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Editorial

India's economy today shows signs of a resilient economy which will be able to face the forthcoming slow down in the major economies of the world but it also shows the signs of an economy divided in its focus. The increase in GDP is also accompanied by a slowdown in some of the crucial sectors of economy like agriculture. Recent International Monetary Fund (IMF) projections show that India is likely to surpass Germany and Japan to become the third biggest economy in the world, behind the USA and China, by 2027. But to become the top economy of the world by 2047 India needs to grow at 14% annually.

Atmanirbhar Bharat Abhiyaan is based on five pillars- Economy, Infrastructure, Systems, Vibrant Demography and Demand: under this abhiyaan the Government took several bold reforms such as supply chain reforms for agriculture, rational tax systems, simplified laws, efficient human resource, and strengthens financial system. A further set of reforms and enablers across sector were announced under this initiative.

For this revival of economy, the idea is to become 'vocal for local' and create the ecosystem that will allow Indian companies to be highly competitive at the global platform. A clear use case for this resilience and self sufficiency can be seen in the augmented production of the medical supplies, including PPE kits.

It is heartwarming that the revenue of the government is rising even in the post-Covid period Direct Tax collection, net of refunds, stands at Rs. 12.98 lakh crore which is 18.40% higher than the net collections for the corresponding period of last year. This collection is 91.39% of the total Budget Estimates of Direct Taxes for F.Y. 2022-23 and 78.65% of the Revised Estimates of Direct Taxes for F.Y. 2022-23. However, the recovery of NPA of the banks is slow and largely discriminatory. “Growth in India is set to decline from 6.8% in 2022 to 6.1% in 2023 before picking up to 6.8% in 2024, with resilient domestic demand despite external headwinds,” the IMF said in its World Economic Outlook Update of January 2023.

What is important now for the Indian Finance Minister to acknowledge is the fact that Indian Economy has shown resilience because of its robust agriculture sector which despite the neglect it has received, has been a strong support during the last two-three years during which the industrial and service sectors received a big setback. The agriculture sector is one of the most important industries in the Indian economy. In terms of employment, the agriculture sector provides livelihood to over 151 million people. Approximately 60 percent of the Indian population works in the industry, contributing about 18 percent to India's GDP. GDP from Agriculture in India decreased to 4243.86 INR Billion in the third quarter of 2022 from 4933.25 INR Billion in the second quarter of 2022. Still as per the report of Assocham **e**arly signs of brighter prospects of Rabi crops point towards a robust performance of agriculture, leaving an improved second round effect for several connected industries like FMCG, tractors, two-wheelers, specialty chemicals and fertilizers."

The dichotomy seen in the Indian economy is between high growth rate of GDP and low purchasing power of the people. This is caused due to high rate of rural and urban unemployment. Unemployment rate in India rose to 8.30 per cent in December 2022, the highest in 16 months, according to data from Centre for Monitoring Indian Economy (CMIE). It was 8 per cent in the month of November. While urban unemployment rose to 10.09 per cent in December, from 8.96 per cent in November, rural unemployment moved to 7.44% from 7.55%, the data revealed.

Therefore it may be stated that India's Economy today is an economy of growing disparities. In order to survive the feared global slowdown it is advisable that employment opportunities should be increased so that people can have more money to spend in the market.

This issue of the journal brings to you some phenomenal facets of the economy. We are deeply indebted to all the authors for their contribution. The editorial board does not own the responsibility for the data presented in the individual article nor for the references made. The responsibility of the entire information and thought in the articles rests with the authors. However, new ideas are always welcome to improve the quality, content and authenticity. We would welcome opinions, suggestions and corrections, if any by the readers.

Prof. Suman Pamecha

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A Study of Food Security Programs with Special Reference to Sustainable Development Goals in India

*Apoorva Verma
**Saurabh Mani

ABSTRACT

Objectives*: To examine the effectiveness of various food securities programs in India with special reference to Sustainable Development Goals.*

Methods*: The study is exploratory in nature based on secondary data collected from official portals of concerned ministries and departments as well as the Annual Country Report (India) of Sustainable Development Goals. Inferences have been drawn about India's progression on Sustainable Development Goal-2 (Zero Hunger)*

Findings*: One of the important measures of economic development is providing an uninterrupted supply of healthy and nutritious food to the population that ultimately determines the quality of life at the most basic level of socio-economic progression ladder. Food security and achievement of zero-hunger have always been a challenge for the Indian economy since its independence. India has made significant improvement in food-grain production with nearly 305 million tons by July 2021. Despite improvement in the production of food-grain India still ranks poorly in the Global Hunger Index – 101st out of 116 countries (GHI 2021). To achieve a zero-hunger target by 2030, India has launched one of the largest food security measures in the world by implementing National Food Security Act (NFSA) 2013. The NFSA is being implemented across the country to address the food-security challenge faced by millions of people. India has made substantial improvements in under-nourishment data (NFHS -4). India's progress on SDG-2 has improved during 2019-21.*

