nuclear tests by India on May 11 and May 13 in 1998, the US imposed economic sanctions against India under its domestic law of Glenn Amendment to the Nuclear Nonproliferation Act of 1994 (Wadhva, 1998). The US had imposed the following major sanctions against India: (i) Complete stoppage of military aid; (ii) Complete cut-off of government-to- government aid; (iii) Automatic cut off of official credit lines extended by US Export- Import Bank to finance India's purchases such as Boeing jets from the US; and (iv) Restrictions on American commercial banks (such as the Citibank and Bank of America) (Wadhva, 1998).

The sanctions also included termination of U.S. developmental assistance to India (about $57 million for 1998) and termination of the sales of defence articles and dual-use technology and of military financing (Indurthy, 2002). According to the RBI, the total estimated loss of

inflow of foreign exchange due to the suspension of foreign aid to India was at US $ 2.8 billion, the impact of which was felt mainly by the NGOs and weaker sections of the society (Wadhva, 1998).

As far as the capital flows are concerned, there was a steep decline in capital flows to India during the months following the nuclear tests in May, and for the April-June quarter in 1998, the net inflow was about $4.2 billion less than in the same quarter in 1997 (Morrow & Carriere, 1999). The stock market of India was one of the major indicators of the economic sentiments of the people. The Indian stock market fell almost 10 percent relative to the rest of Asia in June 1998 following the sanctions; and on July 10, 1998, following the US Senate vote of 98-0 to weaken the sanctions by permitting agricultural export credits, the Indian market rose about 12 percent relative to the international market (Morrow &Carriere, 1999).

Moreover, the rupee had touched its historic low of Rs. 41.20 per US dollar at mid-session trading in Mumbai's forex market on May 25, 1998 and the Standard and Poor (S&P index) had downgraded India’s sovereign credit rating from stable to negative in the aftermath of sanctions (Wadhva, 1998). The cost of borrowings for the Indian companies in the foreign markets also grew significantly. Foreign investment in India too, fell sharply in May 1998 and remained well below the levels of 1997, including declines in both Foreign Direct Investment (FDI) and Foreign Portfolio Investments (FPI) (Morrow &Carriere, 1999).

Apart from the negative consequences of the US sanctions, one of the advantages is that these sanctions taught India to be self-reliant as it sent a much needed signal of building a Sound Defence-Technological-Industrial Base (SDTIB) (Basu, 1999). In 1996, the nuclear plants operated at 67 percent of their capacity, 71 percent in 1997, and in the first half of 1998, it was at 78 percent which is comparable with international standards (Basu, 1999). It has given a kick-start to the process of indigenisation of defence equipment production and reduction of foreign dependence. Moreover, the economic sanctions are a roadblock for US capitalism because, due to trade restrictions the US companies would face much losses, which planned to commence business in the Indian market and the advantage of which would be taken by the European Union and Japan (Basu, 1999). This would mean that its balance of

power will be further compromised. Also, it was observed that the sanctions impacted the new and potential contracts and not the previous loans.

2.4 Contribution to Existing Literature

In the context of the economic impact of US sanctions, this paper contributes to the existing literature by providing an empirical overview of the impact of sanctions on macroeconomic variables such as economic growth, inflation, exchange rate, interest rate, foreign investments and foreign trade. It also traces the open economic channels through which economic growth and inflation was affected during the period of economic sanctions.

3. Methodology

The research is divided into two objectives. It deals with secondary data throughout the study, collected from reliable sources. The data is collected from the Reserve Bank of India (RBI) database, Federal Reserve Economic Data and US Census Bureau. The methods for each objective are explained separately as follows:

3.1 Objective 1

The first objective focuses on the period of 1996-Q3 to 2007-Q4, for which quarterly data is collected for the variables of GDP Growth Rate (%), Exports to US Growth Rate (%), Imports from US Growth Rate (%), Real Effective Exchange Rate (REER), Weighted Average Call Money Rate (CMR), and Foreign Direct Investment (FDI) Growth Rate (%).Exports and Imports to and from US are included to check the impact of trade embargo specifically on trade with the US. A dummy structural break model is used to check if there was a major change in the trends of the variables due to the imposition of economic sanctions on India. A generalised model of the same is as follows:

$$Y_t = \alpha_1 + \alpha_2 D + \beta_1 Time + \beta_2 D*Time + u_t \quad (1)$$

In order to capture the effects of the US economic sanctions on India, the dataset is divided into two parts: the before and during sanctions period (1996-Q3 to 2001-Q3) and during and after sanctions period (1998-Q2 to 2007-Q4). This will aid in the analysis of data to identify the effects of imposition of sanctions and the impact of repeal of sanctions separately on the macroeconomic variables. Therefore, to input the effect of time, a dummy structural break model is used to check if there was a major change in the trends of the variables due to the imposition and repeal of economic sanctions on India. The dummy variable will help capture the effects of before, during and after sanctions period. The values of the dummy variable are 0 before the sanctions imposed in 1998-Q2, 1 from 1998-Q2 to 2001-Q3, and again 0 from 2001-Q4 from when sanctions were repealed.

3.2 Objective 2

The second objective of the study focuses on the period of 1996-Q3 to 2007-Q4, for which quarterly data is collected for the variables of GDP Growth Rate (%), Wholesale Price Index (WPI) Growth Rate (%), Exports to US Growth Rate (%), Imports from US Growth Rate (%), Real Effective Exchange Rate (REER), and Weighted Average Call Money Rate (CMR). An Autoregressive Distributed Lag (ARDL) Model is used to identify the open economic channels through which economic growth and inflation rates were affected during the sanctions period. The preliminary analysis of the variables is done using the stationarity test of the Augmented Dickey Fuller (ADF) Test, which reveals that the variables are a mixed bag of I(0) and I(1) variables, for which an ARDL model would be appropriate. An economic growth model and inflation model are built for channel identification. Economic Growth Model - The ARDL model for the same is as follows:

$$\Delta GDPGR_t = \alpha_0 + \sum_{i=1}^{p} \omega_1 \, \Delta GDPGR_{t\text{-}i} + \sum_{i=0}^{q1} \omega_2 \, \Delta WPI_{t\text{-}i} + \sum_{i=0}^{q2} \omega_3 \, \Delta REER_{t\text{-}i} + \sum_{i=0}^{q3} \omega_4 \, \Delta EXPGR_{t\text{-}i} + \varepsilon_{1t} \quad (2)$$

Inflation Model - The ARDL model for the same is as follows:

$$\Delta WPI_t = \beta_0 + \sum_{i=1}^{r} \omega_5 \Delta WPI_{t-i} + \sum_{i=0}^{r1} \omega_6 \Delta GDPGR_{t-i} + \sum_{i=0}^{r2} \omega_7 \Delta REER_{t-i} + \sum_{i=0}^{r3} \omega_8 \Delta IMPGR_{t-I} + \sum_{i=0}^{r4} \omega_9 \Delta CMR_{t-i} + \varepsilon_{2t} \quad (3)$$

In order to investigate the open economic channels through which the economic growth and inflation rates were affected before, during and after sanctions, the dataset is divided into two parts: the before and during sanctions period (1996-Q3 to 2001-Q3) and the during and after sanctions period (1998-Q2 to 2007-Q4). This will aid in the analysis of data separately to identify the channel of effects of imposition of sanctions and the impact of repeal of sanctions on the economic growth and inflation rates. Therefore, to explore the open economic channels, an Autoregressive Distributed Lag (ARDL) Model is used to build two models taking economic growth and inflation rates as dependent variables each.

The unrestricted error correction representation of the ARDL model can be specified as follows:

$$\Delta Y_t = a_0 + \sum_{i=1}^{p} \emptyset_i \Delta Y_{t-i} + \sum_{i=0}^{q1} \beta_i \Delta X1_{t-i} + \sum_{i=0}^{q2} \gamma_i \Delta X2_{t-i} + \sum_{i=0}^{q3} \delta_i \Delta X3_{t-i} + \sum_{i=0}^{q4} \lambda_i \Delta X4_{t-i} + \sum_{i=0}^{q5} \varphi_i \Delta X5_{t-i} + \omega_1 Y_{t-1} + \omega_2 X1_{t-1} + \omega_3 X2_{t-1} + \omega_4 X3_{t-1} + \omega_5 X4_{t-1} + \omega_6 X5_{t-1} + \varepsilon_t \quad (4)$$

where, ω_i are the long run multipliers, coefficients $\emptyset$, β, γ, δ, λ, φ are associated with the short run dynamics, 'Δ' is the first difference operator, α_0 is the drift and ε_t is the white noise error term.

The first step of the ARDL bounds test approach is to estimate the unrestricted error correction representation by ordinary least squares (OLS) estimator (Pesaran et.al, 2001). Bounds test is basically the Wald test, where the null hypothesis (H0: $\omega_1 = \omega_2 = \omega_3 = \omega_4 = \omega_5 = \omega_6 = 0$), against the alternative hypothesis (H1: $\omega_1 \neq \omega_2 \neq \omega_3 \neq \omega_4 \neq \omega_5 \neq \omega_6 \neq 0$) is tested through an F-test for joint significance of the coefficients of the lagged level variables.

Once the cointegration is established, the long run equation is estimated using the conditional

ARDL (p, q1, q2, q3, q4, q5) model:

$$Y_t = a_0 + \sum_{i=1}^{p} \omega_1 \Delta Y_{t-i} + \sum_{i=0}^{q1} \omega_2 \Delta X1_{t-i} + \sum_{i=0}^{q2} \omega_3 \Delta X2_{t-i} + \sum_{i=0}^{q3} \omega_4 \Delta X3_{t-i} + \sum_{i=0}^{q4} \omega_5 \Delta X4_{t-i} + \sum_{i=0}^{q5} \omega_6 \Delta X5_{t-i} + \varepsilon_t \quad (5)$$

where, all the variables are previously defined. The short-run dynamic parameters are obtained by estimating an error correction model associated with the long-run estimates, specified as follows:

$$\Delta Y_t = \mu + \sum_{i=1}^{p} \emptyset_i \Delta Y_{t-i} + \sum_{i=0}^{q1} \beta_i \Delta X1_{t-i} + \sum_{i=0}^{q2} \gamma_i \Delta X2_{t-i} + \sum_{i=0}^{q3} \delta_i \Delta X3_{t-i} + \sum_{i=0}^{q4} \lambda_i \Delta X4_{t-i} + \sum_{i=0}^{q5} \varphi_i \Delta X5_{t-i} + \vartheta ecm_{t-1} + \varepsilon_t \quad (6)$$

Here, ∅, β, γ, δ, λ and φ are the short-run dynamic coefficients of the model's convergence to the equilibrium and ϑ is the speed of adjustment. The ECM coefficient shows how quickly or slowly the relationship returns to its equilibrium path, and should be significant with a negative sign.

4. Results and Analysis

4.1 Impact of Sanctions on macroeconomic variables

4.1.1 Preliminary Analysis

The preliminary analysis to identify the order of integration of the variables is done using the Augmented Dickey Fuller (ADF) Test. The test results are presented in Table 1. It shows that GDP Growth Rate and Call Money Rate are significant at 5% level of significance and Exports to US Growth Rate and Imports from US Growth Rate are stationary at 1% significance level. On the other hand, Real Effective Exchange Rate and FDI Growth Rate are stationary at first difference because their p-values are significant at 1% level at first difference. The test results for the next period are presented in Table 2.

Table 1: Augmented Dickey Fuller Test (1996-Q3 to 2001-Q3 – before and during sanctions)

Variables	Level	First Difference	Order of Integration
	p-value	p-value	
GDP Growth Rate (%)	0.0171	-	I(0)
Exports to US Growth Rate (%)	0.0003	-	I(0)
Imports from US Growth Rate (%)	0.0021	-	I(0)
Real Effective Exchange Rate	0.2155	0.0005	I(1)
Call Money Rate	0.0107	-	I(0)
FDI Growth Rate (%)	0.1378	0.0002	I(1)

Source: Author's Calculation

Table 2: Augmented Dickey Fuller Test (1998-Q2 to 2007-Q4 – during and after sanctions)

Variables	Level	First Difference	Order of Integration
	p-value	p-value	
GDP Growth Rate (%)	0.0004	-	I(0)
Exports to US Growth Rate (%)	0.0573	0	I(1)
Imports from US Growth Rate (%)	0.1924	0	I(1)
Real Effective Exchange Rate	0.6794	0	I(1)
Call Money Rate	0.6466	0.0014	I(1)
FDI Growth Rate (%)	0.0043	-	I(0)

Source: Author's Calculation

Table 2 shows that GDP Growth Rate and FDI Growth Rate are stationary at level at 1% level of significance. This is because their respective p-values are less than 0.01 at level. On the other hand, Imports from US Growth Rate, Exports to US Growth Rate, Call Money Rate and Real Effective Exchange Rate are stationary at first difference because their p-values are insignificant (more than 0.05) at level but significant at 1% at first difference.

4.1.2 Empirical Estimation, Analysis and Discussion

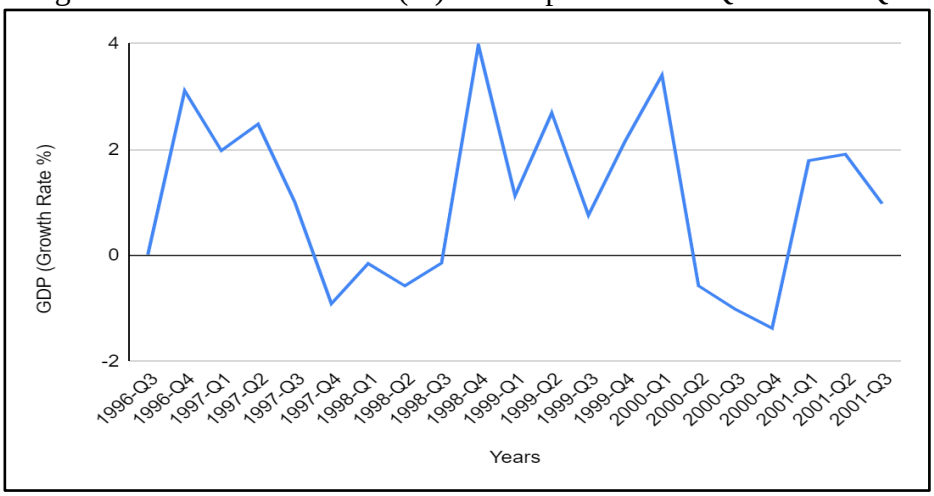
A dummy structural break model is run for each variable discussed above for the different time periods – from 1996-Q3 to 2001-Q3 (before and during sanctions period) and 1998-Q2 to 2007-Q4 (during and after sanctions period). The results for the period 1996-Q3 to 2001-Q3 are as follows:

Table 3: Results of Structural Dummy Break Model: 1996-Q3 to 2001-Q3

Dependent Variable	Constant	Dummy	Time	Time * Dummy	AR (1)	R^2	DW-Stat
GDP Growth	2.435*	-0.851	-0.339	0.304	-	0.07	1.79
Exports to US	51.098***	-44.692***	-9.530***	9.296***	0.007	0.45	2.83
Imports from US	10.77	17.484	1.538	-2.927	-	0.31	1.54
REER	68.312***	11.050***	1.957***	-1.722***	-	0.93	2.18
CMR	3.320*	4.425	0.985**	-0.938**	-	0.3	1.83
FDI Growth	89.499**	-191.066***	-15.797*	23.241**	-	0.36	1.94

Source: Author's Calculation. *, ** and *** indicates 10%, 5% and 1% level of significance

Figure 1: GDP Growth Rate (%) for the period 1996-Q3 to 2001-Q3

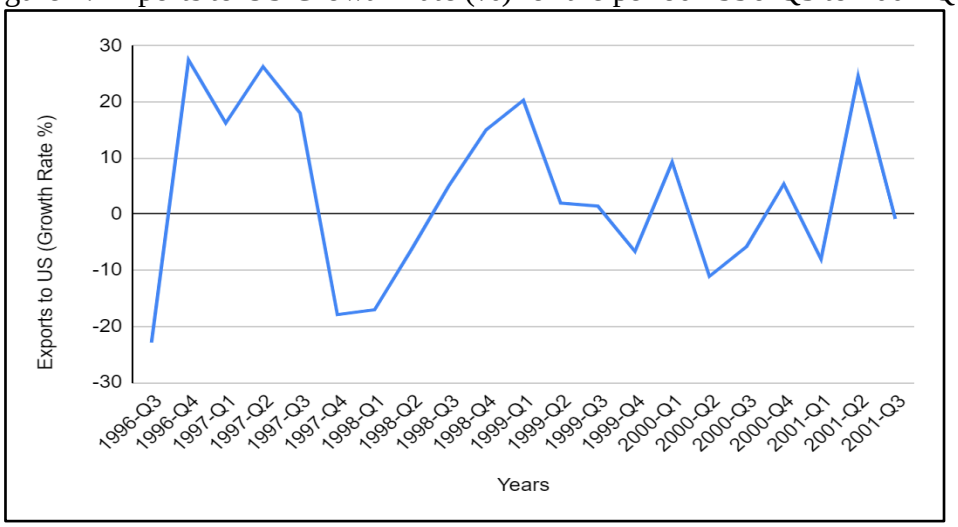


Source: Federal Reserve Economic Data

From Figure 1 and Table 3, it can be inferred that, before the sanctions, the intercept of GDP Growth was 2.435 and its slope was -0.339. But after the sanctions, the intercept is 1.584 (2.435 + -0.851) and the slope is -0.035 (-0.339 + 0.304). This implies that the GDP Growth has become flatter after sanctions as seen from the below figure. However, since the probability values are all insignificant at 5% level of significance, it can be said that there has

not been much of a change due to imposition of sanctions on GDP Growth. The R^2 value is low due to the absence of explanatory variables in the model, for which the dependent variable is just regressed on the time and dummy variable. Moreover, the DW statistic is 1.79, a value close to 2, showing no autocorrelation in the model.

Figure 2: Exports to US Growth Rate (%) for the period 1996-Q3 to 2001-Q3



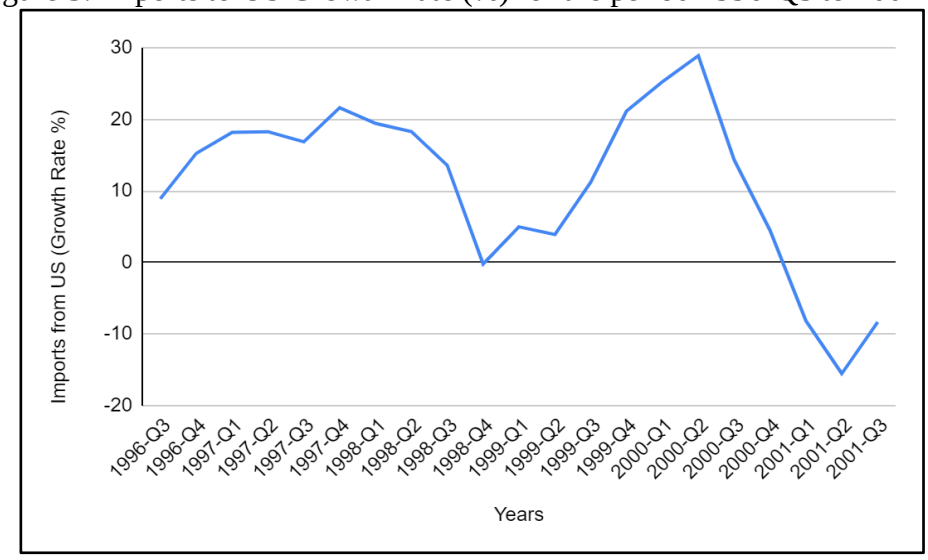
Source: US Census Bureau

Figure 2 and Table 3 show that before the sanctions were imposed, the intercept of exports to US Growth was 51.098 and its slope was -9.530. But after the imposition of sanctions, the intercept is 6.406 (51.098 + -44.692) and the slope is -0.234 (-9.530 + 9.296). This implies that the exports to US Growth has become flatter after sanctions as seen from the below figure. The probability values of all coefficients are significant at 5% level of significance, and it can be said that there has been a significant change due to imposition of sanctions exports to US Growth. The R^2 value is low due to the absence of explanatory variables in the model, for which the dependent variable is just regressed on the time and dummy variable. Moreover, the DW statistic is 2.38, a value close to 2, showing no autocorrelation in the model.

Figure 3 and Table 3 show that before the sanctions were imposed, the intercept of imports from US Growth was 10.770 and the slope was 1.538. But after the imposition of sanctions, the intercept is 28.254 (10.770 + 17.484) and the slope is -1.389 (1.538 + -2.927). This

implies that the imports from US Growth has taken a negative dip, and the direction of growth has changed after sanctions were imposed as seen from the below figure.

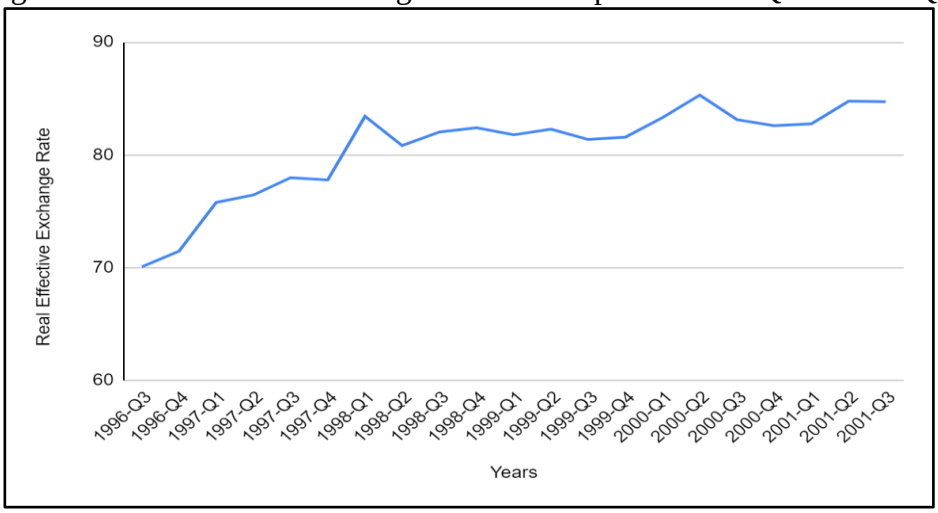
Figure 3: Imports to US Growth Rate (%) for the period 1996-Q3 to 2001-Q3



Source: US Census Bureau

However, the probability values of intercepts and slopes are insignificant at 5% level of significance. The R^2 value is low due to the absence of explanatory variables in the model, for which the dependent variable is just regressed on the time and dummy variable. Moreover, the DW statistic is 1.54, a value close to 2, showing no autocorrelation in the model.

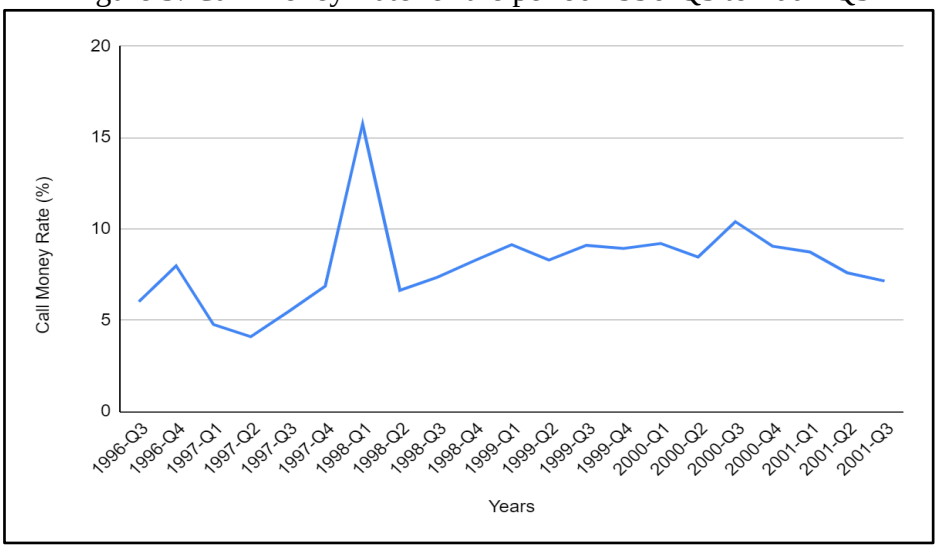
Figure 4: Real Effective Exchange Rate for the period 1996-Q3 to 2001-Q3



Source: Reserve Bank of India

Figure 4 shows that before the sanctions were imposed, the intercept of Real Effective Exchange Rate was 68.312 and the slope was 1.957. But after the imposition of sanctions, the intercept is 79.362 (68.312 + 11.050) and the slope is 0.235 (1.957 + -1.722). This implies that the Real Effective Exchange Rate has become flatter but rising after sanctions as seen from the below figure. The probability values of all coefficients are significant at 5% level of significance, and it can be said that there has been a significant change due to the withdrawal of sanctions on Real Effective Exchange Rate. The R^2 value (0.93) is high and the DW statistic is 2.18, a value close to 2, showing no autocorrelation in the model.

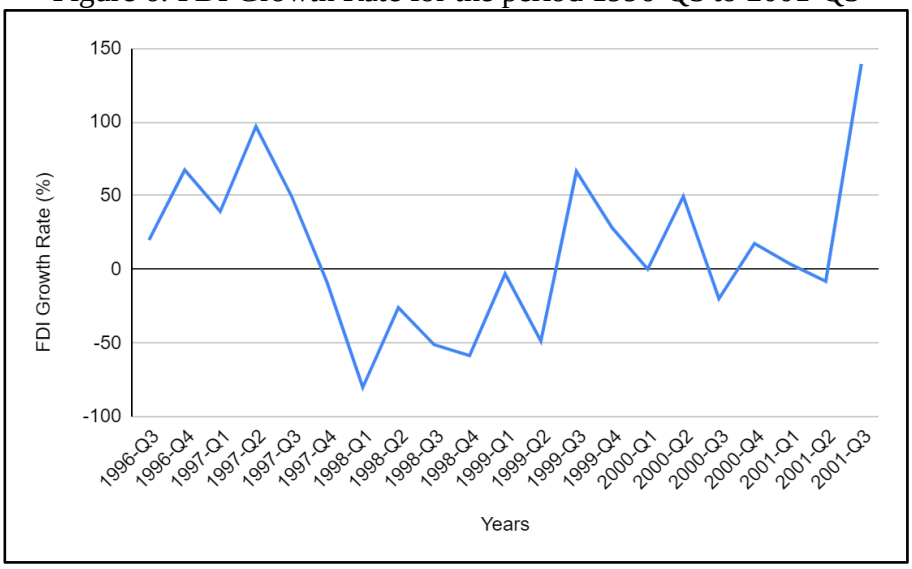
Figure 5: Call Money Rate for the period 1996-Q3 to 2001-Q3



Source: Reserve Bank of India

From Figure 5 and Table 3, it can be inferred that, before the sanctions were imposed, the intercept of Call Money Rate was 3.320 and the slope was 0.985. But after the imposition of sanctions, the intercept is 7.765 (3.320 + 4.425) and the slope is 0.047 (0.985 + -0.938). This implies that the upward trend of Call Money Rate has become flatter after sanctions as seen from the below figure. The probability value of the time coefficient is significant at 5% level of significance, and it can be said that there has been a significant change due to the imposition of sanctions on Call Money Rate. The R^2 value is low due to the absence of explanatory variables in the model, for which the dependent variable is just regressed on the time and dummy variable. Moreover, the DW statistic is 1.83, a value close to 2, showing no autocorrelation in the model.

Figure 6: FDI Growth Rate for the period 1996-Q3 to 2001-Q3



Source: Reserve Bank of India

From Figure 6 and Table 3, it can be inferred that, before the sanctions were imposed, the intercept of FDI Growth Rate was 89.499 and the slope was -15.797. But after the imposition of sanctions, the intercept is -101.576 (89.499 + -191.066) and the slope is 7.441 (-15.797 + 23.241). This implies that the FDI Growth Rate fell for a short while after sanctions were imposed, but soon rose again as seen from the below figure. The probability value of all the intercept and slope coefficients are significant at 10% level of significance, and it can be said that there has been a significant change due to the imposition of sanctions on FDI Growth Rate. The R^2 value is low due to the absence of explanatory variables in the model, for which the dependent variable is just regressed on the time and dummy variable. Moreover, the DW statistic is 1.94, a value close to 2, showing no autocorrelation in the model. The results for the period 1998-Q2 to 2007-Q4 are as shown in Table 4.

From Figure 7 and Table 4, it can be inferred that, during the sanctions period, the intercept of GDP Growth was 1.341 (-1.162 + 2.503) and the slope was -0.034 (0.191 + -0.225). But after the repeal of sanctions, the intercept is -1.162 and the slope is 0.191. This implies that the direction of the GDP Growth has changed and has grown positively after the repeal of sanctions as seen in the below figure. The probability value of time coefficient is also significant at 5% level of significance, and it can be said that there has been a significant change due to the repeal of sanctions on GDP Growth. The R^2 value is low due to the

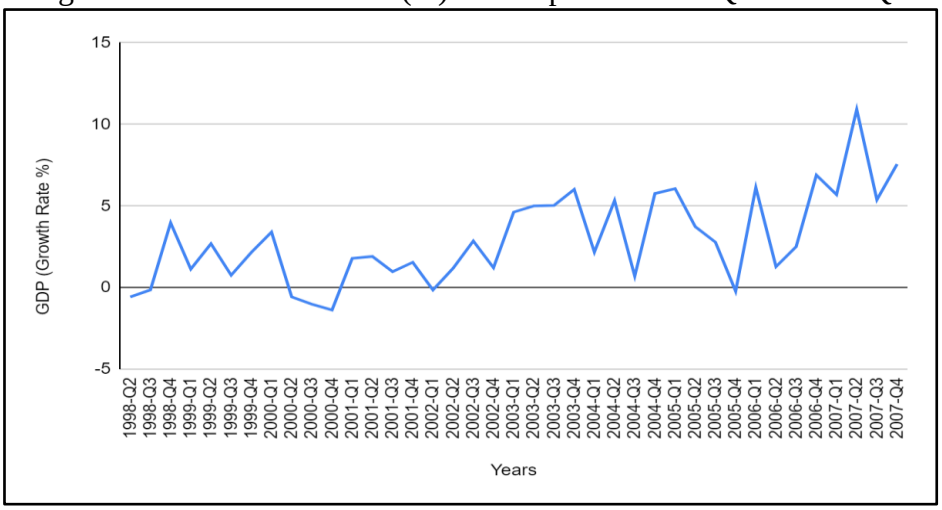
absence of explanatory variables in the model, for which the dependent variable is just regressed on the time and dummy variable. Moreover, the DW statistic is 1.93, a value close to 2, showing no autocorrelation in the model.

Table 4: Structural Dummy Variable Model of GDP Growth: 1998-Q2 to 2007-Q4

Dependent Variable	Constant	Dummy	Time	Time * Dummy	AR(1)	R^2	DW-Stat
GDP Growth	-1.162	2.503	0.191***	-0.225	-	0.42	1.93
Exports to US	-16.092	23.386	1.260**	-1.833	0.338*	0.31	1.91
Imports from US	11.085*	-3.466	-0.141	-0.568	-0.424***	0.28	1.93
REER	22.686**	2.321	0.153**	-0.086	0.694***	0.83	1.88
CMR	1.967*	2.671**	0.027	-0.094	-0.475***	0.29	2.07
FDI Growth	-81.919	32.463	5.241**	2.202	-	0.22	1.57

Source: Author's Calculation. *, ** and *** indicates 10%, 5% and 1% level of significance

Figure 7: GDP Growth Rate (%) for the period 1998-Q2 to 2007-Q4

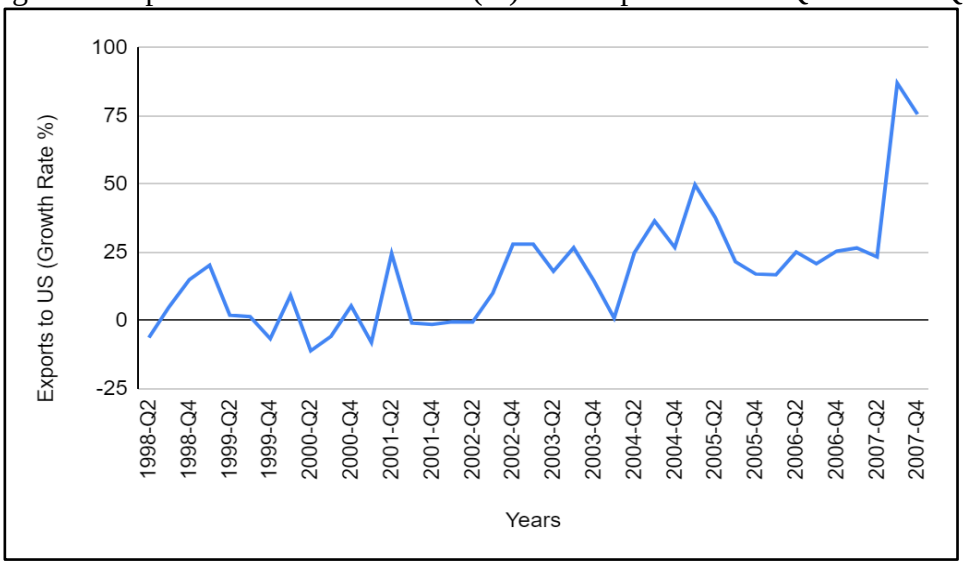


Source: Federal Reserve Economic Data

From Figure 8 and Table 4, it can be inferred that, during the sanctions period, the intercept of exports to US Growth was 21.802 (-16.092 + 23.386) and its slope was -0.573 (1.260 + -1.833). But after the repeal of sanctions, the intercept is -16.092 and the slope is 1.260. This implies that the Exports to US Growth has taken a positive ascent after sanctions were

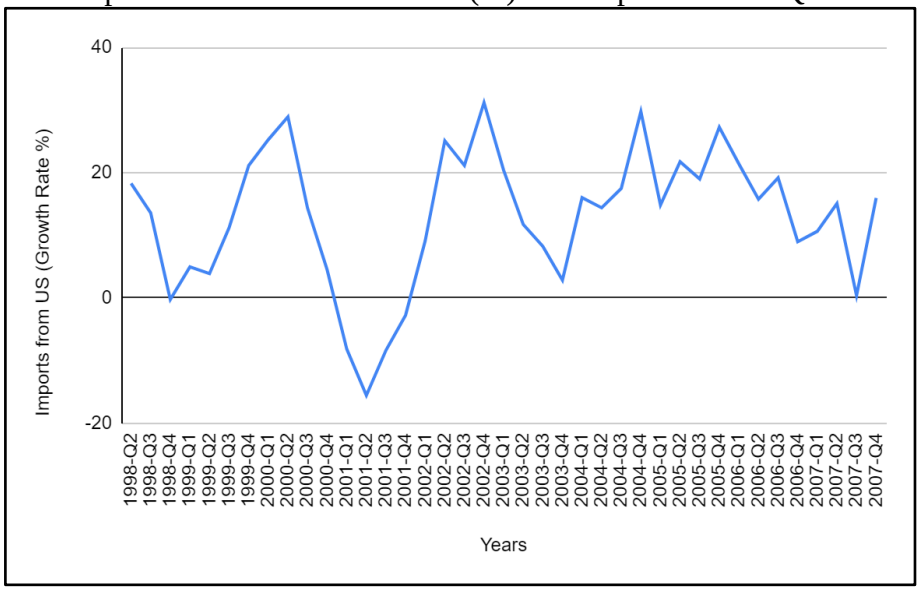
repealed as seen from the below figure. The probability value of time coefficient is also significant at 5% level of significance, and it can be said that there has been a significant change due to the withdrawal of sanctions on Exports to US Growth. The R^2 value is low due to the absence of explanatory variables in the model, for which the dependent variable is just regressed on the time and dummy variable. Moreover, the DW statistic is 1.91, a value close to 2, showing no autocorrelation.

Figure 8: Exports to US Growth Rate (%) for the period 1998-Q2 to 2007-Q4



Source: US Census Bureau

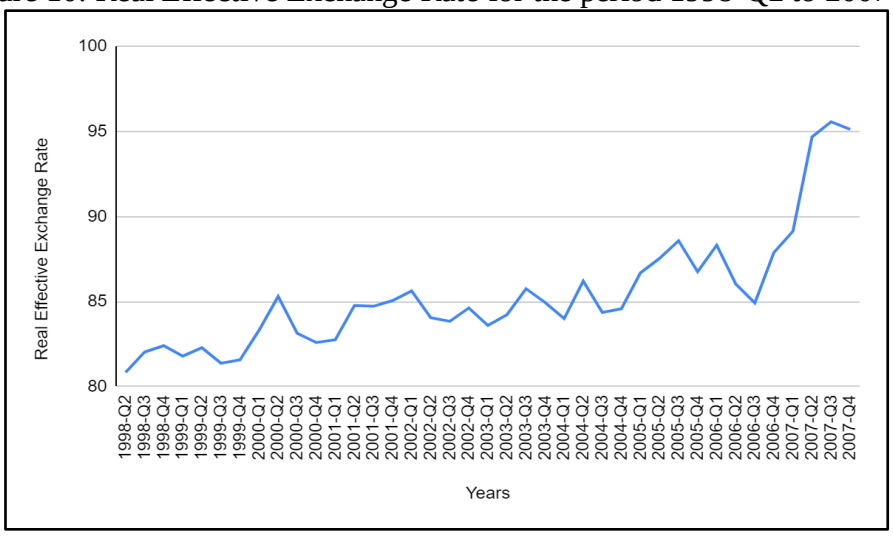
Figure 9: Imports from US Growth Rate (%) for the period 1998-Q2 to 2007-Q4



Source: US Census Bureau

Figure 9 and Table 4 show that during the sanctions period, the intercept of imports from US Growth was 7.619 (11.085 + -3.466) and its slope was -0.709 (-0.141 + -0.568). But after the repeal of sanctions, the intercept is 11.085 and the slope is -0.141. This implies that the Imports from US Growth has taken a positive ascent after sanctions were repealed as seen from the below figure. However, since the probability values of intercepts and slopes are insignificant at 5% level of significance, it can be said that there has not been a significant change due to the withdrawal of sanctions on Imports from US Growth. The R^2 value is low due to the absence of explanatory variables in the model, for which the dependent variable is just regressed on the time and dummy variable. Moreover, the DW statistic is 1.93, a value close to 2, showing no autocorrelation in the model.

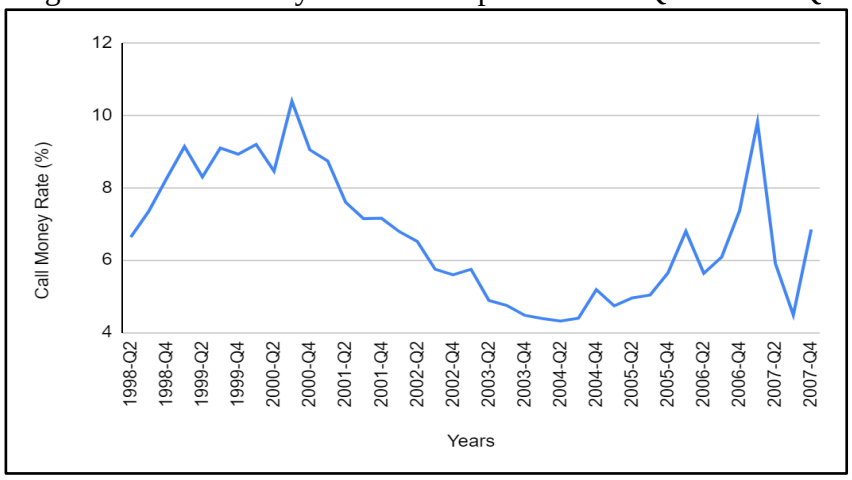
Figure 10: Real Effective Exchange Rate for the period 1998-Q2 to 2007-Q4



Source: Reserve Bank of India

Figure 10 and Table 4 show that, during the sanctions period, the intercept of Real Effective Exchange Rate was 25.007 (22.686 + 2.321) and the slope was 0.067 (0.153 + -0.086). But after the repeal of sanctions, the intercept is 22.686 and the slope is 0.153. This implies that the Real Effective Exchange Rate has become steeper and has grown positively after the repeal of sanctions as seen in the below figure. The probability value of the time coefficient is also significant at 5% level of significance, and it can be said that there has been a significant change due to the repeal of sanctions on Real Effective Exchange Rate. The R^2 value (0.83) is high and the DW statistic is 1.88, a value close to 2, showing no autocorrelation in the model.

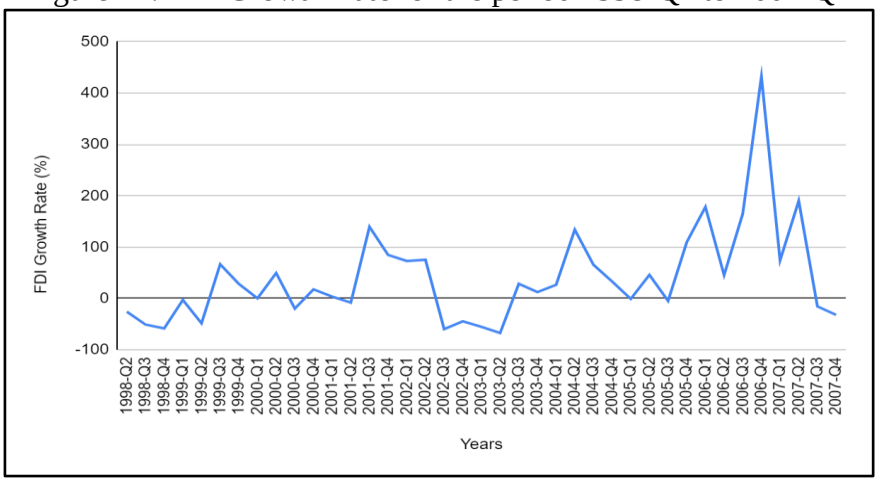
Figure 11: Call Money Rate for the period 1998-Q2 to 2007-Q4



Source: Reserve Bank of India

Figure 11 and Table 4 show that, during the sanctions period, the intercept of Call Money Rate was 4.683 (1.967 + 2.671) and the slope was -0.063 (0.027 + -0.09). But after the repeal of sanctions, the intercept is 1.967 and the slope is 0.027. This implies that the Call Money Rate has grown positively and the direction of the same has changed after the repeal of sanctions as seen in the below figure. However, since the probability values of slopes are insignificant at 5% level of significance, it can be said that there has not been a significant change due to the withdrawal of sanctions on Call Money Rate. The R^2 value is low due to the absence of explanatory variables in the model, for which the dependent variable is just regressed on the time and dummy variable. Moreover, the DW statistic is 2.07, a value close to 2, showing no autocorrelation in the model.

Figure 12: FDI Growth Rate for the period 1998-Q2 to 2007-Q4



Source: Reserve Bank of India

Figure 12 and Table 4 show that, during the sanctions period, the intercept of FDI Growth Rate was -49.456 (-81.919 + 32.463) and the slope was 7.443 (5.241 + 2.202). But after the repeal of sanctions, the intercept is -81.919 and the slope is 5.241. This implies that the FDI Growth Rate has become flatter, but grown positively after the repeal of sanctions as seen in Figure 12. The probability value of the time coefficient is significant at 5% level of significance, and it can be said that there has been a significant change due to the repeal of sanctions. The R^2 value is low due to the absence of explanatory variables in the model, for which the dependent variable is just regressed on the time and dummy variable. The DW statistic is 1.57, a value close to 2, showing no autocorrelation.

4.2 Investigating open economic channels affecting economic growth and inflation

4.2.1 Preliminary Analysis

The preliminary analysis to identify the order of integration of the variables is done using the Augmented Dickey Fuller (ADF) Test. The test results are presented below:

Table 5: Augmented Dickey Fuller Test (1996-Q3 to 2001-Q3)

Variable for Period	**Level**	**First Difference**	**Order of Integration**
	p-value	p-value	
GDP Growth Rate (%)	0.0171	-	I(0)
WPI Growth Rate (%)	0.0496	-	I(0)
Exports to US (%)	0.0003	-	I(0)
Imports from US (%)	0.0021	-	I(0)
Real Effective Exchange Rate	0.2155	0.0005	I(1)
Call Money Rate (%)	0.0107	-	I(0)

Source: Author's Calculation

Table 5 shows that the variables of GDP Growth Rate, WPI Growth Rate, exports to US Growth Rate, imports from US Growth Rate, and Call Money Rate are stationary at level at minimum 5% level of significance. This is because their respective p-values are less than

0.05 at level. On the other hand, Real Effective Exchange Rate is stationary at first difference because its p-value is insignificant (more than 0.05) at level but significant at 1% at first difference. Table 6 shows the test results for the period 1998-Q2 to 2007-Q4.

Table 6: Augmented Dickey Fuller Test (1998-Q2 to 2007-Q4)

Variables	**Level**	**First Difference**	**Order of Integration**
	p-value	p-value	
GDP Growth Rate (%)	0.0004	-	I(0)
WPI Growth Rate (%)	0.0003	-	I(0)
Exports to US Growth Rate (%)	0.0573	0	I(1)
Imports from US Growth Rate (%)	0.1924	0	I(1)
Real Effective Exchange Rate	0.6794	0	I(1)
Call Money Rate (%)	0.6466	0.0014	I(1)

Source: Author's Calculation

Table 6 shows that the variables of GDP Growth Rate and WPI Growth Rate are stationary at level at 1% level of significance. This is because their respective p-values are less than 0.01 at level. On the other hand, imports from US Growth Rate, exports to US Growth Rate, Call Money Rate and Real Effective Exchange Rate are stationary at first difference because their p-values are insignificant (more than 0.05) at level but significant at 1% at first difference.

4.2.2 Empirical Estimation, Analysis and Discussion

The findings for the test of cointegration for the Economic Growth Model are shown using the ARDL Bounds Test:

Table 7: ARDL Bounds Test for Economic Growth Model

Test Statistic	**Value (1996 Q3 - 2001 Q3)**	**Value (1998 Q2 - 2007 Q4)**	**Level of Significance**	**I(1)**	**I(1)**
F-Statistic	163.02	8.57	10%	3.2	3.2
			5%	3.67	3.67
			2.50%	4.08	4.08
			1%	4.66	4.66

Source: Author's Calculation

From Table 7, it can be inferred that, since the value of the F-Statistic for both periods is greater than all the values of I(1), the null hypothesis of no cointegration is rejected at 1% level of significance. Hence, there is a cointegrating relationship between the variables. The results of the Long Run Model are as presented in Table 8. The results of the Error Correction Model are presented in Table 9.