Key Words : Food Security, Hunger, SDG, Malnutrition

JEL Codes *: Q18, O12*

INTRODUCTION

Food and human security are two of the most pressing issues facing the globe today. Food security, along with poverty eradication and environmental sustainability, is one of the most critical components of the

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Millennium Development Goals. Despite the fact that the Indian government has declared food security to be a fundamental right of the people, food insecurity, poverty, and hunger continue to be major issues. The right to food is a birthright for all, according to Article 21 of the Indian Constitution and the Universal Declaration of Human Rights (1948). The right to food is a fundamental common liberty that is intimately tied to other rights, such as the right to life and the right to wellness, and the right to food is in part responsible for the fulfillment of these rights. It is not a new concept; it was first recognized in the Universal Declaration of Human Rights in 1948 as part of the right to a satisfactory way of life. The right to adequate food was formally adopted in 1996, marking a watershed moment for the delegates at the World Food Summit.

Food security encompasses not only food procurement and distribution, but also food production, people's livelihoods, and the entire management of the food economy. Food security should not be confined to the mere availability of food grains but should include the overall availability of edibles, as people's dietary patterns are changing as a result of increased per capita income, urbanization, the convergence of food habits, and more availability of horticulture and livestock products. However, a substantial number of impoverished households, particularly those in rural areas and urban slums are still unable to acquire adequate food supplies and hence suffer from malnutrition.

After the 1921 Demographic Divide, the population growth rate in India increased rapidly, triggering problems such as rising poverty, malnutrition, and other population-related issues such as food shortages and insecurity. During the 1950s, the issue of food security in India was a serious worry. From 1951 to 1952, the elimination of poverty and the attainment of food self-sufficiency have been the inevitable goals of the Indian development strategy. During the green revolution, food production was mostly supply-driven, due to government support, agricultural R&D, and farmers' hard work. Agricultural production, on the other hand, has mostly been demand-driven under the neoliberal policy regime, owing to a steady shift in food patterns toward high-value horticultural and animal goods. However, following the introduction of Green Revolution technologies in the 1960s, India experienced a tremendous increase in food grain production, and as a result, India became self-sufficient in food grains, with only sporadic imports from 1976-77 to 2005-06. Despite harsh criticism on equity, ecology, and environmental grounds, India's green revolution technology has made a substantial contribution to the country's transformation from a food deficit to a food surplus.

With a population of over 1.3 billion people, India has witnessed amazing economic growth in recent

https://www.unicef.org/reports/state-of-food-security-and-nutrition-2020

decades, and it has been reliably predicted that the Indian economy will continue to grow at a high pace in the future. GDP has grown by 4.5 times, but per capita consumption has grown by three times. Similarly, food grain production has nearly doubled. Despite generating enough food to feed its population, India is unable to feed a large number of people, particularly women and children, despite its unprecedented industrial and economic progress. India has solidified its position as one of the world's major economies. In its study "The State of Food Security and Nutrition in the World, 2020," the Food and Agricultural Organization (FAO) estimates that 189.2 million people in India are undernourished, notwithstanding its achievements. According to these statistics, roughly 14% of India's population is malnourished.

Facts & Figures about India's Hunger

- India has the world's largest undernourished population, accounting for 14% of the population, with 189.2 million people suffering from malnutrition.
- Underweight children under the age of five account for 20% of all children
- 34.7 percent of children under the age of five suffer from stunting.
- 51.4 percent of reproductive-age women suffer from anemia (15-49 years)

Despite significant reductions in malnutrition rates, achievement toward SDG 2 has been disappointing. Seven years after the world agreed to eradicate hunger, food insecurity, and all forms of malnutrition, we are still on track to meet this objective by 2030. According to data, neither SDG target 2.1, which calls for ensuring that all people have access to safe, nutritious, and sufficient food throughout the year, nor SDG target 2.2, which calls for eradicating all forms of malnutrition, are being met. According to the study, economic slowdowns and downturns impeded these attempts in 2019. The COVID-19 pandemic is affecting economic prospects in ways that no one could have expected in 2020, and unless we move swiftly and take unprecedented action, the situation will only worsen. As a result, even without the negative effects on hunger indicated by COVID-19, India is not on track to achieving Zero Hunger. The health and socio-economic repercussions of the COVID-19 pandemic are expected to affect the food security and nutritional status of the world's most vulnerable population groups, according to the State of Food Security and Nutrition in the World 2021 report.

On this backdrop, the purpose of this paper is to discuss India's food security programs from the perspective of the SDGs. Food security in India, according to the authors, is a global issue, and the consequences of food

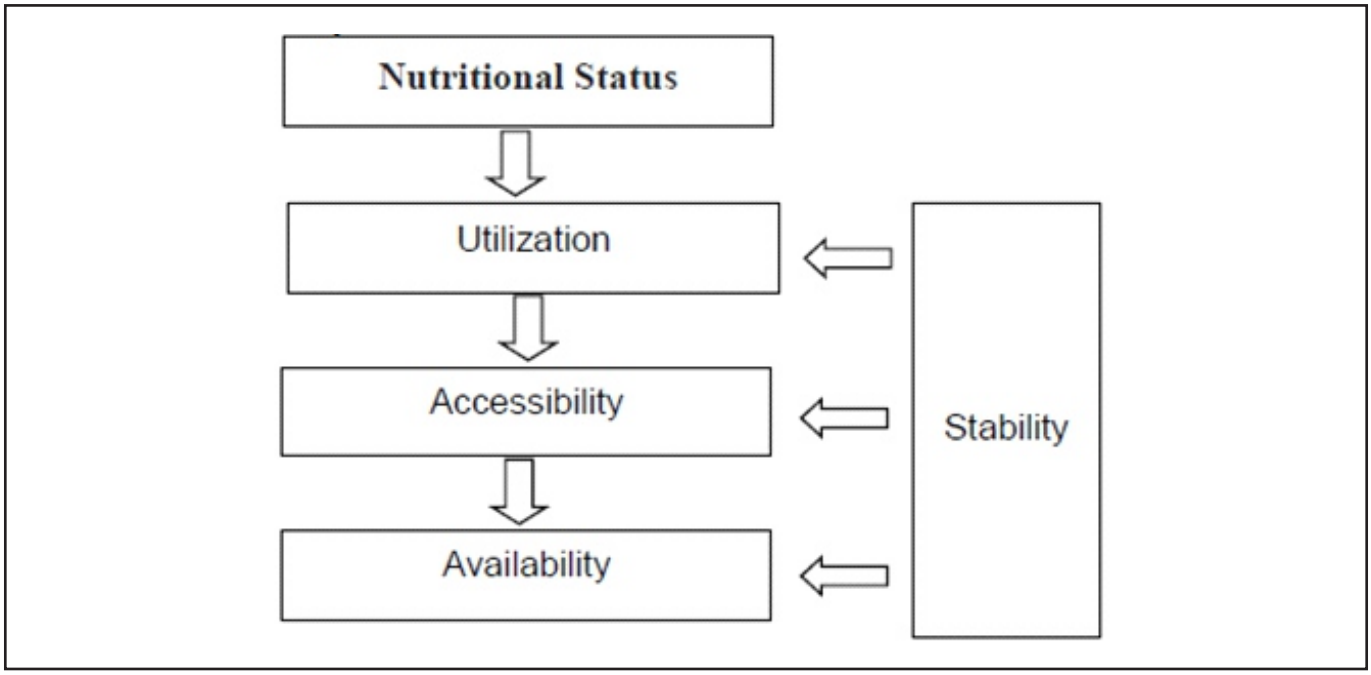
security programs should be of interest to scholars in India and other developing countries. The remaining part of the paper is laid out as follows. The conceptual framework of food security is presented first, followed by a brief overview of food security in India and the obstacles that Indians confront in achieving food security. The Food Security Programs in India are discussed in the next section. Finally, the conclusion is brought to an end in the following section.

FOOD SECURITY: DEFINITION AND MEANING

Population growth, poverty, and food security are the most passionately discussed issues in India. Every state in India is seeing rapid population expansion, resulting in a variety of issues such as malnutrition, poverty, and food insecurity. Food security is a term that has evolved during the last quarter-century. As a result, it is a complex and contentious subject. It is a challenging concept to quantify because it encompasses not only food production but also food consumption and distribution. Food security can be defined as "Ensuring that all people at all times have both physical and economic access to the basic food that they need" (FAO 1983)

FAO established a globally recognized concept of food security in 2009. It concentrated on the four pillars of food security: food availability, accessibility, use, and stability (Figure 1). According to this, food security is defined as a concept that considers both physical and economic access to food while also taking into account people's dietary needs and preferences (FAO, 2009). The first dimension is food availability, which is determined by agricultural production, stock, food aid, and government import capacity. Man can gain access to this available food through economic means. As a result, the second important dimension is food accessibility, which is characterized as a consequence of the state's food policy as well as the people's per capita income or purchasing power. The next dimension is food utilization, which is the proper biological use of food, which necessitates a diet rich in energy and essential nutrients, as well as safe drinking water and suitable cleanliness. Food stability is the final and most significant dimension, and it is linked to the other three dimensions' continuity. Furthermore, as per World Food Summit 1996, "Food security, at the individual, household, national, regional and global levels [is achieved] when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life." (FAO 1996).