Table 8: Long Run ARDL Model for Economic Growth

Variable	**Coefficient (1996 Q3 - 2001 Q3)**	**Variable**	**Coefficient (1998 Q2 - 2007 Q4)**
GDP Growth Rate(-1)	-0.80***	GDP Growth Rate(-1)	-0.12
GDP Growth Rate(-2)	-0.50***	Exports Growth Rate	0.05**
GDP Growth Rate(-3)	-0.51***	Exports Growth Rate(-1)	0.04*
Exports Growth Rate	0.12***	REER	0.54***
Exports Growth Rate(-1)	0.04**	REER(-1)	-0.58***
Exports Growth Rate(-2)	0.04**	WPI Growth Rate	0
Log(REER)	20.41***	Constant	4.82
Log(REER)(-1)	-17.24**	R^2	0.55
Log(REER)(-2)	-52.66***		
Log(REER)(-3)	54.59***		
WPI Growth Rate	-0.39**		
WPI Growth Rate(-1)	-0.81***		
WPI Growth Rate(-2)	-0.38**		
WPI Growth Rate(-3)	0.19		
Constant	-13.7		
R^2	0.99		

Source: Author's Calculation. *, ** and *** indicates 10%, 5% and 1% level of significance

Table 9: ARDL Error Correction Model for Economic Growth

Variable	**Coefficient (1996 Q3 - 2001 Q3)**	**Variable**	**Coefficient (1998 Q2 - 2007 Q4)**
D(GDP Growth Rate)	1.01***	D(Exports Growth Rate)	0.05**
D(GDP Growth Rate(-1))	0.51***	D(REER)	0.54***
D(Exports Growth Rate)	0.12***	Error Correction term	-1.12***
D(Exports Growth Rate(-1))	-0.04***		
D(Log(REER))	20.41***		
D(Log(REER)(-1))	-1.93		
D(Log(REER)(-2))	-54.59***		
D(WPI Growth Rate)	-0.39***		
D(WPI Growth Rate(-1))	0.19**		
D(WPI Growth Rate(-2))	-0.19***		
Error Correction term	-2.81***		

Source: Author's Calculation. *, ** and *** indicates 10%, 5% and 1% level of significance

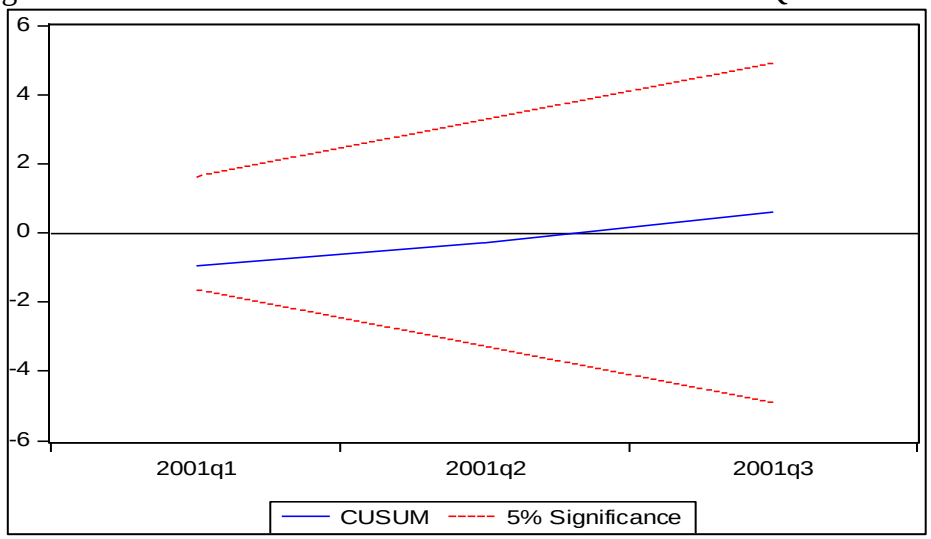
It can be inferred from Table 9 that since the coefficient of the error correction term is negative for both the periods and significant at 1% level of significance, the model will converge and any disequilibrium in the long run will be corrected for both the periods.

From the above two tables it is seen that for the period 1996 Q3-2001 Q3,the first three lags of GDP Growth Rate significantly affect its value at the current period in the long run, but only its current period value and first lag significantly affect it in the short run. Exports Growth Rate and its first two lags significantly affect GDP Growth Rate in the long run, but only its current period value and first lag significantly affect GDP Growth Rate in the short run. Real Effective Exchange Rate and its first three lags significantly affect GDP Growth Rate in the long run, but only its current period value and first two lags significantly affect GDP Growth Rate in the short run. WPI Growth Rate and its first two lags significantly affect GDP Growth Rate in the long run, but only its current period value and first two lags significantly affect GDP Growth Rate in the short run.

For the period 1998 Q2-2007 Q4, the first lag of GDP Growth Rate significantly affects its value at the current period in the long run, but not in the short run. Exports Growth Rate and its first lag significantly affect GDP Growth Rate in the long run, but only its current period value significantly affects GDP Growth Rate in the short run. Real Effective Exchange Rate and its first lag significantly affect GDP Growth Rate in the long run, but only its current period value significantly affects GDP Growth Rate in the short run. WPI Growth Rate significantly affects GDP Growth Rate in the long run, but not in the short run. Moreover, the R^2 value is high, indicating that the model is a good fit. The stability diagnostics are presented below. The CUSUM chart plots the cumulative sums of the deviations of the sample values from a target value. Figure 13 to Figure 16 show that the CUSUM and CUSUM of Squares lines fall between the bounds at 5% level of significance, indicating that the models are stable and reliable. The residual diagnostics are presented in Table 10.

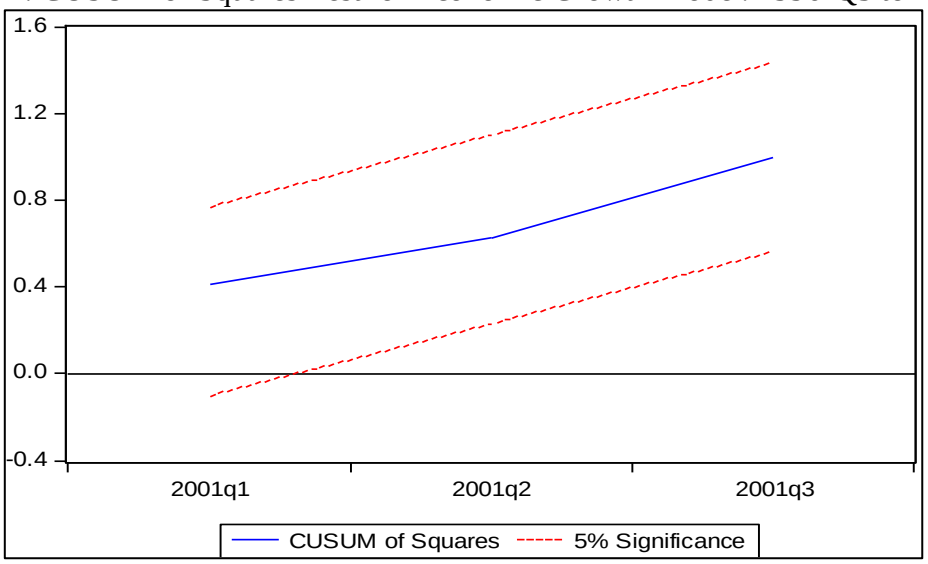
The results show that the probability values for the tests of autocorrelation and heteroskedasticity in both the models are insignificant at 5% significance level. This means that the null hypothesis of no serial correlation and homoskedasticity cannot be rejected. Therefore, the Classical Linear Regression Model (CLRM) assumptions are satisfied.

Figure 13: CUSUM Test for Economic Growth Model: 1996-Q3 to 2001-Q3



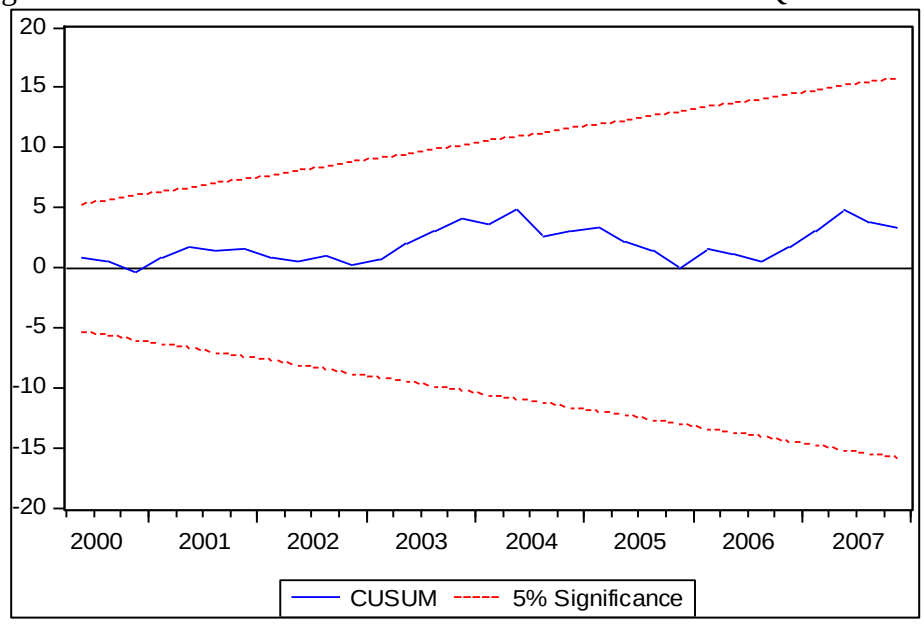
Source: Author's Calculation

Figure 14: CUSUM of Squares Test for Economic Growth Model: 1996-Q3 to 2001-Q3



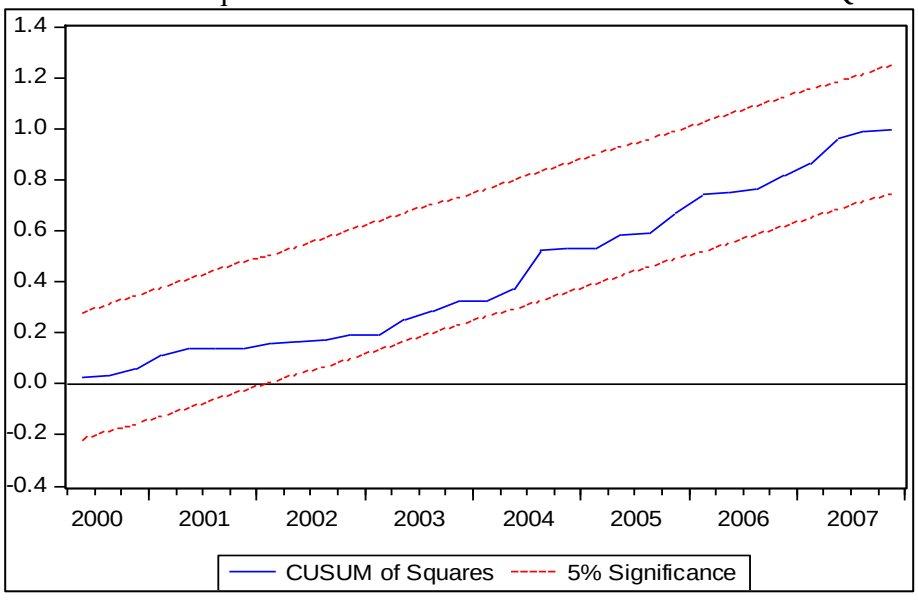
Source: Author's Calculation

Figure 15: CUSUM Test for Economic Growth Model: 1998-Q2 to 2007-Q4



Source: Author's Calculation

Figure 16: CUSUM of Squares Test for Economic Growth Model: 1998-Q2 to 2007-Q4



Source: Author's Calculation

Table 10: Residual Diagnostics for ARDL Economic Growth Model

Tests	Breusch-Godfrey Serial Correlation LM Test	Breusch-Pagan-Godfrey Test for Heteroskedasticity
P-Value (1996Q3-2001Q3)	0.2649	0.324
P-Value (1998Q2-2007Q4)	0.7619	0.2163

Source: Author's Calculation

Inflation Model:

The results for Bounds Test are shown in Table 11. It can be inferred that, since the value of the F-Statistic for the period 1996Q3-2001Q3is greater than the values of I(1) at 5%, the null hypothesis of no cointegration is rejected at 5% level of significance. Also, the F-Statistic for the period 1998Q2-2007Q4is greater than all the values of I(1), the null hypothesis of no cointegration is rejected at 1% level of significance. Hence, there is a cointegrating relationship between the variables in both the periods. The results of the Long Run Model are shown in Table 12, while the results of the Error Correction Model are shown in Table 13.

Table 11: ARDL Bounds Test for Inflation Model

Test Statistic	Value (1996Q3-2001Q3)	Value (1998Q2-2007Q4)	Level of Significance	I(1)	I(1)
F-Statistic	4.56	16.73	10%	3.2	3.09
			5%	3.67	3.49
			2.50%	4.08	3.87
			1%	4.66	4.37

Source: Author's Calculation

It can be inferred from Table 13 that since the coefficient of the error correction term is negative and significant at 1% level of significance, the model will converge and any disequilibrium in the long run will be corrected for both the periods.

From Tables 12 and 13, it is seen that for the period 1996Q3-2001Q3, the first lag of WPI Growth Rate significantly affects its value at the current period in the long run, but not in the short run. The first lag of GDP Growth Rate and Imports Growth Rate significantly affect WPI Growth Rate in the long run, but not in the short run. Call Money Rate's first lag

significantly affects WPI Growth Rate in the long run, but only its current period value significantly affects WPI Growth Rate in the short run.

Table 12: Long Run ARDL Model for Inflation

Variable	**Coefficient (1996Q3-2001Q3)**	**Variable**	**Coefficient (1996Q3-2001Q3)**
WPI Growth Rate(-1)	0.98***	WPI Growth Rate(-1)	0.08
GDP Growth Rate	-0.16	WPI Growth Rate(-2)	-0.04
GDP Growth Rate(-1)	-0.50***	WPI Growth Rate(-3)	0.88***
Imports Growth Rate	0.05*	WPI Growth Rate(-4)	-0.78***
LOG(CMR)	-2.3	WPI Growth Rate(-5)	-0.83**
LOG(CMR)(-1)	3.33**	GDP Growth Rate	-0.25**
Constant	-1.43	GDP Growth Rate(-1)	-0.32**
R^2	0.74	GDP Growth Rate(-2)	0
		GDP Growth Rate(-3)	0.05
		GDP Growth Rate(-4)	0.61***
		Imports Growth Rate	0.02
		Imports Growth Rate(-1)	0.12***
		Imports Growth Rate(-2)	-0.11**
		Imports Growth Rate(-3)	-0.06
		Imports Growth Rate(-4)	0.07**
		REER	0.37**
		REER(-1)	-0.35**
		REER(-2)	-0.39**
		REER(-3)	0.06
		REER(-4)	0.67***
		REER(-5)	-0.38**
		CMR	-1.00***
		CMR(-1)	1.05***
		CMR(-2)	-0.33
		CMR(-3)	0.44
		CMR(-4)	1.52***
		CMR(-5)	-1.90***
		Constant	11.1
		R^2	0.98

Source: Author's Calculation. *, ** and *** indicates 10%, 5% and 1% level of significance

Table 13: ARDL Error Correction Model for Inflation

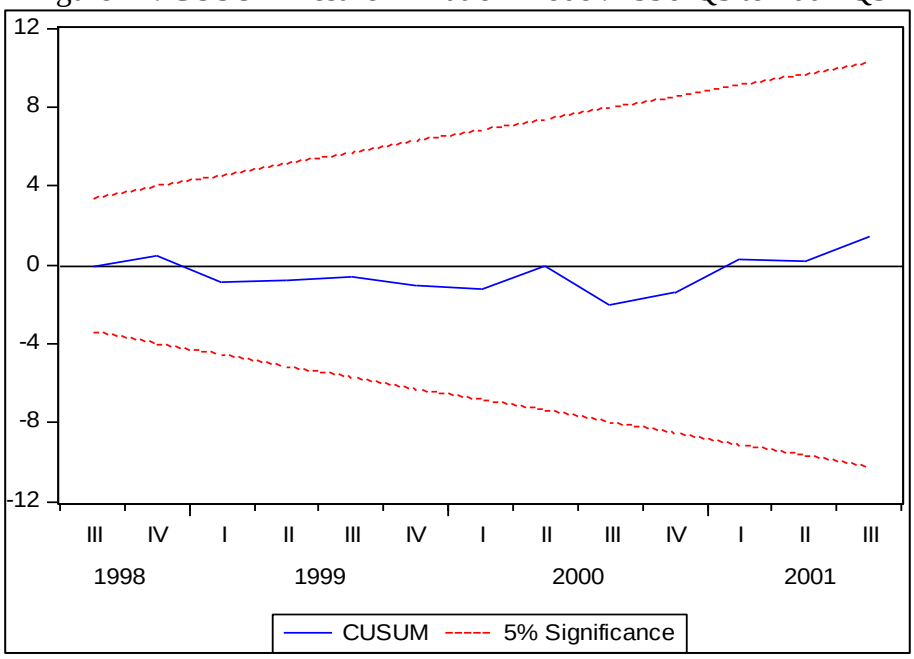
Variable	Coefficient (1996Q3-2001Q3)	Variable	Coefficient (1996Q3-2001Q3)
D(GDP Growth Rate)	-0.16	D(WPI Growth Rate(-1))	0.77***
D(LOG(CMR))	-2.30**	D(WPI Growth Rate(-2))	0.73***
Error Correction term	-0.10***	D(WPI Growth Rate(-3))	1.62***
		D(WPI Growth Rate(-4))	0.83***
		D(GDP Growth Rate)	-0.25***
		D(GDP Growth Rate(-1))	-0.67***
		D(GDP Growth Rate(-2))	-0.67***
		D(GDP Growth Rate(-3))	-0.61***
		D(Imports Growth Rate)	0.02
		D(Imports Growth Rate(-1))	0.11***
		D(Imports Growth Rate(-2))	0
		D(Imports Growth Rate(-3))	-0.07***
		D(REER)	0.37***
		D(REER(-1))	0.04
		D(REER(-2))	-0.35***
		D(REER(-3))	-0.28***
		D(REER(-4))	0.38***
		D(CMR)	-1.00***
		D(CMR(-1))	0.26**
		D(CMR(-2))	-0.06
		D(CMR(-3))	0.37**
		D(CMR(-4))	1.90***
		Error Correction term	-1.68***

Source: Author's Calculation. *, ** and *** indicates 10%, 5% and 1% level of significance

For the period 1998Q2-2007Q4, the third, fourth and fifth lags of WPI Growth Rate significantly affect its value at the current period in the long run, but all the first four lags affect it in the short run. GDP Growth Rate, its first and fourth lag significantly affect WPI Growth Rate in the long run, but its current period and first three lags significantly affect it in the short run. Imports Growth Rate's first, second and fourth lag significantly affect WPI Growth Rate in the long run, but only the first and third lags significantly affect it in the short run. Real Effective Exchange Rate, it's first, second, fourth and fifth lag significantly affect WPI Growth Rate in the long run, but only the second, third and fourth lags significantly affect it in the short run. Call Money Rate, its first, fourth and fifth lags significantly affects WPI Growth Rate in the long run, but only its current period value, first, third and fourth lags

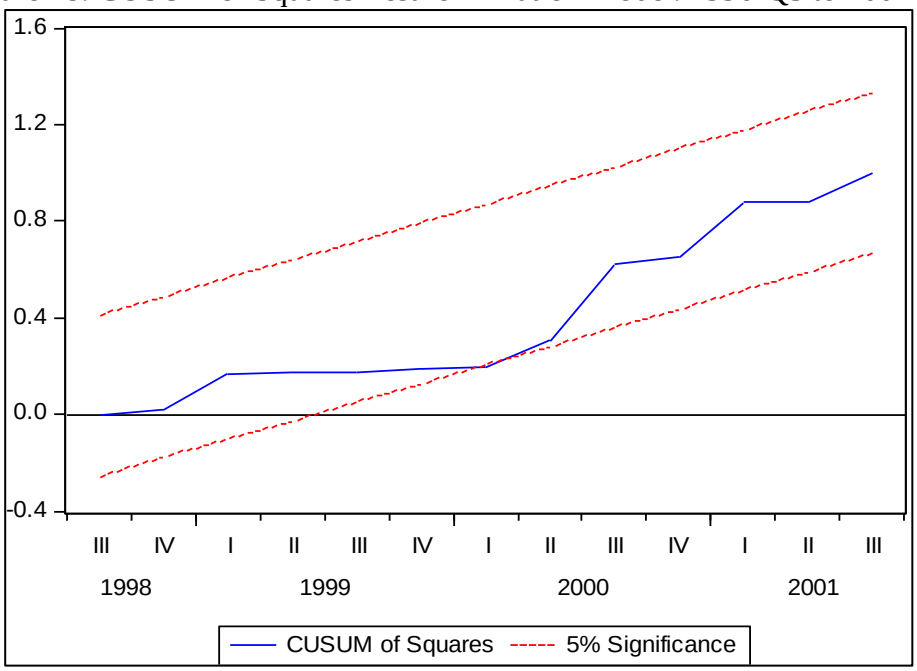
significantly affects WPI Growth Rate in the short run. Moreover, the R^2 value is high, indicating that the model is a good fit. The stability diagnostics are as follows:

Figure 17: CUSUM Test for Inflation Model: 1996-Q3 to 2001-Q3



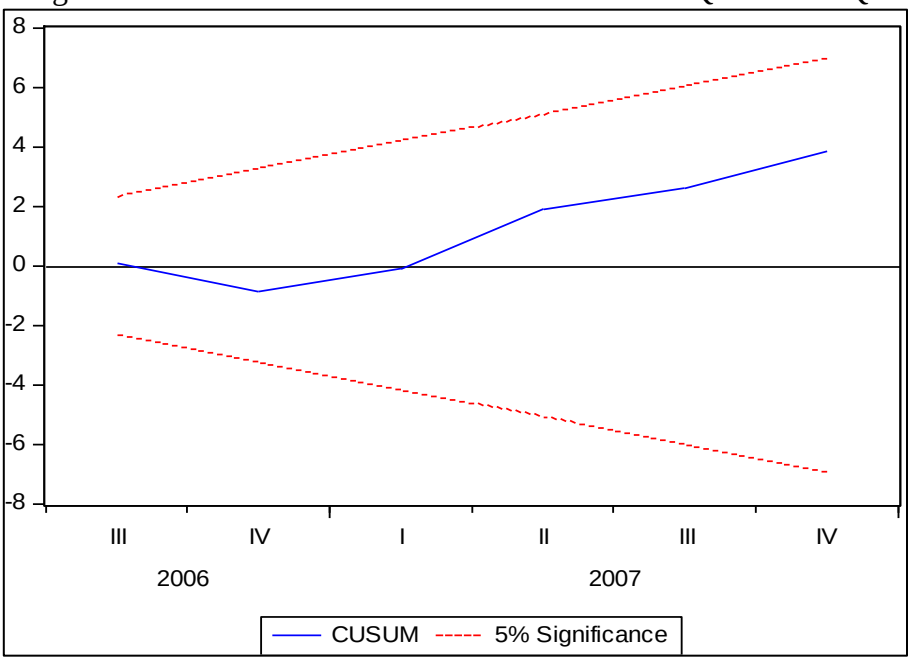
Source: Author's Calculation

Figure 18: CUSUM of Squares Test for Inflation Model: 1996-Q3 to 2001-Q3



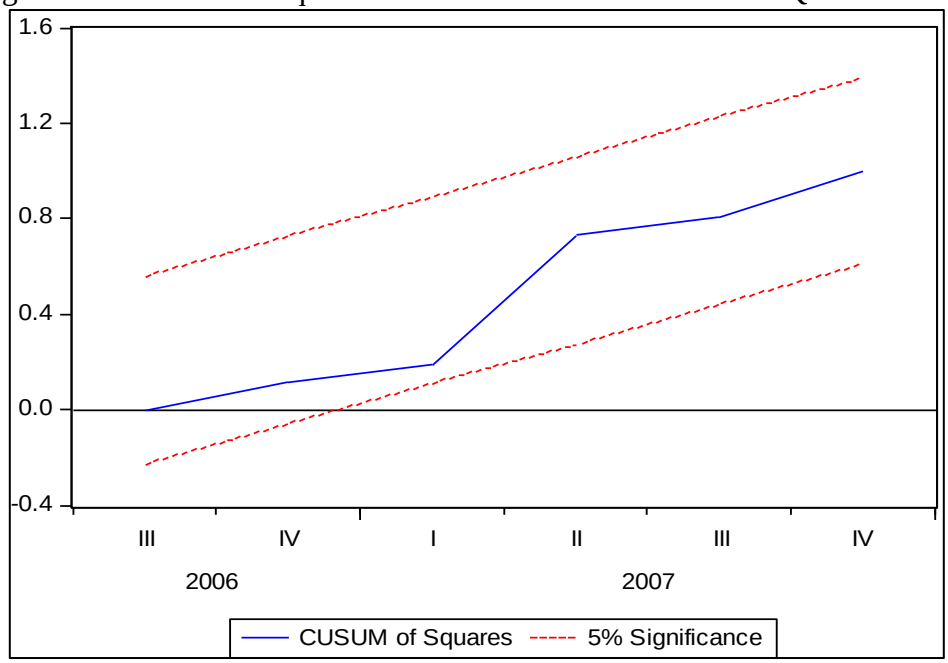
Source: Author's Calculation

Figure 19: CUSUM Test for Inflation Model: 1998-Q2 to 2007-Q4



Source: Author's Calculation

Figure 20: CUSUM of Squares Test for Inflation Model: 1998-Q2 to 2007-Q4



Source: Author's Calculation

The above four graphs show that both the CUSUM and CUSUM of Squares lines fall between the bounds at 5% level of significance, indicating that the models are stable and reliable. The residual diagnostics are as follows:

Table 14: Residual Diagnostics for ARDL Inflation Model

Tests	**Breusch-Godfrey Serial Correlation LM Test**	**Breusch-Pagan-Godfrey Test for Heteroskedasticity**
P-Value (1996Q3 to 2001Q3)	0.2165	0.9203
P-Value (1998Q2 to 2007Q4)	0.4572	0.9568

Source: Author's Calculation

The above results show that the probability values for the tests of autocorrelation and heteroskedasticity in both the models are insignificant at 5% level of significance. This means that the null hypothesis of no serial correlation and homoskedasticity cannot be rejected. Therefore, the Classical Linear Regression Model (CLRM) assumptions are satisfied.