Figure 1 : Food Security Dimension



Source: FAO 2000

FOOD SECURITY IN INDIA

Food security, both at the national and household levels, has been a focus of agricultural growth in India since the mid-1960s when import dependency for grains reached 16% and the country experienced two years of severe drought. The new method aimed to increase grain output by laying a foundation of food security on three important elements: providing farmers with an enhanced agricultural technology package, delivering contemporary farm inputs, technical know-how, and providing institutional loans to farmers. Several policy mechanisms that altered production potential were used to achieve these goals.India has achieved significant strides in food production over the past three decades, transforming the region from one with a food deficit to one with a surplus. The development of agricultural research and the efficient distribution of findings may cause this.

According to UN-India, India have about 195 million malnourished people, accounting for a quarter of the global hunger problem. In addition, nearly 43% of children in India are chronically malnourished. Furthermore, India ranked 71st out of 113th nations on the Global Food Security Index (GFSI) 2021, with an

https://www.fao.org/3/y4671e/y4671e06.htm#:~:text=%E2%80%9Censuring%20that%20all%20people%20at,temporal%20dynamics%20of%20food%20insecurity
Food security: definition and drivers (hungerexplained.org)

overall score of 57.2 points, outperforming Pakistan (75th position), Sri Lanka (77th position), Nepal (79th position), and Bangladesh (84th position) . After seven years of progress toward the Sustainable Development Goal of reaching zero hunger by 2030, the GFSI 2021 revealed that global food security has dropped for the second year in a row.

CHALLENGES IN FOOD SECURITY

Since Independence, India experienced increased economic growth and improved food production. Despite all these facts, there are various issues in the achievement of food security in India. 40 percent of fruits and vegetables, as well as 30 percent of grains, are wasted and never reach consumer markets due to insufficient supply chain management and transportation infrastructure. While there are significant food losses upstream, such as during harvest and post-harvest processing, a significant proportion of food is lost or squandered during distribution and consumption. Overproduction, the introduction of new items, labeling errors, or the expiration of the remaining shelf life cause some food to be thrown away on store shelves and warehouses. Food could be saved by removing it from the distribution network at the appropriate moment, gathering it, and then redistributing it to those in need. At the production stage, climate change poses a considerable obstacle. Adapting to climate change requires innovative techniques and technology. Small farmers, in particular, have limited access to technology and other adaptable approaches, as well as a lack of cost. Agriculture that is climate-smart and sustainable is an important component of food security, and the government is aggressively encouraging it. Small farmers, who account for more than 82 percent of all farmers and usually lack assets and resources, have problems in implementing climate-adaptive sustainable agriculture methods, new technologies, and large-scale agricultural development plans. We can still succeed, but only if we make sure that everyone has access to food, as well as the nutritional foods that make up a healthy diet. As a result of their inability to acquire appropriate and nutritious diets, millions of people around the world suffer from hunger, food insecurity, and malnutrition. Stunting, wasting, overweight, and obesity are all linked to expensive and unaffordable nutritious diets, as are food instability and all forms of malnutrition. Food supply disruptions and a lack of money as a result of COVID-19's loss of livelihoods and remittances have made it more difficult for households across the country to get nutritional goods, making it even more difficult for the poor and vulnerable to eat healthy meals. Clearly, we must change food systems so that no one is hampered by excessive food prices or a lack of resources to purchase a healthy diet, while simultaneously guaranteeing that food production and consumption are environmentally sustainable. Governments will need to identify context-specific barriers, manage trade-offs, and maximize synergies –

such as potential environmental gains – to achieve the necessary transitions.

Sustainable Development Goal 2 (SDG 2): Zero Hunger

If human development is to be accomplished, hunger must be eradicated. SDG 2 aims to eradicate all forms of hunger and malnutrition by 2030, ensuring that all people, particularly children, have access to sufficient and nutritious food all year. Its goals include ending all forms of malnutrition, doubling agricultural productivity, and ensuring long-term food security.

Key Facts : SDG Report India 2019

- In India, 34.7 percent of children under the age of five are stunted.
- 40.5 percent of children in the age group of 6 to 59 months are anemic.
- PDS is available to every rural family. Where the highest-earning member's monthly income is less than INR 5,000.
- Wheat, rice, and coarse cereals have an annual agricultural production of 2,516.67 kg per hectare.
- Agriculture generates 0.68 lakhs in gross value added per worker.
- Pregnant women ages 15 to 49 are 50.3 percent anemic.
- Children ages 0-4 years are underweight at 33.40 percent.

(Source: SDG India Index & Dashboard 2019-20, pp38)

FOOD SECURITY PROGRAMS IN INDIA

The Indian government has made numerous reforms to the country's social safety nets in order to improve the delivery of nutrition and food security targets, launching ambitious schemes like the National Food Security Act and the National Nutrition Mission, with the goal of promoting convergent approaches that reflect the multidimensional nature of food and nutrition insecurity, and addressing inequalities related to gender, age, and ethnicity. In a favorable policy climate, supporting the government's efforts to address malnutrition and food insecurity has the potential to expedite progress toward Sustainable Development Goal 2. To achieve food security in India, various policies and programs were launched over a period of time. During COVID 19, an important issue is to provide two square meals in a day to the unprivileged section of society.

India has adopted a number of measures aimed at eradicating hunger and all forms of malnutrition, all of which are closely connected with the goals set out in this goal. National Nutrition Mission (POSHAN Abhiyaan), AAY, ICDS, MDM scheme, PMMVY, and others are examples of such programs. There are also policies connected to agriculture, such as the National Mission on Agriculture Extension and Technology, the National Mission on Sustainable Agriculture, and the National Food Security Mission, among others. Following are the food security programs are as follows:-

(a) Public Distribution System (PDS)

PDS is the world's largest food grain distribution network, and it is vital to ensuring food security. The PDS provides food grains to low-income households at a reasonable price. PDS has played an important part in India's food management over the years. PDS is reported to have existed in India prior to independence, and it was designed to safeguard consumers from food shortages and producers from price fluctuations (Dev and Suryanarayana, 1991). After the Green Revolution, agricultural output had reached its full potential in the 1970s and 1980s, and as a result, PDS reach was extended to tribal blocks and places with high poverty rates. PDS was formed as an Indian food security system under the Ministry of Consumer Affairs, Food, and Public Distribution. During World War II, PDS was recognized on January 14, 1945, and it was inaugurated in June 1947. By the 1970s, PDS had evolved into a universal plan for the distribution of subsidized food. The PDS was a universal entitlement program for all consumers with no specified goal until 1992. The RPDS was started in 1775 blocks across the country in June 1992 with the goal of strengthening and modernizing the PDS. Essentially, it focuses entirely on poor families, particularly in remote, hilly, rural, and inaccessible areas where a sizable proportion of the disadvantaged classes reside. The RPDS covered areas where specific programs like the DPAP, ITDP, DDP, and DHA existed, all with the purpose of upgrading the PDS infrastructure. The states were granted food grains for distribution in RPDS regions at a discount of 50 paise per kilogram below the Central Issue Price. A total of 20 kg of food grain was available per card. Following that, the Government of India introduced the TPDS in June 1997, with the goal of assisting the underprivileged. As part of the TPDS, states were supposed to create and execute perfect methods for identifying the poor and delivering food grains in a transparent and accountable manner at the FPS level. In order to make TPDS more focused and targeted toward this type of population, the AAY was introduced in December 2000 for one crore of the poorest of the poor families. Initially, the AAY scheme supplied 25 kilograms per family each month, but in 2002, this limit was raised to 35 kg. Its goal is to alleviate hunger among the BPL population's poorest members. According to the National Sample Survey, around 5% of the entire population of the country sleeps without two square meals per day, putting them in the category of hungry people.

PDS's Importance

- It contributes to the food and nutritional security of the country.
- It has contributed to the stabilization of food prices as well as the distribution of affordable food to the poor.
- It retains a reserve of food grains in the warehouse to ensure that the food supply continues even when agricultural food production is low.
- It has benefited grain redistribution by giving extra food to communities in need.
- As a result of the minimum support price and procurement mechanism, food grain output has increased.

In India, there are a number of problems with the PDS system. The first and most pressing issue is that of beneficiary identification. It means that food grains are not being distributed to authorized recipients, while ineligible recipients are obtaining excessive benefits. According to a 2009 expert committee assessment, the PDS has a nearly 61 percent error of exclusion and a 25 percent error of inclusion of beneficiaries, meaning that the poor are misclassified as non-poor and vice versa. Another massive problem is food grain leakage. TPDS experiences significant food grain leakage into the open market during transportation to and from ration shops. Leakage in the form of transportation leakages and black marketing by FPS owners. Better-quality food grains are sold in the open market through the back door at a premium price.

Duplicate and illegitimate ration cards have been issued in the open market by unscrupulous and fraudulent fair price shop owners. As a result, deserving unfortunate/underprivileged customers are turned down. Safe and nutritious food is inaccessible and unaffordable for many poor people due to a variety of malpractices, resulting in food insecurity. It has been challenging to determine the deserving and rightful consumers to be covered under the PDS system. The PDS isn't functioning properly, impeding the distribution of low-cost food. As a result, the government has initiated a number of measures aimed at addressing current food security challenges. In light of this, India's government passed the NFSA 2013, which intends to offer food subsidies to around two-thirds of the country's 1.2 billion citizens.

Another issue is procurement, which means that open-ended procurement, which accepts all arriving, grains even if buffer stock is full, is causing a scarcity in the open market. In India, PDS is not functioning properly due to storage concerns. A substantial shortfall in the government's storage capacity was revealed by the CAG's performance audit. PDS's performance is not sufficient because of environmental concerns. The

delivery of low-quality food grains to ration shops has been a major impediment to the PDS system.