5. Conclusion and Policy Implications

It can be concluded that the GDP Growth Rate was not affected much due to the imposition of sanctions, but grew significantly after the repeal of sanctions. This shows that the sanctions did not impact the output of the economy immediately, but it derailed the output growth, which could have been better if the sanctions were not imposed.

On the other hand, the exports to US had dampened during the years of sanctions, but its direction of growth changed from negative to positive after the repeal of sanctions. This indicates that the exports too, were highly discouraged due to sanctions, which had a great potential to grow during the years of sanctions. Imports from US too, were discouraged due to the trade embargo but its rate improved in the post-sanctions period.

The FDI Growth showed a sharp immediate impact through a falling trend, but improved quickly and grew positively during the period of sanctions. This reveals that sanctions did not have a significant impact on FDI in India. Instead, the fall seen in the FDI was due to the Asian Crisis of 1997-98 (Planning Commission, 2002). The quick recovery thereafter

suggests that globalisation has enabled India to reduce the dependence on the US for foreign investments.

Hence, the study shows that there has been a subtle impact of the US sanctions on India, which could not be evidently noticeable. It has been revealed through the analysis that the growth prospects of the country were retarded due to the trade embargo, which could have been on a greater pace. India took certain policy measures on this front by improving the bilateral ties with the US and aligning certain policies such as signing the New Framework for the US – India Defense Relationship for corroboration in defence and the Civil Nuclear Cooperation Initiative, repealing the moratorium on trade in nuclear energy with India.

5.1 Limitations of the Study

The study covers a smaller portion of the pre-sanctions period, from the third quarter of 1996 till the second quarter of 1998, due to the non-availability of consistent data before that period. Monthly frequency could not be incorporated in the dataset due to the fluctuations in the periods and to avoid the problem of heteroskedasticity. Moreover, the impact of BSE Sensex (stock market indicator) could not be incorporated as a potential channel impacting output and inflation, due to the issue of multicollinearity it was causing with the explanatory variables. The study limits its analysis of impact post sanctions till 2007Q4 to avoid the effects of the Global Financial Crisis (2008).[2]

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with me in times of need and taught me incredibly the meaning of true friendship.

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Trade, Poverty and Inequality in India

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Abstract

Trade as an engine of growth has been debated much. Its ability to reduce poverty and inequality has attracted much debate in India. The present study investigates interlinkages of trade, poverty and inequality through employment generating capacity of India's exports. The growing importance of value addition in trade requires countries to integrate into the global value chains to get factors of production employed gainfully. The sector-wise share of value addition and employment opportunities have been explored to know the employment-creating capacity of each sector.

India a labour-abundant country is exporting capital-intensive items. It produces a skewed distribution of employment creating a skill premium consequently causing inequality. The study questions the long-term viability of poverty reduction through cheap imports amid rising inequality. It advocates for India's increasing share of value addition in its exportable items of the manufacturing sector to ensure the generation of gainful employment and a reduction in poverty and inequality. Vertical integration with the Global Value Chain (GVC) has to be explored for a consistent and productive advantage for the local factor market. The increasing trade in parts and components has placed them up for the creation of gainful employment and thereby reducing inequality. The evaluation of sector-wise domestic value creation and its linkage with GVC is essential for policy purposes.

Keywords: Trade Openness, Poverty, Inequality.

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1. Introduction

Covid-19 and its aftermath have shown that business as usual is not sufficient to tackle the recessionary period that is being forced upon and induced by the pandemic. Covid's impact on global trade reveals some key trends. First, the pandemic affected services trade more than goods trade. Second, the impact of the Covid shock on trade was different across countries.[2]The outbreak has necessitated re-examining the traditional way of thinking in every sense. It is pertinent to evaluate the role of trade as a vehicle of growth and development in the case of India.

Trade is a process of export and import. Trade liberalisation eases this process. It is generally defined as a process toward free trade through the reduction of tariff and non-tariff barriers. It helps the easy flow of export and import of goods and services among trading countries. Trade openness results in the improved allocation of resources, productive efficiency and economic growth. The procedure of trade, i.e., export and import determine the availability of goods& services and resources for economic growth. The causal effect of trade on poverty and inequality depends on macroeconomic policies to make trade an influencing variable for poverty and inequality. The country-specific situation is also a determinant to explain the effectiveness of trade in reducing poverty and inequality. The effectiveness of trade in attaining the desired goal can vary according to the level of development of different parts of the world. There are four leading characteristics of the poor country that have a particularly strong impact on their capacity to extract the full potential benefits of trade: rural poverty; fragility and conflict; informality; and gender (WTO 2015). A developing country like India has economic characteristics that require specific policy solutions to deal with the griming situation of poverty and inequality. India being a labour-abundant, informal, and capital-scarce economy needs labour augmenting production chain through trade arrangements to attain a persistent decline in poverty and inequality. The effectiveness of trade in reducing poverty and inequality is a matter of examination of the theories of free trade.

[2] How has the Covid-19 pandemic affected global trade? How has the COVID-19 pandemic affected global trade? | World Economic Forum (weforum.org) (accessed in July, 2023)

The textbook theory of factor endowment proposes that trade is likely to increase the real return and employment of a country's relatively abundant factor and reduce the real return and employment of the country's relatively scarce factor. In the process, the reallocation of factors of production takes place. The reallocation of factors raises the productive capacity of the trading countries. The theory argues that free trade promotes efficiency and specialization and thus increases overall economic welfare. The traditional models of international trade assume labour as an exogenous and perfectly mobile factor. International trade seems to decide employment and wages.

However, total employment is not a function of international trade, but the number of people in the labour force. Trade only reallocates the factors of production from import-competing sectors to exporting sectors. The export of labour-intensive commodities from developing countries increases the employment of labour employed in the production of these commodities by expanding the available international market consequent upon trade. It may lead to decreasing poverty and wage inequality. However, it is noticed that trade has led to declining absolute poverty and increasing inequality in India. It signals that the relationship between trade and inequality depends upon the trade structure. In trading arrangements, the supply chain occupies an important place for the sustainability of trade. This provides insurance if there is a crisis and problems with global supply chains such as Covid crisis. Domestic production of items can be developed quickly if needed; this would be more economical than requiring domestic production in perpetuity, which will be an expensive proposition (Dollar 2020).

The countries tend to trade in parts and components in an integrated supply chain. In the process value addition by members takes place. Greater trade openness helps the process of value addition in manufacturing within and across sectors. The intensity of trade of the services and jobs attached to these chains determines the reallocation of factors and thus inequality and wages. The Global Value Chain (GVC) focuses on the firm-level analysis in an industry in terms of wage, employment and differences in productivity. The interlinkage of the supply chain reduces the size of the fixed cost as the domestic producers won't need to set up horizontal apparatus. The domestic firms become only a unit of subsidiary production

in GVC. For instance, in the semiconductor industry, the US leads in the most R&D-intensive activities, East Asia is at the forefront in wafer fabrication, and China leads in assembly, packaging, and testing. A fully "self-sufficient" local supply chain in each region to meet its current levels of semiconductor consumption would have required at least $1 trillion in incremental upfront investment, resulting in a 35 percent to 65 percent overall increase in semiconductor prices and ultimately higher costs of electronic devices for end users.[3]

Although the focus of the paper is on India, the emerging lessons are useful for many developing countries. The proposed study will be undertaken in the empirical, analytical and descriptive framework. To examine the relationship between trade and poverty and inequality the study will undertake an empirical analysis of data on trade openness and its impact on poverty and inequality in India. The study draws inputs from secondary sources of data that includes relevant and concerned books, Journals, articles, report, seminar papers, several magazines and newspapers.

The structure of the paper is as follows: The first section will present a critical examination of the existing studies and analyse the data sources and methodology. The second section will represent a theoretical justification for the study. The third and fourth sections will deliberate on the linkages of trade and poverty and trade and inequality respectively. The fifth section will deal with the relationship between rising inequality and value addition. Finally, the paper focuses on policy suggestions and conclusions.

2. Literature Review

2.1 Trade Liberalisation, Inequality and Poverty

Marion Jansen and Eddy Lee (2007) argue that the Stopler-Samuelson Condition based on factor intensity between developed and developing countries, causes increasing rewards for

[3] For detail about how domestic firms become only a unit of subsidiary production in GVC in the semiconductor industry, see bcgxsia-strengthening-the-global-semiconductor-value-chain-april-2021.pdf (accessed in July, 2023).

factors available in abundance. Trade causes increasing exports of labour-intensive products from a relatively labour-abundant developing country to a developed country. As a result of it the relative wage to labour increases. It causes a decline in inequality in a developing country. Robert Haveman (1977) finds that rising tides raise all boats. It does not consider the importance of the mode of production in determining the distributional aspect of the growth model. Trade openness is presented as necessarily a distribution-maximising instrument of growth policy. T.N. Srinivasan and Jessica SeddonWallack (2004) find that trade liberalisation affects poverty indirectly by improving the economic environment. It concurs with certain critics of trade liberalisation that trade-induced growth causes inequality but it does not mean that the poor are worse off than before. The causality of trade and poverty is found negative.

However, Amiti, M., & D. R. Davis (2011) find the two most salient empirical facts about international production i.e. heterogeneity and trade in intermediate items. The reduction of tariffs on intermediate items leads to rising wages in import-competing firms compared to their locally sourced counterparts. Therefore, the study confirms that trade can cause rising inequality. Biswajit Nag and Saloni Khurana (2018) find that India's export sector has been capital-intensive. India's export basket is relatively more import-intensive than its local value content. A labour-abundant country imports capital for its capital-intensive export. The increasing capital intensity of exports creates a skill premium of existing labour, thus causing inequality. Rashmi Banga (2014) argues that India's manufacturing sector is experiencing increasing import intensity in its export basket as its domestic value addition records a diminishing share of total output. Jagdish Bhagwati and T.N. Srinivasan (2002) argue that trade promotes growth and growth reduces poverty. It outlines the basic presumption of the Stopler-Samuelson argument that free trade should help in the reduction of poverty in the poor country which exploits its comparative advantages to manufacture and export labour-intensive goods.

Moreover, Johannes Schwarzer (2016) outlines that the assumption of full employment in traditional trade models does not allow them to study trade-induced employment. Instead, modern trade theories focus on firm-level productivity and analyse the trade-induced

inequality in wages and employment. Trade liberalisation among trading countries reduces the fixed cost of exports as firms are ready to take advantage of the vertically integrated production chain. The trade advantage becomes centric on firm-level productivity resulting in an expansion of the most productive firms and cessation of activity of the least productive ones. Labour relocation takes place accordingly. It causes wage inequality between productive and less productive firms. Kis-Katos, Krisztina and Robert Sparrow (2015) suggest that the labour-abundant economy of Indonesia finds it suitable to import capital-intensive intermediate items. Better access to imported inputs and restricted entry of final goods, have increased the employment of low and medium-skilled workers. It led to poverty reduction in Indonesia. Sanchez-Paramo and Schady (2003) find the skill-biased wage distribution. The trade-induced technological changes in Latin American countries created a skill premium for skilled labour in the same industries across countries. It signals intra-industry wage inequality.

The literature review puts the traditional trade models in question amid rising trade in parts and components. The relative reward to factors engaged in the trading sector cannot be decided only by their relative abundance. According to the trade models of Heckscher-Ohlin and Stopler-Samuelson, India being a labour-abundant and capital-scarce country is better placed to export labour-intensive and import capital-intensive items. India's export basket, however, gradually shifted to become more capital-intensive. It disproportionately raises the wages in the capital-intensive sectors resulting in inequality in wages and income. Moreover, the increasing trade in parts and components has given importance to value addition through forwarding and backward linkages in the fragmented supply chain. Consequently, the present study will contribute to the existing discourses in the literature that the trade based on relative factor abundance is not sufficient to analyse the impact of trade on employment, poverty and inequality in India as the country seems to be the classic case of Leontief Paradox.

3. Data Source and Methodology

The proposed study is undertaken in the empirical, analytical and descriptive framework. It presents trends of the interaction of variables, trade, poverty, and inequality. These trends do not signal any scientific prediction, however, they suggest policy measures to make trade an instrument for reducing poverty and inequality. The secondary data sources have been explored widely to know the impact of trade on poverty and inequality. The theoretical propositions of the Heckscher-Ohlin and Stopler-Samuelson model have been analysed to investigate whether India is the case of the Leontief Paradox.

4. The objective of the Study

The study will investigate the applicability of traditional trade models for India and find out whether India is becoming a classic case of the Leontief Paradox. Moreover, the study will analyse the role of trade in the reduction of poverty and inequality especially in the increasingly fragmented global supply chain.

5. Theoretical Framework of Trade, Poverty and Inequality

Trade is supposed to be an avenue to realise expanding consumption of goods and services. The impact of trade on poverty and inequality depends on how effectively and efficiently trade policy is formulated and executed. Restricted trade is superior to no trade and is valid under certain conditions (Bhagwati 1968). There are several examples where a high level of import restrictions in the 19th and 20th centuries contributed positively to industrialisation and employment generation. For instance, in British India districts exposed to a greater decrease in imports from the UK experienced faster industrial employment growth placing them on a higher level of industrialisation which is visible these days.[4]The role of trade in reducing poverty and inequality can be better understood by knowing the factor endowment of

[4] Trade, Industrialisation, and British Colonial Rule in India (e-ir.info) (accessed in July, 2023)

countries. The theoretical proposition of Heckscher-Ohlin (H-O) and Stopler-Samuelson (S-S) models argue for factor-intensive export and that the export of relatively abundant factor-intensive export rewards relatively abundant factor of production. Therefore, labour-abundant developing countries will export labour-intensive items and import capital-intensive items. In the case of India, the reverse seems to be happening as per the thesis of the Leontief Paradox. India-a labour abundant country is exporting capital-intensive items. As a result, its reward for capital in capital-intensive exports is growing up. It causes inequality of income to labour and capital. Further, it causes inequality among labour as capital-intensive export could not create gainful employment for a vast pool of unskilled labour.

Contrary to the prescription of traditional trade models India exports capital-intensive (diamonds &jewellery, machinery including computers, and refined petroleum)[5] and imports relatively labour-intensive items (mineral fuels including oil, gems & precious metals, animal or vegetable fats, oils and waxes, plastics both as a material and items made from plastic)[6].India's trade basket is contrary to the theoretical proposition of the S-S model. Trade and Industrial liberalisation opened the gate for the easy flow of technically advanced inputs and intermediate items. Besides, growing economic openness opened the space for the mutual exchange of technical know-how across the countries. Technological progress has improved capital productivity, and dramatically reduced the relative prices of machinery and equipment - and therefore the effective cost of capital over the decade. In contrast, India's effective cost of labour remains prohibitively high because of rigid labour laws and the lack of skilled labour in the workforce. India's export profile changed over the decade. In 2000, 2/3rd of India's export basket comprised labour-intensive exports (agriculture, gems & jewellery, textiles and leather). By 2019, 50% comprise capital-intensive auto parts, pharmaceuticals, and capital goods.[7]

Export-bias trade regime is said to be growth-promoting. Export promotion is supposed to be an effective strategy to generate gainful employment in exporting sectors. The expanding

[5] India's Top 10 Exports 2021 (worldstopexports.com) (accessed in July, 2023)
[6] India's Top 10 Imports 2021 (worldstopexports.com) (accessed in July, 2023)
[7] TOI, May 2, 2019.

export means growing world demand for domestic products. The latter may cause increasing investment and production of domestic items for world consumption. It is a way to increase employment opportunities by expanding the export sector. Economic abundance (in the form of opportunities for participation in trade and production) can help to generate personal abundance as well as public resources for social facilities (Sen 2000).According to new trade theories, trade liberalisation may reduce the wages of unskilled labour even in a labour-abundant country, thereby widening the gap between the rich and the poor (Sethi 2018).

In the Lewis model of development, labour is assumed to be inelastic supply. The growing sector of the economy will pull the reserve army of labour into gainful employment. Trade as an engine of growth may be such a segment of the economy to employ additional labour and bridge the income gap along with reducing poverty in the economy. The effectiveness of trade in the Lewis model is conceived only when the trade does not affect a segmented population. The structural deficits of a developing country cause a segmented market for differentiated goods. It constrains the scale economies' advantage in expanding intra-industry trade and investments thereby prohibiting the wide effect of income and employment equalising effects of trade. The Lewis model indicates the inequality-generating nature of trade in the presence of structural rigidities in the economy.

A growth model presented by Solow presents a case of trade-induced inequality in income although trade may lead to an increased growth rate and poverty reduction. In the Solow model of two factors (labour and capital) economies, we assume constant returns to scale for labour to know the effect of trade-induced quantity adjustment of capital. In this model, trade openness has only a transitory effect on growth. We suppose the case of a developing country like India where the absorptive capacity of capital in the economy is limited due to structural rigidities.

$$L=\infty \quad \text{and } K=\text{variable up to an extent}$$

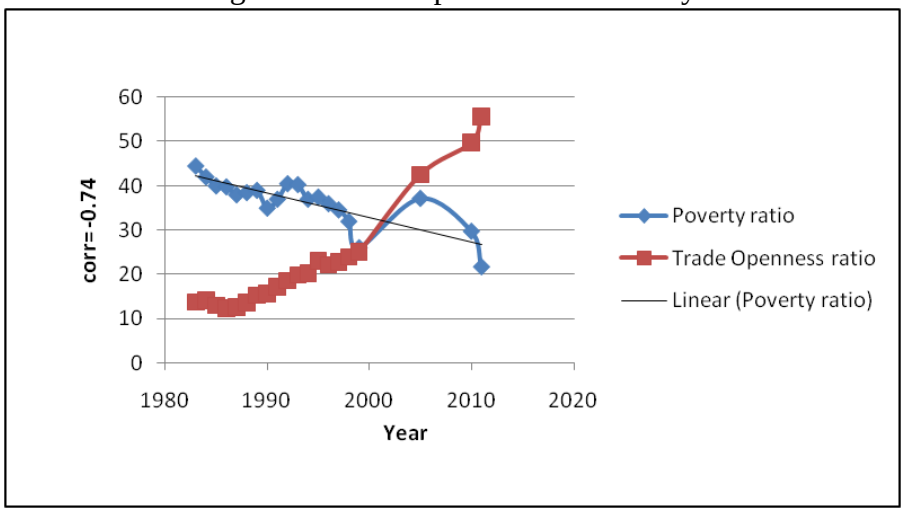
The structural rigidities put a limit on the absorptive capacity of capital. It put a limit on the marginal physical productivity of labour. In such an economy trade causes inequality but reduces poverty as cheaper imports are available in a free trade regime. Thus, in the presence

of theoretical ambiguity of trade theories and growth models, the question of how trade liberalisation affects poverty and inequality largely depends on empirical analysis. The special case of India is an interesting subject of study to present an exception to the S-S model.

6. Trade and Poverty[8]

In Figure 1, trade openness is measured as the ratio of trade to GDP. The linear poverty line shows the linear regression of both variables- trade openness and poverty ratio. It depicts the negative relationship between poverty and trade openness. The central argument of trade openness-induced change in the poverty ratio comes through changes in the real wage. The Stopler-Samuelson model theorises that relative reward for factors involved intensively in exports will rise. The increasing factor reward will raise the living standard of the owner of the factor. In the case of labour abundant economy like India, it is better if the labour is rewarded as a result of exports. For it, the increasing labour intensity in exportable items should be incentivised.

Figure 1: Trade Openness and Poverty



Source: Authors' calculations

[8] Poverty is shown in absolute terms. Data on trade openness is taken from https://www.macrotrends.net/countries/IND/india/trade-gdp-ratio and data on poverty is extracted from RBI Handbook on Statistics. (accessed on 22 December 2020)

We calculated correlation between trade openness and the poverty ratio during the pre-trade reform period (1980s-1991) by using the data source from Figure 1. It turns out to be 0.29.This correlation has increased to 0.32 during 1992-2000 and thereafter decreased to 0.28 reaching almost the pre-trade reform period. The estimated unit values of correlation show that trade openness generally helps to reduce the poverty ratio. The positive correlation between trade openness and poverty is seen up to the year 2000. Since then, capital-intensive export has acquired a pre-eminence place. The relative factor of reward to capital has started rising. It is hard to discern the share of profit (capital) and wage (labour) resulting from trade openness. Meanwhile, we can estimate the share of wages and profit in the net value addition of the Indian manufacturing sector since the period of trade liberalisation (Figure 8 below).

The Keynesian analysis argues that the marginal propensity to the consumption of labour is more than that of the capital owner. From the Keynesian theory of consumption and multiplier, we can deduce that relative reward to capital in comparison to labour has been less poverty-reducing. The relative factor reward to labour has been more poverty-reducing. Additionally, the standard textbook explanation on Keynesian economics implies that the multiplier effect of increasing consumption expenditure by labour can generate a ripple effect for incentivising economic activities across the various sectors of the economy. Moreover, it is seen that trade openness and poverty reduction have been weakly correlated since the year 2000, although, trade openness causes a substantial poverty reduction.

It is an interesting subject to analyse the effect of trade-induced poverty reduction. It is argued that India's trade induces growth has been largely jobless. The decreasing poverty after liberalisation has occurred largely because of increasing imports of cheap items for consumption. Therefore, resistance to free trade does not come from consumers.[9] Further, the welfare schemes of fiscal policy have also led to a fall in poverty. The question arises whether the fall in poverty remains sustainable amid the falling share of labour (wage) in net value addition (NVA). The trade liberalisation has accentuated the pace of disparity of share of factors in NVA as India gradually started exporting capital-intensive items since the start of the second decade of liberalisation. India needs to have a sound Industrial and

[9] The Hindu, April 25, 2019

Employment policy to make poverty reduction sustainable. The nature of jobs matters much in reducing poverty in the post-liberalisation age as unemployment and underemployment lie at the core of poverty. For the poor, labour is often the only asset they can use to improve their well-being. Hence the creation of productive employment opportunities is essential for achieving poverty reduction and sustainable economic and social development.[10]

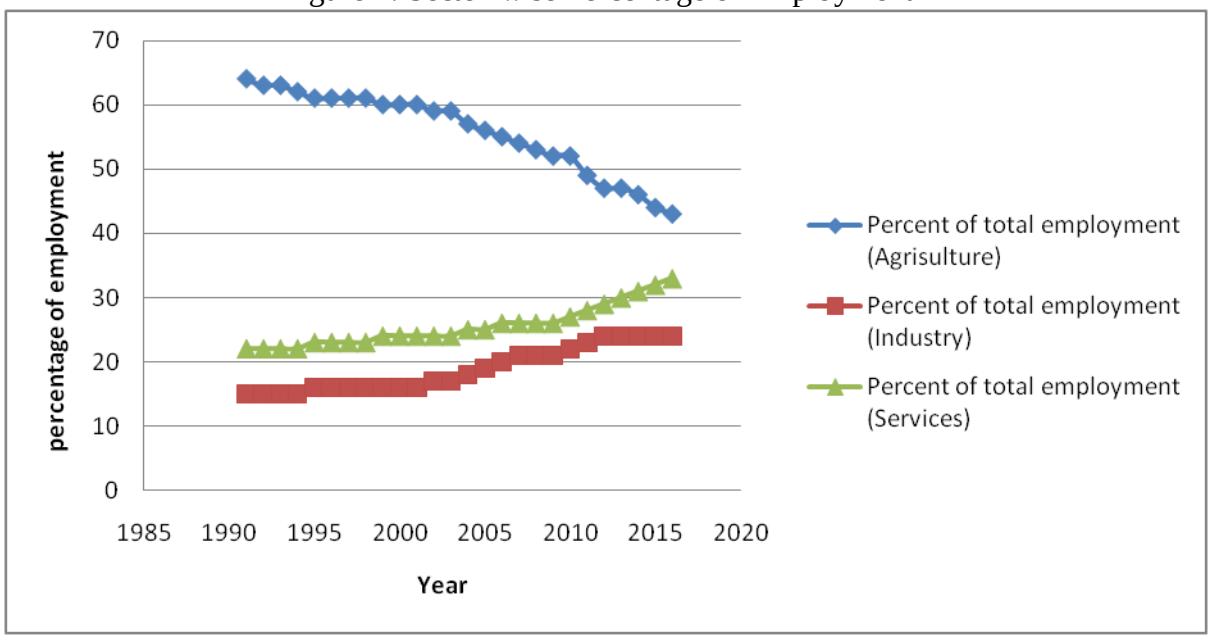
While the pace of non-farm job creation in the post-liberalisation era (at 3.39% p.a.) is similar to the pace of job creation in the decade immediately preceding liberalisation (at 3.59% p.a.), the growth of jobs in the post-liberalisation era has been very narrowly concentrated in a few sectors. In the 1990s employment elasticity in India has been nearly 0.4 which came down to nearly 0.2 in the 2000s.[11] The falling employment elasticity is partly the result of the large-scale substitution of labour with capital.

The productivity of Indian industries has increased as a result of cheaper imports of capital items. The pace of poverty reduction also accelerated, with a three to four times increase in the proportionate rate of decline in the post-liberalisation period. Despite the increase in inequality, we find greater post-liberalisation responsiveness of poverty to growth in the aggregate, regardless of whether growth is measured based on national accounts or survey-based consumption. It has led to a decline in poverty by 1.36 percentage points per annum after 1991 compared to 0.44 percentage points before 1991 (Datta et.al. 2016). Urban growth is the most important contributor to the rapid reduction in poverty. In the post-reform period, poverty declined faster in the 2000s than in the 1990s. As per the Tendulkar Committee report, poverty declined only 0.74 percentage points per annum during 1993-94 to 2004-05. Further, it declined sharply by 2.2 percentage points per annum during 2004-05 to 2011-12.[12] The slow pace of non-farm job creation has been a major hurdle to ensuring a persistent decline in poverty. The pace and nature of liberalisation have distorted and discriminated the sector-wise growth pattern. Industrial policy liberalisation has unduly favoured small-scale enterprises. The Industrial Policy of 1956 onwards reserved a huge number of items exclusively for production in small-scale and cottage industries. By the mid of the second

[10] Employment and Decent Work | Poverty Eradication (un.org) (accessed on 02 June 2023)
[11] Mint, 2018
[12] Press Note on Poverty Estimates, 2011-12. Planning Commission, Microsoft Word - Final_Press Note 2011-12_23.07.2013.doc (niti.gov.in) (accessed on 8th November 2020)

decade of liberalisation, nearly 500 products were still reserved for small-scale industries. The slow pace of openness of items for production in competitive markets has led to the informalisation of Indian industries.

Figure 2: Sector-wise Percentage of Employment



Source: Authors' calculations based on Economic Surveys of various years

For trade to be effective in a persistent reduction in poverty, formalisation of the economy is highly required. The role of industries is encouraged here. Industries have the capacity for value addition. It can create employment through forwarding and backward linkages.[13] Trade openness expands the space for these kinds of linkages. For a developing economy such as India, trade openness provides space to link with the global value chains through vertical integration in GVC.

However, in Figure 2, we can observe that agriculture is losing its place in terms of employment although very slowly. One reason behind this slow pace of falling employment in agriculture is the increasing informalisation of non-farm jobs. The latter is not a better alternative to farming. It impresses no one in the farming sector to get employed in an informal sector that has no solution for poverty reduction in the long run. The employability

[13] Forward linkage occurs where the country provides inputs into the exports of other countries. Backward linkage occurs where the country imports intermediate products to be used in its exports.

of the service sector is too weak due to insufficient space for value addition. The industry is the only sector that can create gainful employment for sustenance and reduction in poverty.

7. Trade and Inequality[14]

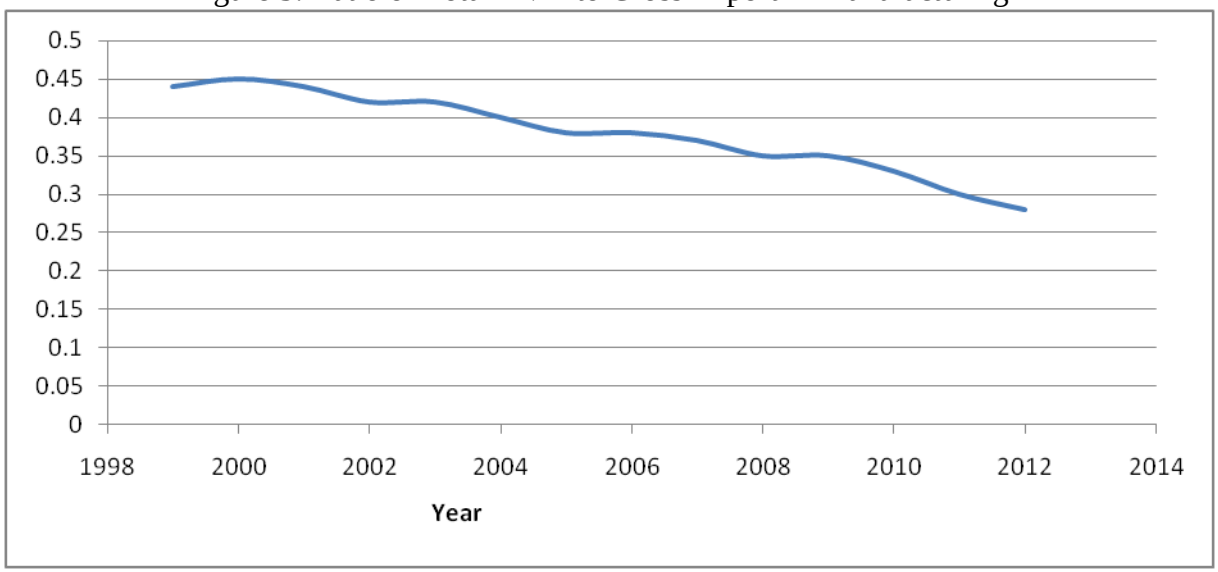
Trade reform contributes to the redistribution of income and employment. It is said to be beneficial for a developing country that has a huge pool of unskilled labour. Trade is supposed to be an instrument of poverty reduction and wage & income equality. We shall see in this study that trade openness has not created employment for a vast pool of unskilled labour due to rising shares of capital in NVA and capital-intensive export in total export. This inability of trade to create gainful employment has led to increasing inequality amid declining poverty (if we ignore the sustainability of poverty reduction). The relationship between trade and inequality can be examined with the analysis of employment-creating trade reforms. Export creates a world market for domestic items. The reward for the factor of production involved in export-related activities is increased. The standard trade models suggest that a labour-abundant country should export labour-intensive items and import capital-intensive items. However, the applicability of these models depends on flexible labour laws and the absence of structural rigidities. Therefore, one size fit all prescription of the standard trade model needs caveats that this study tends to provide. They help trading activity to redistribute income and employment across the sectors. Meanwhile, trade reform in the 1990s increased the wage-rental ratio due to cheaper imports of capital.

Moreover, for trade to reduce inequality in the long-term developing country should participate in the global value chain. The results from panel data estimations for a sample of 39 countries over the period 1995–2016 suggest that offshoring has a significant inequality-reducing effect on developing economies in the long run (Nur Carpa&Inmaculada Martínez-Zarzoso, 2022). The potential for value creation is less in the case of unskilled labour

[14] Data on trade openness is taken from https://www.macrotrends.net/countries/IND/india/trade-gdp-ratio and data on inequality is extracted from Bharti and Chancel (2019), "Tackling inequality in India: Is the 2019 election campaign up to the challenge?",pp 1-2.

compared to skilled labour and capital. India's limited base of skilled labour and a capital-scarce status offers it the limited opportunity to let free trade reduce inequality in wage and employment.

Figure 3: Ratio of Total DVA to Gross Export in Manufacturing

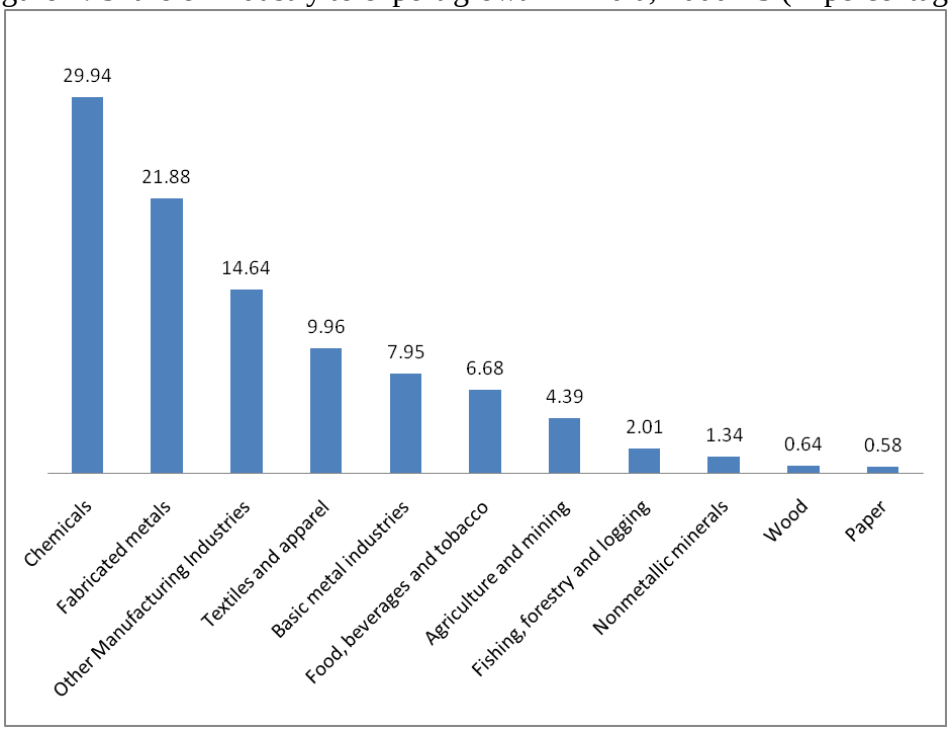


Source: Veermani and Dheer (2017), Domestic Value Added Content of India's Exports: Estimates for 112 Sectors, 1999-2000 to 2012-13, p 33

In Figure 3 we can observe that since the late 1990s ratio of domestic value addition (DVA) to gross export in manufacturing is declining. DVA refers to the share of local content in exportable items. The declining DVA in export reflects the declining capacity of manufacturing export. It indicates that the Indian manufacturing sector unable to keep pace with the trend of trade reform. It also implies the hollowing out of the Indian manufacturing sector for DVA.

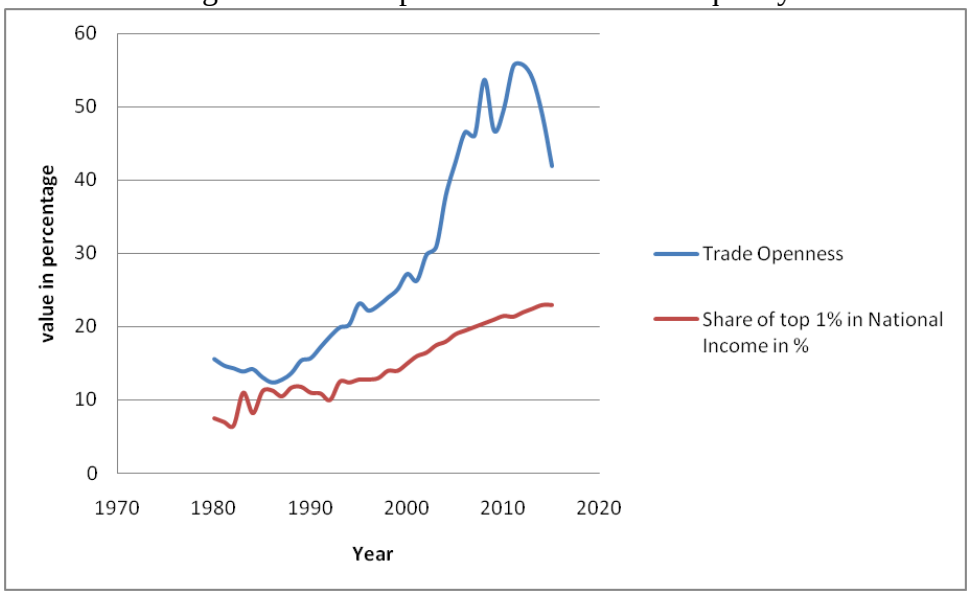
It is essential to know the kind of industries that are contributing to export growth in India amid the declining share of local content in exportable items. It helps to analyse the reason behind the rising inequality in the post-liberalisation era. In Figure 4 it is seen that India is experiencing a rising share of capital-intensive items in its export growth. The rising capital intensity of export implies that the relative cost of capital is less than labour. Additionally, unskilled labour in India is not suitable to be employed. Thus, India is faced with the paradoxical situation of being a labour-abundant country that is exporting capital-intensive items. It leads to rising inequality of income.

Figure 4: Share of Industry to export growth in India, 2000-13 (in percentage)



Source: Veermani and Dheer (2017), "Domestic Value Added Content of India's Exports: Estimates for 112Sectors, 1999-2000 to 2012-13", pp 40-47

Figure 5: Trade openness and income inequality



Source: https://www.macrotrends.net/countries/IND/india/trade-gdp-ratio and Bharti and Chancel (2019), "Tackling inequality in India Is the 2019 election campaign up to the challenge?",pp 1-2

The onslaught of unemployment is reflected in the form of rising inequality of income. Inequality is not a new phenomenon in the Indian economy. Trade openness only sharpened the edge of its upward slope. We have measured the most acute form of inequality in the form of income of the top 1% of the population. In Figure 5, it can be seen in each decade since the 1980s the share of the top 1% in national income hovers in double-digit. It is seen that the share of the super-rich had witnessed a gradual decline during the 30 years of 1950–80-the years of Nehruvian planning—when the economy was on the track of the so-called Hindu rate of growth of 3.5 to 4 percentage points. By the year 2000, the share in national income of the top 1% had moved up to 15% from the 6% recorded in the early 1980s and continued its upward trend subsequently.[15]The pace of rising concentration of national income in the possession of a few people has been sharp since the 2000s. The estimated correlation coefficient is 0.94 between trade openness and the concentration of income.

The rising inequality and unemployment consequent upon trade liberalisation have fuelled a new kind of trade-development debate. The debate is beyond the theoretical justification of traditional trade theories. The emergence of the GVC as a forceful instrument of trade has changed the whole paradigm of thinking about the nature of trade. Higher exports from a country can no longer be linked to higher production and employment in the country as imports of intermediate products which are used in exports may rise with little domestic value addition.[16]

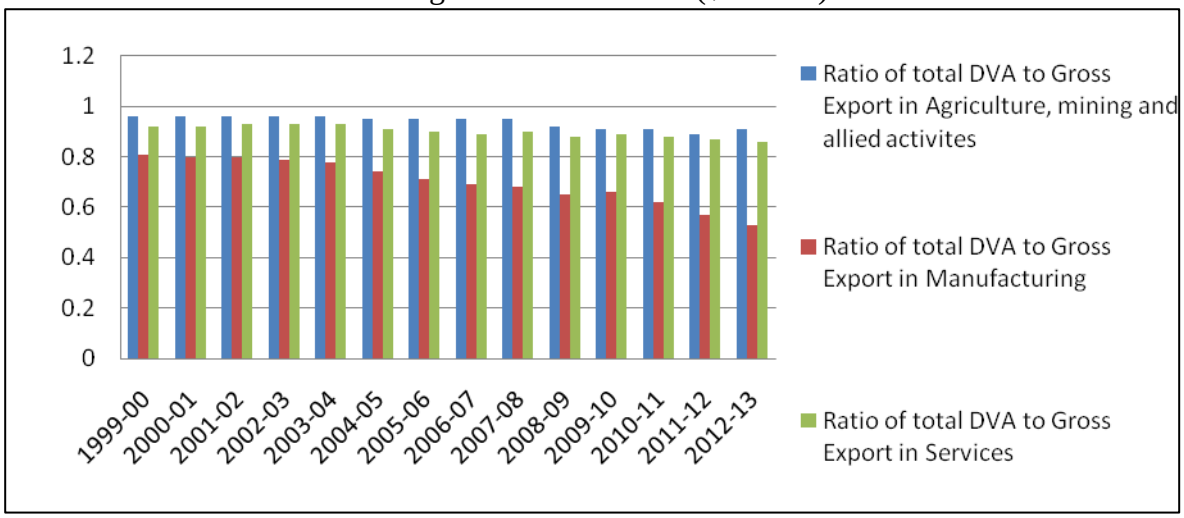
8. Value Addition, Employment and Inequality

Domestic Value Addition (DVA)[17] in exports has become the major instrument to encourage employment and reduce income distribution. Trade liberalisation encourages the easy movement of goods and services and parts and components as well. One country needs not have enough capacity to manufacture any item on its own. It may disaggregate its chain of

[15] Nayak, 2020
[16] Rashmi Banga, 2014
[17]All the data for value addition extracted from Veermani and Dheer (2017), "Domestic Value Added Content of India's Exports: Estimates for 112 Sectors, 1999-2000 to 2012-13", p32.

production to take locational advantages of parts and components which are to be used in the final product.

Figure 6: DVA in Exports for Broad Sectors, Direct Effects plus Backward Linkages - for each sector ($ Billion)



Source: Veermani and Dheer (2017), "Domestic Value Added Content of India's Exports: Estimate for 112 Sectors, 1999-2000 to 2012-13", p32

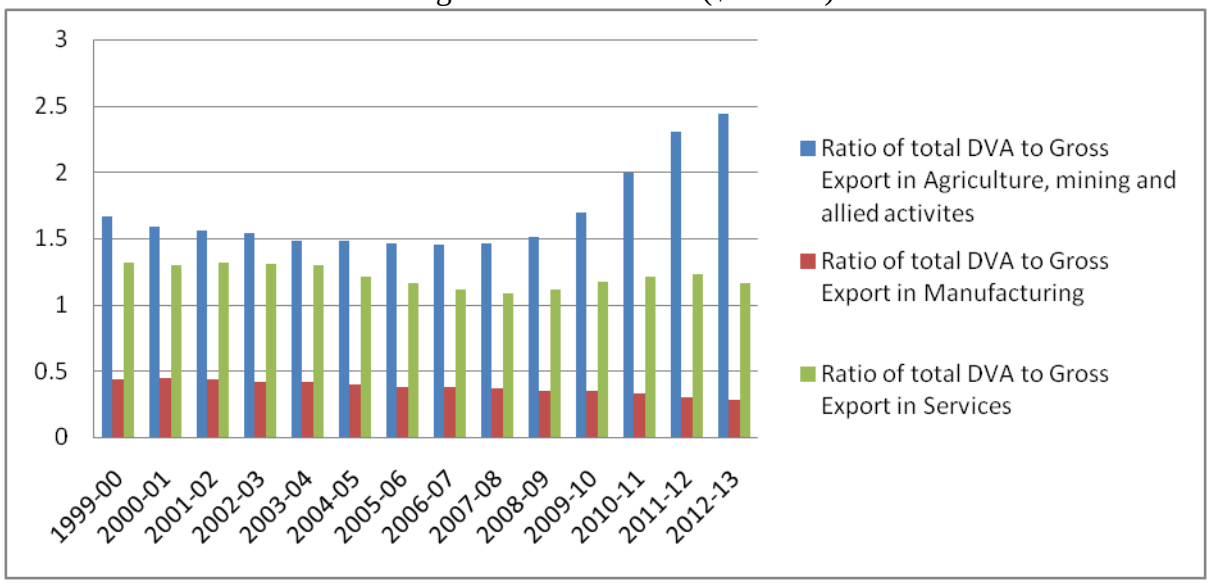
The ratio of DVA in the form of direct effects and backward linkages in exports of agriculture, mining and allied activities has not experienced significant variation. It fluctuates from around 0.88 to 0.96. Likewise, a little variation is noticed in services too. Only the manufacturing sector has experienced a declining trend in DVA in its exports. These trends show that the share of local content does not experience much variation whereupon the manufacturing sector has experienced a larger variation. The share of imported inputs in exports from the manufacturing sector has been increasing. The manufacturing sector has seen considerable growth since the 2000s. It has an important implication for unemployment and inequality as the manufacturing sector is supposed to be capable of value creation.

Before liberalization, between 1983 and 1988, the employment elasticity of manufacturing was 0.59. The Planning Commission explained this by saying there had been a substitution of labour for capital-intensive technology (Dutta 2018). The increasing share of capital relative to labour in value creation causes inequality.

The ratio of DVA in the form of direct effects and forward linkages in exports of Agriculture, mining and allied activities has experienced significant variation. Figure 7 shows the

increasing trend of agriculture, mining and allied activities providing inputs into the exports of other countries. The sector largely supplies raw and primary materials. Its increasing share in the exports of other countries is devoid of enough value creation thereby being unable to provide gainful employment. Further, the ratio of DVA in the form of direct effects and forward linkages in exports of services presents a mixed picture. Its share in the exports of other countries shows fluctuations. The most noticeable information is about the manufacturing sector. The sector has experienced a constantly declining ratio in providing inputs to the exports of other countries.

Figure 7: DVA in Exports for Broad Sectors, Direct Effects plus Forward Linkages - for each sector ($ Billion)



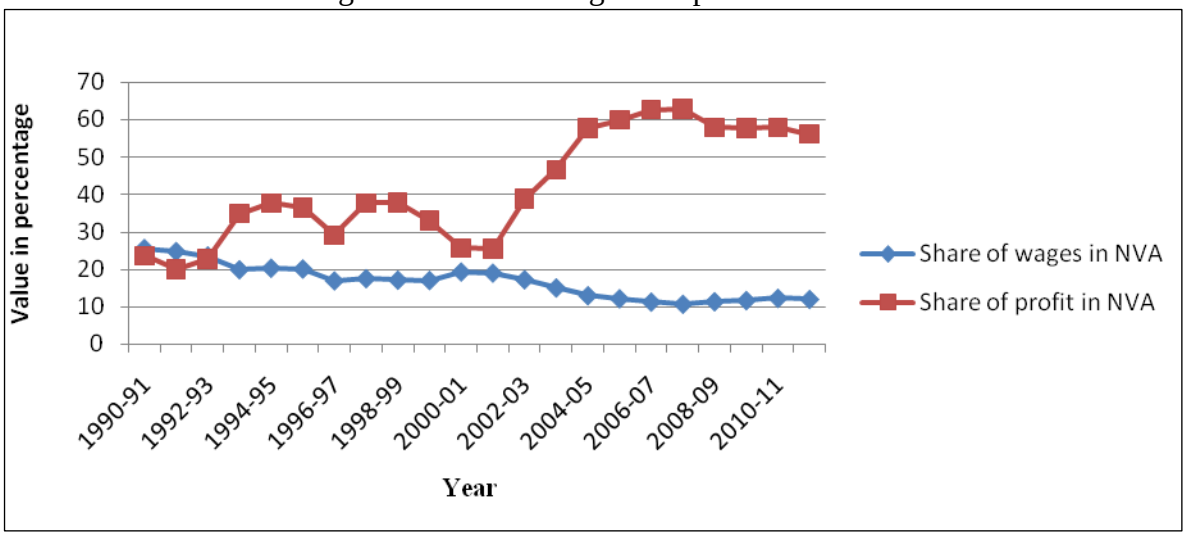
Source: Veermani and Dheer (2017), "Domestic Value Added Content of India's Exports: Estimate for 112 Sectors, 1999-2000 to 2012-13", p33

The manufacturing sector which contributes immensely to trading activities through forwarding and backward linkages has been experiencing a declining performance in terms of the ratio of direct value addition to gross exports. The shares of wage and profit in NVA show the rising level of income inequality of factors of production.