The Indian government has computerized the PDS and adopted a variety of reforms to make it more efficient, targeted, and transparent during the previous few decades. PDS malpractices were reduced due to AADHAR card systems and direct cash transfers. The integration of Aadhar with TPDS will help to improve beneficiary identification and eliminate inclusion and exclusion errors. According to a study done by India's Unique Identification Authority, merging Aadhaar with TPDS will help eliminate duplicate and ghost (fake) beneficiaries while also improving beneficiary identification accuracy.

(b) National Food Security Act, 2013

The bill is widely regarded as the world's largest experiment in delivering heavily subsidized food to any government that adopts a "right-based approach." Around 67 percent of the population would have legal access to subsidized food grain under the proposed approach. Despite its advantages, the bill has drawn considerable criticism for distributing food grains through a "leaky" public distribution system. On June 4, 2009, India's President announced that the government would pass the National Food Security Act, which would ensure food security for all Indians. The Department of Food and Public Distribution prepared a draft of the National Food Security Bill after consulting with stakeholders. The Cabinet approved the bill for introduction in Parliament on December 18, 2011. On December 22, 2011, the NFS bill was introduced in the Lok Sabha, and on September 12, 2013, it became law. The purpose of this bill is to provide citizens with food and nutritional security, as well as access to sufficient quantities of high-quality food at affordable prices, so they can live a dignified life.

With the implementation of the NFSA 2013, the approach to food security shifted from welfare to a rights-based strategy, and it now applies to the entire country (all States and UTs). The Act permitted up to 75 percent of the rural population and 50 percent of the urban population to obtain subsidized food grains through the TPDS. As a result of this program, approximately 80 crore individuals receive significantly subsidized food grains. AAY households are among the poorest; they are eligible for 35 kilograms of food per family per month, while priority homes are entitled to 5 kilograms per person per month. Under the NFSA, food grains are provided at subsidized rates of Rs.3/2/1 per kg for rice, wheat, and coarse grains, respectively. The Central Government was required to establish prices on a regular basis, and this limit could not be higher than MSP.

In 2019-20, the NFSA 2013 covered 99.51 percent of beneficiaries. In the same year, 12 states (Andhra Pradesh, Arunachal Pradesh, Gujarat, Himachal Pradesh, Kerala, Madhya Pradesh, Maharashtra, Manipur,

Rajasthan, Sikkim, Uttarakhand, and West Bengal) and three union territories (Andaman and Nicobar Islands, Chandigarh, and Delhi) met the goal of 100% coverage

PMGKAY, which is part of PMGKY, nearly doubled the number of monthly food grains supplied to the country's 80 million people who are covered by the NFSA. Over and beyond the standard NFSA entitlement of their AAY or Priority Householders ration cards, an additional quantity of 5 kg of food grains per person per month was distributed at no cost. This was for all of the TPDS. According to the government, this is the world's largest food distribution program, with a budget of "Rs 2.68 lakh crore" and a 19-month target of "80 crore recipients." The scheme covers roughly 14.72 crores of NFSA participants in Uttar Pradesh alone .

Provisions for Food Security Entitlement, Price Structure and Financial Obligation

Target group	Entitlement	Price	Financial Obligation	
			Center	State
Households under AAY	35 kilograms of Food grains per household per month	3 per kg for rice, and 2 per kg for wheat, 1 per kg for coarse grains	Yes	No
Priority households under NFSB	5 kilograms of food grains per person per month	3 per kg for rice, and 2 per kg for wheat, 1 per kg for coarse grains		
Pregnant woman/ Lactating Mother	Take home ration during pregnancy and six months after child birth Maternity benefit of 1000 per month for a period of six months	Free	Yes	Yes
Children (6months-3 yrs)	Take home ration	Free	Yes	Yes
Children (3 to 6 years)	Morning snack and hot cooked meal	Free	Yes	Yes
Children (6 years-14 yrs)	One mid-day meal, every day, except on school holidays	Free	Yes	Yes
Any children who suffer from malnutrition	Meals	Free	Yes	Yes

Source : Composed from Food Security Act, 2013.

(C) National Food Security Mission (NFSM)

It was initiated in 2007 for a five-year period with the goal of increasing wheat, rice, and pulse production and productivity on a sustainable basis to ensure the country's food security. The goal is to close the yield gap in these crops by disseminating new farming technologies and management techniques. This project was initiated under the Eleventh Plan with the goal of increasing rice, wheat, and pulses production by 10 million tons, 8 million tons, and 2 million tons, respectively. The scheme's goal is to increase production through increasing land area and productivity, as well as offering job possibilities and initiatives to help farmers regain confidence.

(D) Integrated Child Development Scheme (ICDS)

The scheme began in 1975, was terminated by Morarji Desai's government in 1978, and then restarted by the Tenth Five Year Plan. This scheme aims to combat malnutrition and health problems in children under the age of six and their mothers by giving monetary incentives in exchange for registration at Anganwadi centers and newborn infant vaccination. Every child aged 6 months to 6 years receives 500 kilocalories (with 12–15 grams of protein) each day as part of the ICDS dietary program. Every child aged 6 months to 6 years receives 500 kilocalories (with 12–15 grams of protein) each day as part of the ICDS dietary program. Since 1975, UNICEF has given essential supplies to the ICDS program. The World Bank has also contributed to the program's financial and technical support.

(E) Rashtriya Krishi Vikas Yojana

In 2007, the RKVY program was launched as an umbrella scheme to ensure the holistic growth of agriculture and related sectors. Since its start, the program has progressed significantly and has been executed across two plan periods (11th and 12th). The program encourages states to enhance public investment in agriculture and related industries.

(F) The Integrated Scheme of Oilseeds, Pulses, Oil Palm and Maize (ISOPOM)

The government is undertaking a Centrally Sponsored ISOPOM in 14 main oilseeds-growing States to increase the output of oilseeds, notably soybean during the 10th Five Year Plan. This scheme was implemented

in the year 2004-05. The government establishes the Minimum Support Price (MSP) for agricultural commodities, including soyabeans, based on recommendations from the Commission for Agricultural Costs and Prices (CACP), in order to make sure that farmers are paid fairly for their output. The ISOPOM has the following unique characteristics:

- ❖ States have the freedom to use the funds towards whatever program or crop they like.
- ❖ State governments will develop an annual action plan for consideration and approval by the Indian government.
- ❖ To the extent of 10% of the financial allocation, states have the flexibility to include new initiatives or any specific component.
- ❖ Involvement of the private sector by state governments in the program's implementation, with a financial cap of 15%.
- ❖ Flexibility to divert funds between components up to 20% for non-seed components alone.
- ❖ With the approval of the Department of Agriculture and Cooperation, funding can be diverted from seed components to non-seed components.

STATE OF HUNGER AND MALNUTRITION

According to FAO, "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life". Serageldin (2000) considered food security as a complex issue that involves: not just production, but also access, not just output, but also process, not just technology, but also policy, not global but also national, not just national but also household, not just rural but also urban, not just amount but also content. Hunger and malnutrition among the masses must be eliminated not just for social reasons, but also for the country's general development, as healthy people contribute more to the economy due to their increased productivity and efficiency. By 2030, the United Nations' post-2015 development agenda on Sustainable Development Goals (SDGs) intends to end all forms of hunger and malnutrition. Various survey results indicate that, despite slightly higher GDP growth over the last two decades, hunger and malnutrition continue to affect the majority of Indians. Nonetheless, a number of studies have found that there has been little progress in eliminating hunger and malnutrition in the country (Chand and Jumrani, 2013; Meenkashi and Vishwanathan, 2003; Deaton and Dreze, 2009; Patnaik, 2010; Basu and Basole, 2012). Several researchers had worked on the causes of malnutrition and they confirmed that in the Malnutrition equation, food is only

https://en.wikipedia.org/wiki/Integrated_Child_Development_Services
http://dpd.dacnet.nic.in/npdp/isopom1.htm

one factor. Under nutrition is one of the primary causes of death among children under the age of five in India, accounting for 68.2% of all under-five fatalities (1.04 million) in 2017 (Swaminathan,2019). In addition to this, there are some important determinants namely dietary intake and diversity, health and disease, & maternal and child care (UNICEF, 1990). However, there is no acceptable explanation in the literature for why increased per-capita income and food production did not result in a significant reduction in under nutrition, with the exception of certainly plausible explanations such as voluntary hunger, poor nutrition awareness, and so on (Chand and Jumarani, 2013).

According to an Oxfam analysis, India's position in the Global Hunger Index for 2021 "unfortunately" mirrors the realities of the country, where hunger has deteriorated since the Covid-19 pandemic outbreak. India is one of the 31 countries that have been designated as having acute hunger. According to current estimates based on the Global Hunger Index (GHI), the world as a whole — and 47 countries in particular — will be unable to achieve even moderate levels of hunger by 2030. The Index tracks key variables that are used to track national, regional, and global progress toward the 2030 goal of Zero Hunger. Undernourishment, child wasting (the share of children under the age of five who are wasted, i.e. who have low weight for their height, reflecting acute under nutrition), child stunting (children under the age of five who have low height for their age, showing chronic under nutrition), and child mortality (the mortality rate of children under the age of five) are all assessed on a 100-point scale, with 0 being the highest possible score (no hunger) and 100 being the worst. India was placed 101 out of 116 countries in the recently issued Global Hunger Index for 2021, which is concerning given that India is one of the world's largest producers of food grains. The Global Hunger Index for 2021 predicts a critical hunger scenario due to a deadly combination of the climate crisis, the COVID-19 pandemic, and increasingly severe and protracted conflicts. Progress toward the SDG "Zero Hunger by 2030," which was already moving too slowly, has stalled or even reversed in several countries. The report will evaluate the three interrelated SDGs of eradicating extreme poverty, zero hunger, and good health and well-being in order to appreciate and address the difficulties of nutritional security and malnutrition (Fears, 2019) . These SDGs provide a conceptual policy framework and directives for overcoming barriers in current nutritional programs and policy initiatives. Many people in India suffer from hidden hunger (chronic micronutrient insufficiency), which happens when a person consumes sufficient calories but lacks sufficient micronutrients (George, 2019).