The share of wages which was 20 percent by the end of the 1990s declined to only around 10 percent by the end of the last decade (2000-10). On the other hand, the share of profits in net value added increased during the same period from less than 37 percent in the mid-1990s to more than 55 percent in the last decade. The share in net value addition (NVA) indicates how

many gainful factors of production are involved in the production chain. It also shows the sustainability of reduction in deprivation related to factor ownership. Since liberalisation in the early 1990s, we can observe the increasing disparity in the share of factors in NVA. It is observed to be increasingly tilted towards profit (capital). The correlation coefficient between the share of profits to that of wages was calculated as -0.93 during 1990-2012. This coefficient, based on the author's calculation, has been -0.77 during 1990-2000 which substantially increased to -0.98 during 2000-2012. The negative correlation between the share of profit and the share of wages in NVA coincided with the rising capital-intensive export from India. During the last decade, the negative correlation between profit and wage has increased aggressively. The share of profit in NVA has increased at the cost of the share of wage.

Figure 8: Share of wages and profit in NVA



Source: Annual Survey of Industries

9. Conclusion and Policy Implication

Trade has been one of the instruments of growth. The present study analyses the effectiveness of trade in reducing poverty and inequality. The creation of productive employment is key to reducing poverty and inequality. Meanwhile, the conception of productive employment is based on value addition. The study has presented the sector-wise study to examine the capacity of value generation of different sectors. Domestic Value

Addition is said to be a major instrument to ensure a sustainable reduction in poverty and inequality. Trade liberalisation ensures an easy flow of export and import. The rising level of imports helps the rising consumption level in the country as cheaper imports are substituted for domestic items. It reduces poverty. However, the high dependence on imports to reduce poverty may be counter-productive. It will make the country import-dependent and offshore employment-generating activities. For the sustainable reduction of poverty, the country needs to have export capacity. Export units provide opportunities to align with GVCs.

The gainful linkage with GVC has to be ensured for a consistent and productive advantage for the local factor market. The increasing trade in parts and components has placed them up for the creation of gainful employment and thereby reducing inequality. The evaluation of sector-wise domestic value creation and its linkage with GVC is essential for policy purposes. The DVA of the manufacturing sector is quite productive in comparison to the DVAs of other sectors. The manufacturing sector has much more employment elasticity and space for value addition. The trade policy must adhere to building up manufacturing capacity in parts and components. The linkage of DVA in GVC is highly required in the age of a fragmented supply chain of international trade. India's high demographic profile could be gainfully employed in the fragmented supply chain to reverse the thesis of the Leontief Paradox.[18]

[18] **Conflict of Interest Statement: T**he author declares that research has been conducted as per regulations and guidelines. Authors have contributed to promoting transparency. The authors know of no conflict of interest associated with this paper, and there has been no significant financial support for this work that could have influenced its outcome. The corresponding author confirms that the manuscript has been read and approved for submission by all the named authors. **Acknowledgements**: I acknowledge the special efforts of my co-author in discussing political and economic issues related to the study.

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How to Increase Fiscal Autonomy of Sub-National Governments in India with GST?

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Abstract

With the introduction of the Goods and Services Tax (GST) bill in 2006, it took 11 years for its implementation to finally occur in 2017, which accompanied a lot of debates. With the GST, the central government has granted lot of taxation power over states. It becomes difficult to understand why the lower tier of government, which deals mainly with the citizenry, has the lowest tax base amongst all the tiers of government, hampering their fiscal autonomy. Providing sub-national governments with fiscal autonomy guarantees a higher degree of human development, as found in the existing literature. The paper analyses GST tax structure and fund transfer, considering variables like population, demographics, environment, fiscal efforts by the 15th Finance Commission, GDP per capita, HDI and employment rate. The paper is based on data collected from various sources such as the Census (2011), Handbook of Statistics on Indian States by (Reserve Bank of India) RBI and state statistics by (National Institute for Transforming India) NITI Aayog. The paper proposes structural changes to India's taxation system, including altering the GST council and fund transfers, to increase fiscal autonomy for states and sub-national governments. The key recommendation is to replace the majority voting system with a consensus approach, reducing the ruling party's veto power and empowering states in taxation decisions. The paper found that states with lower HDI, receive lower per capita fund transfers and states

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with higher HDI receive relatively higher per capita fund transfer from the central government.

Keywords: Finance commission, GST, Fiscal Federalism, Tax Transfer, HDI

1. INTRODUCTION

In recent years, India's fiscal environment has witnessed a significant impact due to the introduction of the Goods and Services Tax (GST). The implementation took place in July 2017, facilitated by the execution of the Constitution (One Hundred and First) Amendment Act of 2016, and received subsequent approval from the parliament and all related legislative bodies (Maheshwari & Gandhi, 2021).

To simplify the present taxation structure and promote the "one-nation, one-market, one-tax" policy, the GST combines 15 additional indirect taxes and charges. The introduction of the GST was intended to boost centre-state transfers and raise the tax-to-GDP ratio.

1.1 Constitutional articles relating to GST

The following constitutional provisions provide a clear picture of the country's present tax distribution status and demonstrate the absence of fiscal federalism in the tax system:

1. *Levies enforced and gathered by the Union and apportioned between the Union and States:*

All levies and tariffs outlined in the Union List, excluding the designated impositions, shall be levied and collected by the Central authority as per the provisions in Article 270 of the Constitution of India. Additionally, these shall be apportioned between the Central authority and the individual States (Saha, 2019).

2. *Distribution of IGST among the Union and States-According to Article 269A(1) (inserted with effect from September 16, 2016):*

The distribution between the Union and States of the IGST (Integrated Goods and Services Tax) collected by the Union takes place based on the legislation passed by Parliament following the recommendations of the GST Council. (Saha, 2019)

3. *Article 269A of the Indian Constitution (inserted with effect from September 16, 2016):*

The outcome of this amendment entails that the division between the Union and the States of the IGST, accrued from the interstate transactions of goods and services and collected by the Union, will be dictated by the legislation enacted by Parliament, which derives from the proposal put forth by the GST Council. This amendment specifies that the Center will be responsible for imposing and collecting the GST on interstate trade or commerce, and subsequently, this levy will be shared between the Centre and the States as stipulated by law, based on the recommendation presented by the GST Council (Saha, 2019).

The articles mentioned are further speculated, it becomes evident that the states and the Centre share responsibility for collecting the Goods and Services Tax (GST), but that when it comes to tax distribution, the states lose their independence of distribution and the GST Council and parliament take over.

1.2 The Vertical and Horizontal devolution (sharing of taxes)

The sub-national government (state and local governments), which is closer to knowing the local requirements and goals of the inhabitants living in that region, should have more fiscal autonomy in distributing the fund towards diverse applications to achieve optimal allocation of resources. Taxes are to be passed from the federal government to the state and municipal governments vertically, according to this theory (from centre-to-state-to-local government). When taxes are distributed horizontally, a portion of the central government's overall tax income is distributed to the states while keeping in mind the values of equality and efficiency (S. Hajra et al., 2008, p. 90).

Both vertical and horizontal tax sharing require transferring funds from the national government to local and state governments, which results in an imbalance because these government entities are better positioned to comprehend the needs of the populace.

More dependent on the system of intergovernmental payments to meet their spending requirements, the states have lost their fiscal independence since the GST was implemented. Throughout time, on the advice of the Finance Commission, the federal government has been distributing tax income to the state governments (Maheshwari & Gandhi, 2021).

The primary objective of this research paper is to analyse the allocation of government funds to sub-national governments in India, with a specific emphasis on promoting fiscal federalism. The study aims to compare and contrast various tax devolution approaches and propose strategies for enhancing the effective allocation of taxes. By doing so, this research seeks to contribute to the scholarly understanding of how fiscal autonomy can be strengthened for sub-national governments, thereby fostering their independent fiscal decision-making within the Indian context.

By thoroughly analysing the data provided by the Government of India and the Finance Commission reports to understand how we can inculcate Fiscal Federalism in our sub-national governments especially focusing on disbursement of GST.

2. LITERATURE REVIEW

Various papers have shown reforms in fiscal federalism policies through India's journey after independence. The existing literature clearly points towards the importance of a good fiscal federal structure which can be seen by the success of East Asian Nations and the fall of the Soviet Union; countries such as India, Brazil, South Africa and many more developing nations are continuously trying to make reforms to their federal systems. Many sub-national governments in developed and developing nations have given their sub-national government free spending authorities which have led to fiscal indiscipline amongst the lower tier of government and piling debts. With piling debts, the central governments give their sub-

national governments bail outs which are costly to the taxpayer as a whole (Rodden, 2002). India being a developing nation has tried to transfer fiscal responsibilities vertically which has led to the centre giving well over a third of states' expenditures (Rao & Singh, 2006). "For an economist, nearly all public sectors are more or less federal in the sense of having different levels of government that provide public services, irrespective of formal constitution" (Oates 1999). Federal structures aim to restrict the power of the central government by shifting fiscal powers vertically. With the central government here in India having explicit power over the GST council's decision making processes and an absolute majority in the Lower house of Parliament which not only induces fiscal imbalances but fiscal indiscipline as well (Rao & Singh, 2006).

Financial relations between centre and the states are defined in Part XII of the Constitution, and items of taxation of centre and states are provided in the Seventh Schedule. In terms of the union-state relationship in the financial sphere, the Constitution of India goes above and beyond other federal constitutions in its comprehensive provisions.. In addition to its role in tax collection, the Goods and Services Tax (GST) is perceived as a tool to enhance India's sub-national fiscal performance.

After an extensive review of the existing literature and identifying the gaps, the study elaborates on how to use GST to bring in better fiscal discipline, and shows that much work has to be done in this field. Academicians have worked to show the importance of fiscal federalism and autonomy and ways to do it but without GST as this new form of taxation is being levied. Finance commission must be restructured by giving the states representation in the central body of the GST Council. There is also a need to create a zonal level planning body as the sole planning body in India is the Planning Commission (Sud & Kumari, 2013). By exploring the relationship between the Human Development Index (HDI) and the per capita grants received by the states, this review aims to shed light on the potential implications of GST on developmental outcomes. The HDI serves as a comprehensive indicator, encompassing various dimensions such as education, healthcare, and living standards, which are critical for assessing the overall well-being and progress of a state, and

analysing the current tax distribution system and its ineffectiveness in reducing regional disparities.

3. METHODOLOGY

The study examines state-wise GST collection data from 2017-2022 and its correlation with central government disbursements to evaluate the effectiveness of the Finance Commission's disbursement weightage pattern. It also analyzes the relationship between state funding and their Human Development Index (HDI) ranks. By collecting granular GST data, the study aims to identify any discrepancies between states' contributions and funds allocated. It seeks to uncover anomalies in the disbursement methodology, particularly situations where high GST-contributing states receive disproportionately low disbursements, or where states with lower HDI ranks lack commensurate financial support. The study proposes potential solutions to address these identified anomalies, potentially refining the weightage formula or suggesting procedural improvements for fair and equitable fund distribution. This data-driven approach aims to contribute to the enhancement of the Finance Commission's current disbursement mechanism.

4. DATA ANALYSIS AND FINDINGS

4.1 ANALYSIS OF HORIZONTAL AND VERTICAL DEVOLUTION

In this part, the government distribution after the introduction of horizontal devolution of taxes and how the criteria given by the finance commission (under the devolution) have affected the share of the states in the net tax proceeds (creating an imbalance). The study also focuses on an anomaly where lower HDI states have been allotted lower funds and *vice-versa*. Furthermore, the better devolution of taxation strategy will be assessed and suggested.

4.1.1 Vertical Devolution vs. Horizontal Devolution

The criteria finalized by the 14th Finance Commission for horizontal devolution of taxes in their latest report assigns a Criteria Weight, which determines the share of each state in the transfer of taxes. Table 1 lists these criteria.

Table 1: Criteria Weight

Criteria Weight (%)	Share (%)
Area	15
Population(2011)	10
Forest Cover	7.5
Fiscal Capacity/Income distance	50
Population(1971)	17.5
Total	**100**

Source: Vol1-Chap10.pmd (indiabudget.gov.in) (accessed in July, 2023)

Table 2 below represents the percentage share of each state in the net proceeds of taxes as recommended by the 14th Finance Commission, the share is decided based on the methodology criteria mentioned in Table 1.

As suggested by the 14th Finance Commission of India-The percentage share of taxes for states (out of the total tax collection in 2020-21), stood at 42% of the total net GST collection. The net GST collection FY 2020-21 stood at Rs.845401 crore, out of which 42% went to states.

Net GST to states = Net GST collected X 42%

*Net GST collection = Gross GST collection - Refunds

The 42% share differs according to the recommendations of the finance commission. So, the Net GST to states will be Rs. 355068 crores, which is then distributed according to the HDI (2018) (also devised by the finance commission).

Data analysed from Table 2 shows that states, such as Uttar Pradesh, Bihar, Odisha, Jharkhand, have lower HDI and receive a lower share of the GST. Whereas, states with

higher HDI, such as, Goa, Sikkim, Uttarakhand, Himachal Pradesh and other hilly area states receive higher share of GST, which should not be the case while keeping in mind effectiveness and efficiency of GST disbursements. This clearly indicates that the current devolution of taxes Weight Criterion is not working effectively and consistently.

Table 2: Percentage share of states in net proceeds of taxes (FY 2020-21)

States	Share(%)	Share of states (in cr)	HDI (2018)	Population (2011 census)	Per capita disbursement (in Rs)
Uttar Pradesh	17.931	63667.2431	0.596	33448035	10615.51
Bihar	10.016	35563.6109	0.576	104099452	3410.85
Madhya Pradesh	7.886	28000.6625	0.606	72626809	4888.94
West Bengal	7.519	26697.5629	0.641	20380315	17422.11
Maharashtra	6.135	21783.4218	0.696	112374333	3159.69
Rajasthan	5.979	21229.5157	0.629	12711146	27933.59
Odisha	4.629	16436.0977	0.606	41974218	8459.19
Tamil Nadu	4.189	14873.7985	0.708	18524982	19166.98
Andhra Pradesh	4	14596.8455	0.65	56361702	6299.81
Karnataka	3.646	12945.7793	0.682	61095297	5811.71
Chattisgarh	3.418	12136.2242	0.613	25545198	13899.60
Gujarat	3.398	12065.2106	0.672	60439692	5874.75
Jharkhand	3.313	11763.4028	0.599	32988134	10763.51
Assam	3.131	11117.1791	0.614	31205576	11378.35
Telangana	2.133	7573.60044	0.669	N/A	N/A
Kerala	1.943	6898.97124	0.779	33406061	10628.85
Punjab	1.788	6348.61584	0.723	27743338	12798.32
Arunachal Pradesh	1.76	6249.1968	0.66	1383727	256602.64
Uttarakhand	1.104	3919.95072	0.684	2056975	172616.59
Haryana	1.082	3841.83576	0.708	25351462	14005.82
Himachal Pradesh	0.799	2836.99332	0.725	6864602	51724.48
Meghalaya	0.765	2716.2702	0.656	2966889	119676.87
Manipur	0.718	2549.38824	0.696	2855794	124332.50
Tripura	0.709	2517.43212	0.658	855556	415014.33
Nagaland	0.573	2034.53964	0.679	41974218	8459.19
Mizoram	0.506	1796.64408	0.705	1978502	179463.05
Sikkim	0.388	1377.66384	0.716	129006	2752337.10
Goa	0.386	1370.56248	0.761	1458545	243439.87

Source: :: Finance Commission, India :: (fincomindia.nic.in) (accessed in July, 2023)

4.2 ANALYSIS OF GST AND FISCAL MANAGEMENT

This section explains THE FISCAL RESPONSIBILITY AND BUDGET MANAGEMENT (FRBM) ACT of 2003, and the role of GST in countering the budget deficit. Adopted by Parliament in the 54th year of the Indian Republic, FRBM Act, establishes the central government's obligation to maintain intergenerational justice in fiscal management and long-term macroeconomic stability by removing fiscal obstacles to the efficient implementation of monetary policy and prudential debt management in line with fiscal sustainability, increasing openness in the Central Government's fiscal operations, and implementing fiscal policy in a way that is compatible with fiscal sustainability (Government of India, Ministry of Finance, Department of Economic Affairs, 2003). This Act aims to pay off the 'General Government Debt' (Centre and State Government) by the revenue generated through proper implementation of fiscal policy, mainly taxation.

The two main ways that the government raises money to pay for its expenses are through taxes and borrowing. While the government's net tax revenue made up 44.37% of its total receipts in 2021–2022, borrowing came in at a close second with 43.26%. (GOI, 2022)

Given that GST has become the government's second largest revenue source, surpassing income tax, it is evident that the collected GST funds are intended to be utilised for debt repayment and developmental initiatives. (Ministry of Finance Budget Division, 2023)

In each fiscal year, the Central Government is required to present the statements of fiscal policy to both Houses of Parliament, alongside the annual financial statement. This obligation mandates the inclusion of:

1) ***Fiscal policy statements to be laid before parliament:***

The budget estimates for Fiscal Deficit FY 2021-22 stood at 3.5% of the Total GDP. When it came to enacting countercyclical policies while balancing the budget, the government concentrated on maintaining the standard of expenditure. (Government of India, 2022)

Over the previous years, it is predicted that the Gross Tax Revenue would increase by 12.3%

in 2021–2022 and by 12.6% in 2022–2023 The reduction in company tax has caused a slowdown in the rise of direct taxes in 2019–20. During the years 2021–2022 and 2022–2023, there is an expectation of a relatively lower growth rate in indirect taxes, at 10.7% and 11.1% respectively, while direct taxes are projected to rise by 13.6% and 13.8%. (Government of India, 2022)

A certain range for budget deficit is sometimes preferred as it indicates the revenue collection through taxation and grants received through other countries is fully utilised. Keeping in mind the budget deficit is controlled and does not go out of hand.

2) Fiscal Policy Strategy Statement:

The document highlights the government's strategic aims for the current fiscal year in relation to taxation, spending, lending and investments, administered pricing, borrowings, and guarantees. The statement provides justification for any significant divergence in important fiscal metrics and explains how the present fiscal policies are in compliance with good fiscal management principles (Government of India, Ministry of Finance, Department of Economic Affairs, 2003).

3) Macro-economic Framework Statement:

In the first quarter of 2020–21, a recovery in GDP growth is expected, despite the temporary moderation in Gross Domestic Product (GDP) growth in 2019–20. Although the Indian economy's fundamentals remain sound, the real GDP growth slowed to 5.0 percent in 2019–20 from 6.8 percent in 2018–19 due to global headwinds and domestic financial sector challenges (Government of India, 2019).

This prospect talks about the Macroeconomic Factors of the economy (basically the industries), including the Agriculture Sector, Manufacturing Industries, External Sectors, the Price Level in the economy, the Monetary Policy recommendations by the RBI (Reserve Bank of India), Banking and Non-Banking Sectors, Non-Banking Financial sectors, Capital Markets, Central Government Finances.

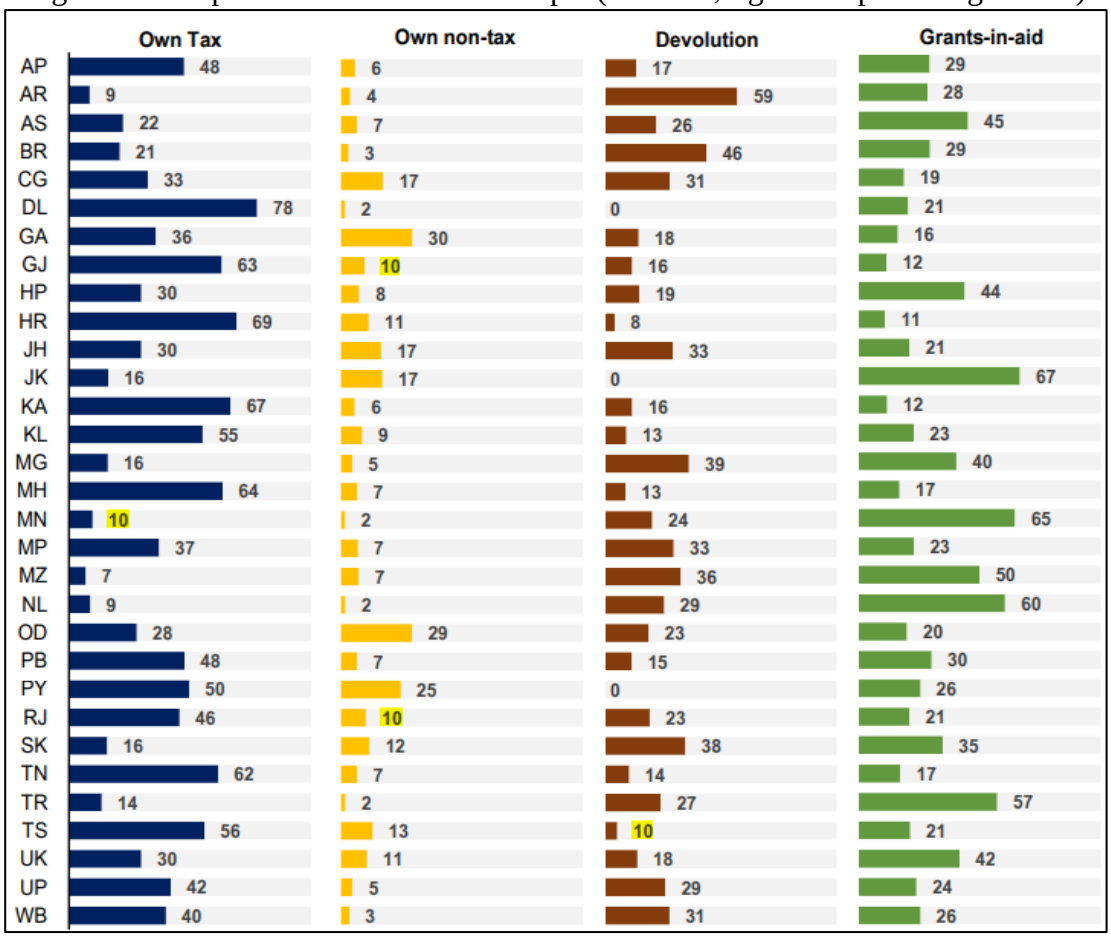
4.3 EXPENDITURE PATTERN OF SUB-NATIONAL GOVERNMENT

A state's revenue can be divided into two categories: (i) own revenue, and (ii) transfers from the centre. Own revenue is money that the state government generates on its own from tax, and non-tax-paying sources. According to the Constitution, each state will receive a portion of the taxes levied by the Federal Government. The distribution of this share among the states is based on criteria set by the Finance Commission. Additionally, the federal government gives state governments several kinds of grants. These include: (i) Specific Grants in accordance with the Finance Commission's recommendations, such as grants for disaster management, revenue deficit grants, and grants to local authorities; (ii) Grants for centrally sponsored programmes; and (iii) Funds for GST compensation. Based on the recommendation of the Finance Commission the government changes the composition of revenue receipts of the states. The states that depend on central transfers for funding the most are Bihar, the northeast, and the hill states. Arunachal Pradesh and Bihar receive a disproportionately higher proportion of central funds in the form of central tax devolution The share of grants is higher for other north-eastern states and hill states (Jammu and Kashmir, Himachal Pradesh, and Uttrakhand).

States collectively project that their own non-tax revenue will account for around 1.3% of their GSDP in 2022–2023. The amount of non-tax revenue generated varies greatly between states. State estimates for non-tax revenue have been much higher in states like Odisha, Chhattisgarh, and Jharkhand, primarily because of mining royalties. In the case of Odisha, it is anticipated that non-tax revenue will surpass its own tax revenue in 2021–2022.

States like Bihar, Jharkhand, and Uttar Pradesh are falling behind on important human development metrics relating to health and education, according to the 15th Finance Commission. It also noted that their per capita spending in these sectors continues to be below average and that more money must be invested there for these spending levels to converge on these parameters.

Figure 1: Composition of Revenue Receipts (2021-22, figures in percentage terms)



Source: PRS India, State of State Finances

5. Conclusion and Policy Recommendation

Finance Commission being the sole body handling all the Federal Fiscal decisions must include stakeholders from states and must give them equal weightage. The Finance Commission comes up with their own parameters to transfer funds. Including HDI as one of the factors can be useful and might end up having more efficacies. As we saw in our analysis, many states which have lower HDI end up receiving lower fund transfers. States must look to increase their non-tax revenue through various ways as recently observed most states depend upon the grants given by the centre to meet their deficits instead of trying to be financially independent for public services, commenting on how to increase non-tax revenue would be a

separate topic for a broader research. We also suggest structural changes in the way the GST council functions, one of them being implementing a consensus method to reach a decision instead of the presently skewed way of voting.

6. Direction for Future Research

The Finance commission still uses outdated census data of 2011 for assigning weightage Criteria which must be revised. Future research will only be useful once we have a new census and HDI of States (2018) data, given the current situation scholars can look into advising the finance commission to incorporate better parameters to disburse the funds and research upon ways states can enhance the capacity of sub-national tax administration authorities to effectively administer and collect GST. This includes investing in training, infrastructure, and technology to improve compliance and reduce tax evasion.

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Poverty and Sustainable Development Goals in Chhattisgarh

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Abstract

Poverty is seen as a multi-dimensional phenomenon. It entails way more than just income and consumption expenditure, it also includes nutrition, child & adolescent mortality, maternal health, years of schooling, school attendance, cooking fuel, sanitation, drinking water, electricity, housing assets, and bank account. No Poverty: the first Sustainable Development Goal (SDG), out of the 17 SDGs established by the United Nations (UN) in 2015, calls for the end of poverty in all shapes. Therefore, the adoption of SDGs post-Millennium Development Goals (2000) by India, gave the measurement, and address of multi-dimensional poverty, economic development, social inclusion, and environmental sustainability great significance. The main objective of this paper is to analyse the headcount ratio and the multi-dimensional poverty index (MPI) of the districts of Chhattisgarh. Further, to compare the headcount ratio of Chhattisgarh with its neighbouring states and finally to suggest recommendations for future implications. The study is based on secondary data and the results of the study show that Dantewada has the highest headcount ratio (percentage of the population who are multidimensionally poor) at 54.59% in Chhattisgarh whereas Dhamtari has the lowest at 18.59%. Raipur being the capital of the state has a headcount of 21.82%. Similarly, the comparison of Chhattisgarh's headcount ratio with the neighbouring states deciphers that Jharkhand tops the list with the highest headcount ratio of 42.16%

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followed by Uttar Pradesh (37.79%), Madhya Pradesh (36.65%), Chhattisgarh (29.91%), Odisha (29.35%), Maharashtra (14.85%), Telangana (13.74%), and Andhra Pradesh (12.31%) with the lowest headcount ratio. Thus, on basis of the comparative analysis of the multidimensional poverty index across the districts of Chhattisgarh; the conclusion drawn is that as poverty exists predominantly in the tribal districts of the state. No poverty is one of the major goals of the SDGs and hence, it is the need of the hour to give more attention on it and focus on the policies that can help in reducing poverty.

Keywords: Education, Health, Headcount,Poverty, Multi-Dimensional Poverty Index, SustainableDevelopment Goals.

JEL Code:I1, I2, I32, Q01

1. Introduction

Poverty is seen as a multi-dimensional phenomenon. It entails not just income and consumption expenditure but also includes nutrition, child & adolescent mortality, maternal health, years of schooling, school attendance, cooking fuel, sanitation, drinking water, electricity, housing assets, and bank account. According to Philadelphia ILO Declaration 1994, “poverty is a threat to the prosperity of every place”. Kankwenda (2002) defines poverty as: “A multidimensional phenomena influenced by a wide range of factors, these include poor people’s lack of access to income-earning and productive activities and to essential social services”. No Poverty: the first Sustainable Development Goal (SDG), out of the 17 SDGs established by the United Nations (UN) in 2015, calls for the end of poverty in all shapes. Therefore, the adoption of SDGs post-Millennium Development Goals (MDGs) by India, gave the measurement, and address of multi-dimensional poverty, economic development, social inclusion, and environmental sustainability great significance. This shift in development pathways to create a way of development that fulfils the need of the present without jeopardising the wants and resources of the future which is essentially the idea of SDGs that are to be achieved by 2030 is not yet advancing at the necessary scale.

The COVID-19 pandemic has devastated and shaken up almost every if not all aspect of our lives. Moreover, the incidence does not appear to end soon. The SDGs Report 2022 charts that the pandemic has wiped out more than four years of progress made on poverty eradication and shoved 93 million more people into extreme poverty in 2020 globally. While dealing with this contemporary intersecting crisis, economic development has secured a sustainable front. It has become important more than ever to practice and imbibe a sustainable way of development (Jain, Lall, and Singh 2020).

Chhattisgarh has the 7th highest headcount ratio, the percentage of the population who are multidimensionally poor in India. Chhattisgarh shares its boundaries with Uttar Pradesh, Madhya Pradesh, Maharashtra, Odisha, Jharkhand, Andhra Pradesh, and Telangana. It is appalling to observe that in the list of India's headcount ratio from highest to lowest, Chhattisgarh and its seven neighbouring states are in the top 20. Therefore, it is crucial to compare and evaluate the poverty trends in these states for providing recommendations for poverty reduction so that there is significant progress in achieving the goal of no poverty considering the serious data gaps in SDG monitoring observed by UN's Sustainable Development Report (UN, 2019).

Since the implementation of MDGs and the creation of Chhattisgarh as a state in the year 2000, good progress has been made in reducing the infant mortality rate (IMR), and maternal mortality rates, and in increasing the literacy rates, but the progress could not reach the tribal population as per expectations and the inter-district variations in achievements hampered the state's attempt to achieve the desired goals (Gebert and Namala, 2011). These enormous challenges called for a high political commitment and will, and effective decentralisation of quality services with greater levels of accountability and transparency.

Chhattisgarh has 39.9 percent of people living below the poverty and between the years 2004-05 and 2011-12, the percentage of people below the poverty line in Chhattisgarh has seen only a marginal reduction, from 40.9 percent to 39.93 percent. Chhattisgarh's percentage of households living in *kuchha* houses is 2.10, which is a parameter under SDG 1. NO POVERTY in which the index scores of Chhattisgarh is more than the score of India. The interconnected characteristics of the SDGs make them complex but at the same time

demonstrate complementary gains from some specific goals and targets.(N. Verma et al. 2020) Therefore, to study the complexity of poverty there is a scope to reap prospective benefits for other interlinked goals (NITI Aayog, 2019).

Chhattisgarh SDG Indicator Framework (CG-SIF) has been prepared by the State Planning Commission in collaboration with UNICEF whereby 106 out of 169 SDGs targets are addressed by 275 indicators aligned with the National Indicator Framework. The State Government has established three committees (i) State Level Steering Committee on SDGs (SLSC) (ii) State Level Implementation and Monitoring Committee (SLIMC), and (iii) District Level Implementation and Monitoring Committee (DLIMC)

The Chhattisgarh State Planning Commission prepared the 'District Indicator Framework (DIF)' and tasked it to ensure localization and continuous monitoring of the SDGs up to the district level. The 'District Indicator Framework' includes a total of 82 indicators related to social, economic, environmental, and other aspects. With the available SDG framework data, adequate steps towards achieving the goals can be extracted and put into effect by the respective departments. This would enhance the speed and approach towards fulfilling the targets by 2030 (Chhattisgarh State Planning Commission and UNICEF, 2021).

Given this background, the main objectives of this paper are twofold: one, to analyse the MPI of districts of Chhattisgarh; and two, to analyse the MPI of the state of Chhattisgarh and its comparison with its neighbouring states. Henceforth, the paper gives some suggestions to alleviate the state's poverty.

2. Methods and Materials

The present study inculcates the use of secondary data from the National MPI Baseline Report 2021 based on the National Family Health Survey-4 (2015-16) collected from the official site of NITI Aayog. Data on the headcount ratio (percentage of the population who are multidimensionally poor) of 18 districts of Chhattisgarh was based on the 2011 census. Multidimensional poverty in India is reported by three distinctive statistics which are:

- The headcount ratio of poverty (known as H), which reflects the percentage of multidimensionally poor people.
- The intensity of poverty (known as A) is the average share of weighted deprivations that poor people experience.
- The MPI or adjusted headcount ratio (calculated as H x A) is reflection of the deprivations experienced by poor people as a percentage of the total deprivations that would be experienced if all people were deprived in all these indicators. (OPHI, 2020)

Further, the data has been interpreted for the state of Chhattisgarh as well as its seven neighbouring states namely: Uttar Pradesh, Jharkhand, Odisha, Telangana, Andhra Pradesh, Maharashtra, and Madhya Pradesh respectively. Among the 28 states and 8 union territories of the Indian union, only these states have been incorporated for the study because Chhattisgarh has been landlocked by these seven states.

3. Results and Discussions

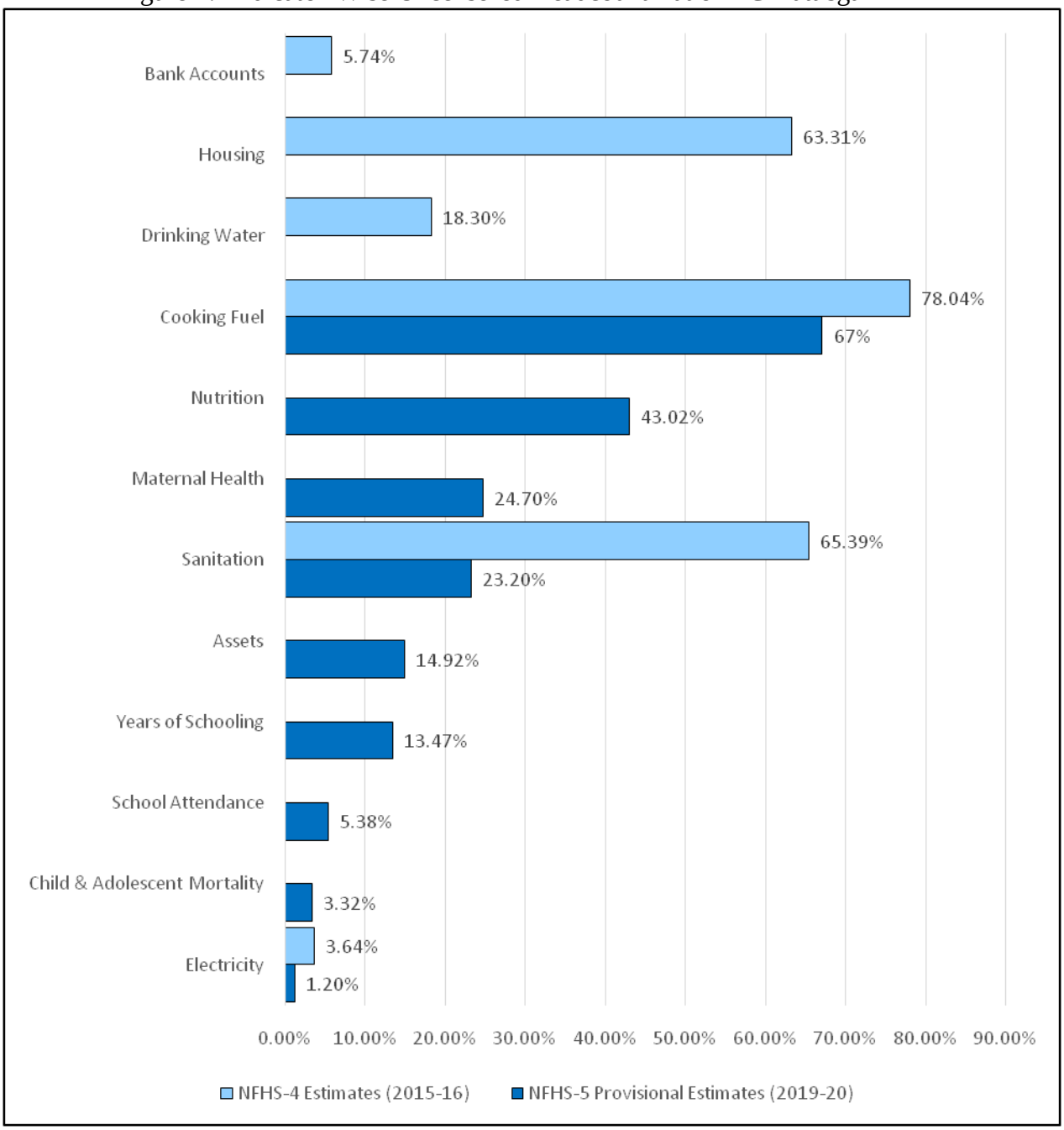
The multidimensional poverty rate was reduced from 70% to 37%, making about 7 million people escape poverty between the years 2005-2016. The MPI for Chhattisgarh was reduced more than half during that decade with significant cut in indicators like undernutrition, housing materials, solid cooking fuel, inadequate sanitation, and assets. The three dimensions of MPI (health, education, and standard of living) witnessed reductions (OPHI, 2020).

To analyse the situation of Chhattisgarh post-2015-16, Figure.1 depicts the indicator-wise uncensored headcount ratio in Chhattisgarh. The data on the 12 indicators (Electricity, Child & Adolescent Mortality, School Attendance, Years of Schooling, Assets, Sanitation, Maternal Health, Nutrition, Cooking Fuel, Drinking Water, Housing, and Bank Accounts) are based on the NFHS-4 Estimates (2015-16) and NFHS-5 Provisional Estimates (2019-20).

Percentage of population deprived of cooking fuel is the highest at 67% (NFHS-4) and 78.04% (NFHS-5) while the lowest uncensored headcount ratio from NFHS-5 provisional

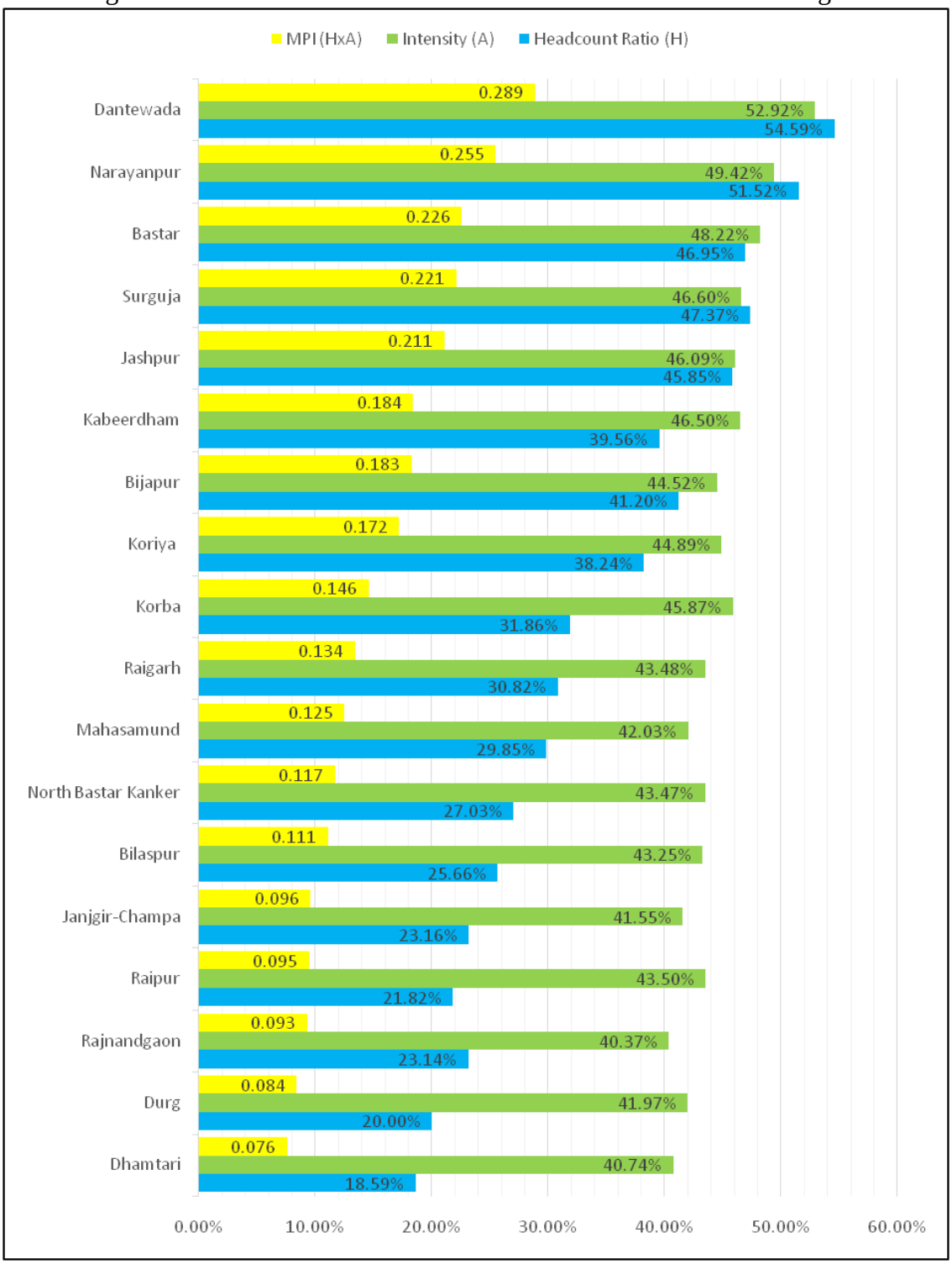
estimates is of electricity at 1.20 percent while that from NFHS-4 estimates is of child & adolescent mortality at 3.32 percent.

Figure 1: Indicator-Wise Uncensored Headcount Ratio in Chhattisgarh



Source**:** NITI Aayog: National Multidimensional Poverty Index Baseline Report 2021

Figure 2: District-Wise Headcount Ratio and MPI Score in Chhattisgarh



Source: NITI Aayog: National Multidimensional Poverty Index Baseline Report 2021. Districts of Chhattisgarh are as per the 2011 Census of India

To intuitively evaluate the headcount ratio, intensity and the MPI scores of various districts of Chhattisgarh along with its neighbouring states these parameters were analysed and compared.

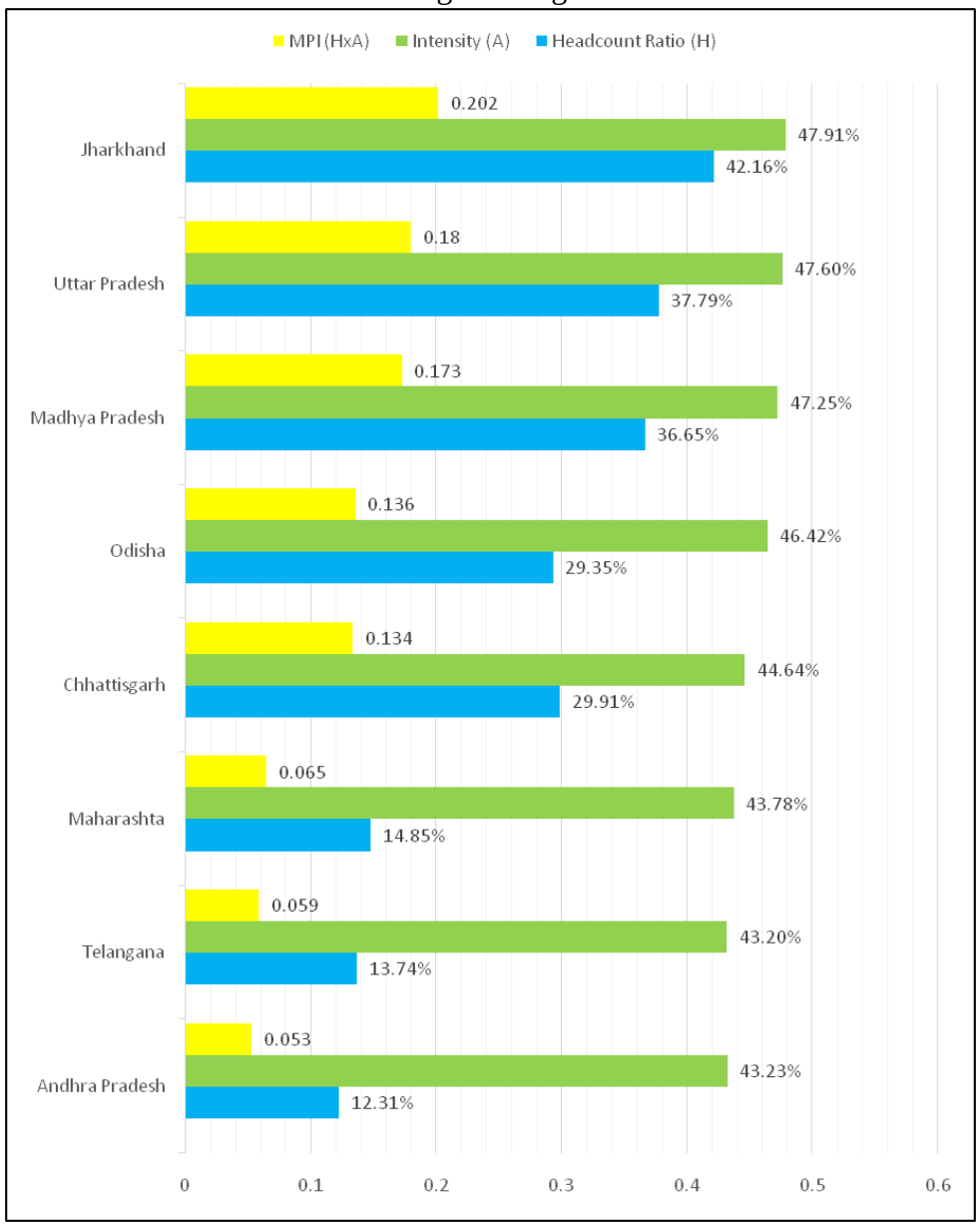
According to Figure 2, Dantewada has the highest headcount ratio (percentage of the population who are multidimensionally poor at 54.59% in Chhattisgarh whereas Dhamtari has the lowest at 18.59%. Raipur being the capital of the state has a headcount of 21.82%. There is a striking diversity observable in the data highlighting the difference and unequal poverty in the state. This is evident in the difference in the respective headcount ratios where the extreme ranking districts have a difference of 36% points which is a grave situation for the state. Moreover, the bars in the figure effectively present the inequality, and therefore there emerges a dire need for policy formulation and implementation to prevent the worsening of the condition. Socio-economic condition of the tribal in Chhattisgarh is depicted by the higher headcount ratio of the Dantewada, Narayanpur, and Bastar, and other districts with tribal population.

Banerjee (2015) establishes the MPI as the first global measure to reflect the intensity of poverty (the number of deprivations that each household faces at the same time). The ranking remains almost intact with just a shift in six districts in the intensity and MPI score for the 18 districts. Dantewada emerges with the highest MPI score of 0.289 while Dhamtari has the lowest MPI score of 0.076. The highest intensity of poverty (the average number of deprivations experienced by each household) is of Dantewada at 52.92% and Rajnandgaon has the lowest intensity of poverty at 40.37% preceded by Dhamtari at 40.74%. This can be because of the formula of MPI = H x A (Headcount ratio x Intensity). Therefore, the headcount ratio, intensity of poverty, and the MPI score depict a similar picture.

Figure 3 highlights the comparative analysis of the headcount ratio, intensity of poverty, and MPI of Chhattisgarh and its 7 neighbouring states (Uttar Pradesh, Madhya Pradesh, Maharashtra, Odisha, Jharkhand, Andhra Pradesh, and Telangana). It points out that Jharkhand tops the list with the highest headcount ratio (percentage of the population who are multidimensionally poor) of 42.16% followed by Uttar Pradesh (37.79%), Madhya Pradesh (36.65%), Chhattisgarh (29.91%), Odisha (29.35%), Maharashtra (14.85%), Telangana

(13.74%), and Andhra Pradesh (12.31%) with the lowest headcount ratio. In terms of intensity of poverty, Jharkhand again tops the list with highest value (47.91%) while Telangana (43.20%) performs better than Andhra Pradesh (43.23%).

Figure 3: MPI Score, Headcount Ratio and Intensity of Chhattisgarh and its Neighbouring States



Source: NITI Aayog: National Multidimensional Poverty Index Baseline Report 2021

Based on the data available, Jharkhand appears to be the worst performer as it has the highest headcount ratio (42.16%), intensity of poverty (47.91%), and subsequently highest MPI score of 0.202 and it is second only after Bihar in terms of headcount ratio in India. Andhra Pradesh and Telangana amongst this set of states are the better-performing states with a significantly lower headcount ratio, intensity of poverty and MPI.

4. Conclusion and Recommendations

The present paper revolved around headcount ratios, MPI scores, and intensity of poverty. These indices are not just results but can be a very powerful tool to determine the apt policies and effective implementation of the same. There is a huge variation in the MPI witnessed in the tribal districts as compared to the non-tribal ones. (Dantewada has the highest headcount ratio of 54.59% in Chhattisgarh whereas Dhamtari has the lowest at 18.59%). Thus, on basis of the comparative analysis of the multidimensional poverty index across the districts of Chhattisgarh; the conclusion drawn is that as poverty exists predominantly in the tribal districts of the state.

Similarly, when we look at the comparative MPI among the neighbouring states of Chhattisgarh; again, the picture shows a gleaming result that the state which has formulated in the same year with Chhattisgarh has a highest MPI (Jharkhand with 0.20); whereas Andhra Pradesh, Telangana and Maharashtra have in the lowest range respectively. Hence; it is the need of the hour to focus more attention on uplighting the poor and eradicating poverty to achieve the SDGs by 2030.

Thus, as it is clear from our observations and descriptions that there is a dire need to identify the low-performing areas and improve their condition. Based on these observations, the following steps are recommended:

- **Empowerment of the tribal communities:** Since the implementation of MDGs Chhattisgarh has been attempting to improve the living conditions of the minorities and the tribal communities. According to the census 2011, Chhattisgarh's tribal

population is 30.62% of the total population yet the Infant Mortality Rate, Maternal Mortality Rate, and other parameters like literacy rates are low for these communities. The ST population in Chhattisgarh, Madhya Pradesh, Jharkhand, Odisha and Rajasthan states had 11-14 additional infant deaths per 1000 live births compared to respective state's averages.(A. Verma, Sharma, and Saha, 2021)According to the Tribal Development Framework report presented by the department of Chhattisgarh only 18% of ST households had drinking water on their premises in 2012,compared to 65% of non-ST/non-SC households.

There should be the availability of the social sector (healthcare and education) provided to these communities. This would improve the overall performance of the state against poverty.

- **Regional targeting:** The data available highlights the diversity in the achievements towards reducing poverty in all the districts. This should be converted into a regional targeting policy with the upliftment of the weak-performing districts like Dantewada and Narayanpur. Farmer FIRST programme was implemented in the year of 2016 by ICAR-NIBSM, Raipur with an aim to improve the tribal farmer's livelihood and socio-economic status through agricultural enterprises integration in rice growing areas. A cluster of five tribal villages namely Bakla, Kharaha, Bamhani, Kurraha and Kharri in the Kasdol block of Baloda Bazar district, Chhattisgarh, were adopted for this programme.(Singh and Ghosh, 2022)Such growth models from the high-performing districts can be applied to these with modifications pertaining to socio-economic factors and such schemes should be applied to a larger number of districts.
- **A more inclusive and holistic approach towards poverty alleviation:** As we discussed earlier poverty is a multi-dimensional phenomenon so, income and expenditure are not the only determining factors. Other important indicators include the health, education, and living standards of the population. Therefore, the state needs to assess its progress through the above-mentioned factors for a more inclusive and holistic growth toward poverty alleviation.

- **Focused work towards the social sector:** Since it is now established that health and education can play a role in the fight against poverty, the next recommendation would be to avail hospitals and schools at greater convenience in all districts.
- **Recognizing the role of different sectors and industries in poverty eradication:** The policies must be optimised on the diverse geographical and natural features and the various industries associated with them. Chhattisgarh for instance has various cultivation practices under the agroforestry system. (Raj & Chandrawanshi, 2016)

With the incorporation of these recommendations, it can be hoped that the pace of achieving the target of no poverty by 2030 will be fastened. Even though the target of halving the poor by 2015 has been partially achieved, there still reside an ample number of scopes to completely eradicate it to fully bring Chhattisgarh under the plethora of no poverty by 2030. (Krishnan, 2022)

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Role of Tourism in Jammu and Kashmir Economy

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Abstract

Tourism sector is one of the fastest growing sectors in terms of economic and social impacts in the whole world. Especially when we talk about Jammu and Kashmir (J&K) which is popularly known as the paradise on earth or Switzerland of the Indies, tourism can possibly be called backbone of J&K economy with its tremendous impacts on the economy of the Union Territory (UT). The tourism sector contributes to job creation, infrastructure development, revenue generation, regional and rural development and much more. The present study is an attempt to draw a holistic view of what the tourism sector plays its role in Jammu and Kashmir economy. The study is totally based on the secondary data collected from different sources. The study found that the travel and tourism sector in J&K plays an important role in the economic and social development of the erstwhile state, but the sector is not harnessed according to the potential of the J&K in the sector. The tourism sector in the UT is male dominated while as the women have a less or no participation at all. The study recommends the government policies and the participation of the local communities in the tourism development process, so that the potential benefits could be achieved through this sector.

Keywords: Tourism, development, economy, employment, infrastructure, regional development.

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1. Introduction

Tourism is one of the world's largest industries and can play a major role in encouraging more consumerist lifestyles (Hunter, 2007). Tourism which has grown significantly since the late 1980s is today considered by many to be the world's biggest business (Herrera and Aranda, 2013). Tourism is travel for leisure, recreational, or business purposes. WTO defines tourists as people travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes (Khan et al., 2017).

Various types of tourism which are found in the UT of J&K are adventure tourism, cultural tourism, eco-tourism heritage tourism, pilgrimage tourism, leisure tourism, wildlife tourism, wellness tourism and cruise tourism (Khan et al., 2017). Tourism has played an important role in integrating J&K with the entire world, opened up a new window for resources, both investment and generation, leading to employment generation as well as socio-economic development of the local populace at large , poverty alleviation and sustainable development (Hussain, 2014). The lush green forests, perennial rivers, picturesque alpine scenery and pleasant climate of Kashmir valley, also known as 'the Paradise on Earth', has remained an internationally acclaimed tourist destination. The Jammu region of the erstwhile state which is known as the land of temples also attracts a large number of pilgrims throughout the year. The Ladakh region, known as moon land, has been much sought-after destination especially for the foreign tourists and is famous for adventure tourism (Khan, 2011).

The tertiary sector in the erstwhile state contributes nearly 44.2 % to the states GSDP (current prices, 2007-08). Amongst the various sectors coming under tertiary sector, tourism is a key contributor to the sector growth of 8.7% in 2021 (Centre for Monitoring Indian Economy, CMIE).

Keeping in mind the above stated benefits of tourism, the present study is an attempt to provide a deeper view about the tourism sector in the erstwhile state of J&K.

2. Literature review

Tourism has offered many opportunities to various national governments to establish themselves in the global economic arena and therefore it has become the impetus behind economic development efforts in both urban and rural areas (UNWTO, 2013; WTO, 2006). Tourism has become a key strategy to generate economic, social and environmental benefits to community's faster development and alleviate poverty (Binns and Nel, 2002). Tourism researchers indicate that tourism has many advantages as a pathway to development based on its ability to sustain growth and opportunities for sharing benefits, utilizes resources and offer new attractions and infrastructure (Khaled, 2016). The development of tourism sector not only increases economic growth directly but also stimulates the growth of other sectors through backward and forward linkages and increases domestic incomes and effective demand (Gokavali and Bahar, 2006).Tourism provides opportunity for poverty alleviation and holds the key for creating of rural wealth. It can provide impetus to other industries through backward and forward linkages and can generate huge revenue earnings for the nation (Bhat and Qadir, 2015).

Tourism as an industry in J&K has acted as an economic shock absorber helping to support communities in both urban and rural areas (Hussain, 2014). It has foreign exchange earnings, contribution to government revenues, generation of employment and business opportunities. Tourism has also been an interface for cultural exchange, facilitating the interaction between communities and visitors (domestic and international). It has allowed for local crafts, foods and personalities to be kept alive while making the community to develop (Hussain, 2014).

3. Objectives of the study

The objectives of the present study are to give a general profile of the Jammu and Kashmir UT, study the tourist inflow trend of the UT, present a holistic picture of the travel and tourism sector's role in the economy of the UT and analyse the impact of tourism sector on the environment and natural resources of the UT.

4. Research methodology

This paper examines the role of tourism sector in the economy of erstwhile state of Jammu and Kashmir. The data presented in the study has been obtained from the secondary sources which include the data from World Travel and Tourism Council (WTTC), United Nations World Tourism Organisation (UNWTO), World Trade Organisation (WTO), International Labour Organisation (ILO), Ministry of Tourism JK and India, Centre for Monitoring Indian Economy (CMIE), economic surveys, newspapers, journal articles and other online sources. The data from the 2011 census has also been taken into consideration.

5. Understanding the demography and geography of Jammu and Kashmir

Jammu and Kashmir is the northern most part of the Indian union. The total area of the state was 2,22,236 square kilometres of which 78,114 square kilometres is under the occupation of Pakistan and 37,555 square kilometres is under the occupation of China. The remaining area is divided into three divisions with Jammu occupying 26,293 square kilometres; Kashmir has 15,948 square kilometres and Ladakh with the most 59,146 square kilometres. This was a state till October 2019 with three divisions-Jammu, Kashmir and Ladakh. The population of the state was 1,25,41,302 according to the census of 2011. After the JK Reorganisation Act 2019, Jammu and Kashmir ceased to be a state and was bifurcated into two centrally administered union territories: the UT of Jammu and Kashmir and the UT of Ladakh. Earlier the population density of the state was 124 people per square kilometres according to census 2011, but after the bifurcation, the population density of the UT of J&K is now 290 per square kilometres and for the UT of Ladakh it is 4.6 per square kilometres. The UT of J&K is well known for the tourist spots with lakhs of tourists visiting the UT every year. The Jammu district is well known as the city of temples. Lakhs of pilgrims from all over the India visit Jammu every year to pay homage at the Mata Vaishnu Devi shrine Katra which is located on the Trikuta hills in the Reasi district. The Kashmir division which is known as the Paradise on the Earth due to its natural beauty and the pleasant climate with four seasons and every season here has its own craze among the people all over the world. Kashmir is a valley

surrounded by the Pir Panjal range in the southwest and Himalayan range in the northeast which makes it a fantastic view for the visitors. The hill stations, the lakes, the gardens and the tradition of the Kashmir attract lakhs of tourists every year. The literacy rate of the J&K according to 2011 census was 67.20 percent with male literacy rate as 78.26 percent and female literacy rate of 58.01 percent (www.census2011.co.in).

6. Tourism inflow to Jammu and Kashmir

Table 1 shows that there is an increasing trend in the tourist arrivals to J&K. Exception was the year 2016 which witnessed 8.43 million tourist arrival which is about 0.77 million less than 2015, the reason being the unstable political condition in J&K after the death of Burhan Wani[2].

Table 1: Number of Tourists visiting J&K

Year	No. Of tourists(millions)
2015	9.2
2016	8.43
2017	14.23
2018	17.07
2019	16.16
2020	2.51
2021	11.31

Source: www.ciecdata.com (accessed in July, 2023)

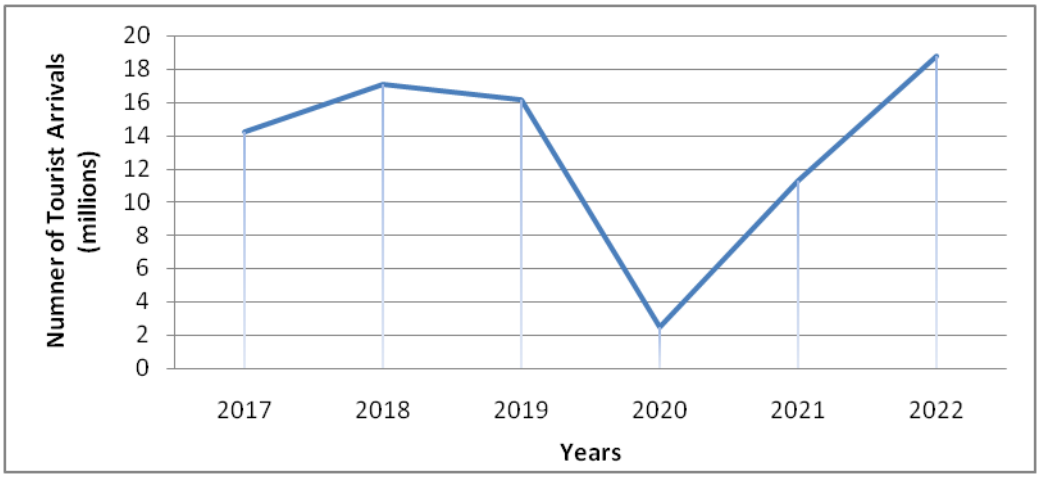
In January 2021, tourist arrivals in Srinagar were recorded at 19000 in contrast to 3750 in January 2020 because of COVID outbreak. Tourism director stated that Kashmir was visited by 179970 tourists in March 2022 which is the highest ever in previous ten years and is expected to grow in the ensuing year[3]. And the Hindustan Times reported that about 1.88

[2] https://www.thehindu.com/news/national/burhan-wani-death-and-a-year-of-living-dangerously. (accessed on 12 July 2023)
[3] https://timesofindia.indiatimes.com/travel/travel-news/kashmir-records-1-8-lakh-tourists-in-march-highest-in-a-decade. (accessed on 15 March 2023)

crores tourists visited the UT of Jammu and Kashmir in 2022 which is the highest total in the history of Jammu and Kashmir since independence[4]. These figures show the attraction of the beauty which the UT has got from every sense. This trend is expected to continue over the years. The tourist arrivals to the J&K up to august 2023 has been recorded as 1.27 crore which is expected to increase further and can surpass the previous year record[5].

The numbers gathered from various sources show the evidence that the number of visitors in the J&K has increased substantially after 2019 which might be attributed to the policies adopted by the government in peace keeping and development of the region after the abrogation of the Article 370. This trend can be clearly seen from the trend line shown in Figure 1. The trough only appears in 2020 which is due to COVID-19 outbreak and after that the numbers can be seen increasing year after year and surpassing the 2019 figure.

Fig 1: Tourist arrivals before and after 2019



Source: ciecdata.com and hindustantimes.com[4]

[4] https://www.hindustantimes.com/cities/chandigarh-news/record-1-88-cr-tourists-visited-jammu-and-kashmir-in-2022. (accessed on 17 March 2023)

[5] https://timesofindia.indiatimes.com/india/jk-records-1-27cr-tourist-arrivals-2023-figure-expected-to-cross-last-years-mark-lg-sinha. (accessed on 05 September 2023)

7. Tourism and GDP

Tourism sector contributes significantly to the GDP of the world. As per the estimates, travel and Tourism's total contribution to the global economy in 2014 was US $7.6 trillion which equates 9.8% of total economy GDP (WTTC). However, in 2019 the travel and tourism sector contributed 10.3 % to global GDP; a share which decreased to 5.3% in 2020 due to ongoing restrictions to mobility. 2021 saw the share increasing to 6.1% (WTTC, 2021). The share of travel and tourism sector in GDP on India in 2019 was 6.9% which decreased to 4.7% in 2020 due to corona pandemic restrictions (WTTC, 2021). As far as the GDP of J and K is considered, the travel and tourism sector contribute about 7% to the erstwhile state's GSDP (Digest of statistics, J&K, 2019-2020, report).

8. Tourism and employment

Travel and tourism generated 2.1 million new jobs directly in 2014 (worldly) and in total 6.1 million jobs were created globally as a result of total direct, indirect and induced activity. In 2020, 62 million jobs were lost representing a drop of 18.6% leaving just 271 million employed across the sector globally compared to 333 million in 2019. 18.2 million jobs were recovered in 2021, representing an increase of 6.7% year-on-year globally (WTTC, 2021).

In India, the contribution of travel and tourism sector to employment was 8% of total employment in 2019 which totals to more than 4 crore jobs and in 2020 it decreased to 7.3% which equals to more than 3 crore jobs (WTTC, 2020).

The tourism sector in the UT of J&K provides employment to about 70 thousand people including hotel staff, tour operators, taxi drivers and souvenir vendors (greaterkashmir.com)[6]. The sector has the potential and can prove an important source of employment generation if the people are made aware about the opportunities in the sector. The active participation of the local people can play a positive role in this regard.

[6] https://www.greaterkashmir.com/editoril-page-2/tourism-uplifting-local-economy. (accessed on 05 September 2023).

9. Tourism and infrastructure development

The success of tourism sector depends on the development of good infrastructure which includes roads, sanitation, electricity, residential, hotels, and other facilities at the destination places where tourists wish to visit. So in order to boost the tourism sector, it is necessary to develop the infrastructure required. Conversely, the development of infrastructure will automatically attract the tourists to the destinations where they feel comfortable. The tourist destination should have all the things where the tourist can spend their time and money in a satisfying and justifiable manner (Santek Consultants, 2020). Tourism tends to encourage the development of multi-use infrastructure that benefits the host community, including various means of transport, health care facilities and sports centres in addition to the hotels and high-end restaurants that cater to foreign visitors (CBSE).

It has been projected that 227.08 lakh additional tourists will visit J and K in 2020 which will require 3018 hotels, 3023 guest house, 60462 buses, 25697 taxis to handle such a huge tourist inflow (Santek Consultants, 2020). The lack of infrastructure is among the main causes of underdevelopment of tourism (Bhatia, 1978). So in order to develop tourism, the infrastructure has to be developed first.

10. Tourism and rural development

Tourism acts as a catalyst in the development of backward and far flung regions of a particular area. Development of tourism will lead to progress in rural/ backward regions (SWOT Analysis, J&K planning). Tourism has proved to be a powerful engine for economic growth – transforming capital, income and employment from industrial, urban and developed areas to non industrial areas. The key relationship in rural tourism is between tourism development and comprehensive rural development, embracing rural services, new enterprise attraction, conservation, and wider role for women and inward investment (OECD, 1994).

J&K had a rural population of 72.62% who primarily depend on agriculture and its allied activities for their livelihood (Census 2011). It is evident that most of the urban tourists visit the naturally scenic places which are present in the rural areas. In order to make an increment in the incomes of rural people and raise their standard of living it is important to develop rural tourism.

Under the Prime Ministers Reconstruction Plan (PMRP) scheme, there were 45 projects for rural tourism programme in 2016-17 for which the amount sanctioned was 27.97 crores (JK Economic survey, 2017). So, government of India is working to develop rural tourism which will develop the rural areas and narrow the rural-urban divide.

11. Tourism and women empowerment

Tourism sector helps in the empowerment of women. In some countries, tourism has almost twice as many women employees as other sectors (UNWTO, 2021). It is found that women make up between 60 to 70 % of labour force in the hotel sector. Study in Bulgaria revealed that 71% of managers and administrators in tourism are women as compared to 29% in the country as a whole (International Labour Organization).

In India the female share of employment in travel and tourism is 12.1% according to a latest report by WTTC titled ‘travel and tourism: driving women’s success’ (WTTC, 2019). Worldwide, the trend is that organized activities in tourism business, trade or industry have involved the participation of women in a big way. However the situation is quite unique in J and K. Extensive field enquiries show that women entrepreneurship is high in Ladakh region, women have a fair share of participation in the hospitality services undertaken in Jammu region and there is virtual no participation in women entrepreneurship in Kashmir region. The one single exception is that handicraft sector of the industry where women have a significant share in the manufacturing of handicrafts which finally are moving out of the state through the tourists who visit the UT (Santek Consultants, 2020).

12. Tourism and environment

Tourism has both the positive and negative impacts on the environment of the destinations. The positive impacts include improved environmental management and planning, raising environmental awareness, protection and preservation of environment and others. Whereas the negative impacts include depletion of natural resources- water, local land, etc., pollution- air and noise, solid waste and littering, sewage, destruction and alteration of ecosystem (Rath and Gupta, 2017).

According to surveys done by various environmental and ecological departments, the Kalahoi glacier in Pahalgam has shrunk by 18% during the last three decades (Khan et al., 2017). The Dal lake in Srinagar and the Wular lake in Bandipora are falling prey to the increasing pollution and the encroaching. According to a report submitted to the former Governor of J&K, N. N. Vohra, by the Chief Managing Director (CMD) of Dredging Corporation of India in 2018, the area of the Dal lake had decreased from popularly known 22 square kilometres to 10 square kilometres, the original size of the Dal lake was about 75 square kilometres back in 1200 AD (jkpi.org)[7]. This is a matter which requires an urgent solution. Some steps have been taken by the government to control the encroachment and the disposal of sewage, but the local population must feel their duty to preserve such a treasure from getting disappeared.

Same is the story of the famous Wular lake, which is the largest fresh water Lake of Asia. According to the Action Plan of Wular Lake (2007), the area of the lake was 217 square kilometres in 1911 which include 58 square kilometres of associated marshes (docplayer.net)[8]. The lake has shrunk nearly to half of its original area due to the encroachment for agricultural and construction purposes.

Every tourist destination has a sad story to be conveyed to the local people and the visitors for their attention, so that they may help in reducing the pollution level and make the spots

[7] https://www.jkpi.org/the-degeneration-of-dal-lake-is-a-disaster-waiting-to-happen. (accessed on 15 June 2023)
[8] https://docplayer.net/37017787-Final-report-comprehensive-management-action-plan-for-wular-lake. (accessed on 15 June 2023)

last longer. Awareness programmes on a large scale need to be organised at every location for the preservation of the tourist sector of the UT.

There is a need to minimise the various impacts which badly affects the environment through proper planning and utilisation of resources. The government should take strict actions for the preservation of the tourist places and the awareness should be generated in the local and the visitors, so that they would protect these precious resources from getting destroyed.

13. Miscellaneous

There are various other impacts of tourism on the economy, society and ecology of the world. Some among the other benefits include foreign exchange earnings, revenue generation, poverty alleviation, change in the land-use pattern, social change, etc. Tourism plays an important role in avoiding the rural-urban migration as tourism is viewed as an economic diversification tool in part to stabilize out migration of young people from small towns because of unemployment (Lankford et al., 2017). Moreover, tourism has a wider impact on other economic sectors through backward and forward linkages such as on agriculture, horticulture, handicrafts, transport, construction, etc (Sachdeva and Ganai, 2017).

Despite all these positive impacts tourism can have negative impacts as well which can be avoided if the stakeholders in the tourism development process act responsibly and avoid the concentration of power and wealth. Besides, the social activist groups and NGOs can come forward to make awareness among the host communities and the visitors about the evil effects of the wrong behaviour on the tourism sector.

14. Conclusion

It is evident from the above mentioned benefits of the tourism sector that this sector surely plays an important role in the economy of J&K. Now, the need of the hour is that all the

stake holders of the sector should work together in the further development of the tourism sector. Especially, in the Kashmir division, where there is less developed industrial and private sector, the tourism sector can prove to be a leading sector in every aspect of the economy as the valley has an immense potential in the tourism industry. New destinations can be developed in order to spread the effects to far flung and rural areas and the congestion on the already developed destinations can be lowered. The infrastructure required for the betterment of the sector should be developed so that the sectors growth and contribution can be sustained in future. Moreover, the government should come forward with the policies for the further development of the sector and the community participation should be made active through awareness generation, imparting skills and providing financial support, so that the tourism sector will sustain its growth for the present as well as the future generations. The local community and tourists should be made aware about the environmental considerations because it is through the natural environment that the tourism sector gets its major products such as natural scenery, mountains, flowers, water bodies, wildlife, and others.

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