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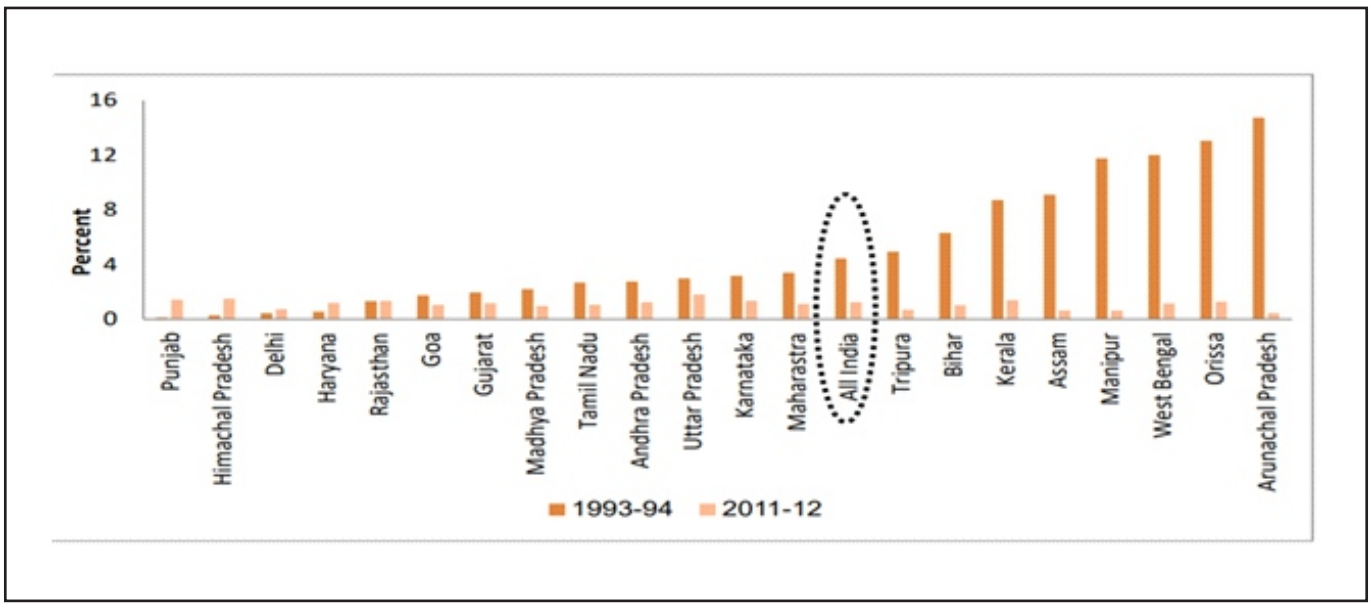
https://www.fao.org/fileadmin/templates/faoitaly/documents/pdf/pdf_Food_Security_Cocept_No te.pdf

Figure 2 : Incidence of Hunger in India



Source : Achieving Nutritional Security in India: Vision 2030

- **Note**: Calculated from NSS 50th and 68th round.

Incidence of hunger is measured by persons reporting not getting two square meals a day)

According to FAO research, India's nutritional status has significantly improved. The number of people who are undernourished in the country has decreased from 198.3 million in 2000-02 to 208.6 million in 2018-20. Although the absolute number of undernourished people has decreased over time, India's share of the global undernourished population has increased. Between 2006 and 2017, the number of children under the age of five who were affected by wasting decreased from 26 million to 20.1 million*. In India, the number of stunted children under the age of five has decreased from 63.7 million in 2000 to 36.1 million in 2020*. Anemia has increased in prevalence among women of reproductive age (15-49 years) from 141.5 million in 2000 to 187.3 million in 2019*.

According to a study, India will account for 33% of stunted children under the age of five and 21% of wasted children worldwide by 2030 unless drastic measures are implemented (Kharas, 2018). India is on track to achieve the SDGs of ending extreme poverty and reducing neonatal and under-five mortality rates to 12 and 25 per 1000 live births, respectively, by 2030. By 2030, India appears to be falling behind in terms of reducing the number of underweight, stunted, and wasted children under the age of five. Policymakers must focus on the fundamental determinants of malnutrition and repair gaps in India's existing nutrition-sensitive programs if the country is to achieve nutritional security in the time given (Jose, 2030).

https://www.thehindu.com/news/national/global-hunger-index-ranks-india-at-101-out-of-116-countries/article36998777.ece

*https://www.fao.org/faostat/en/#data/FS

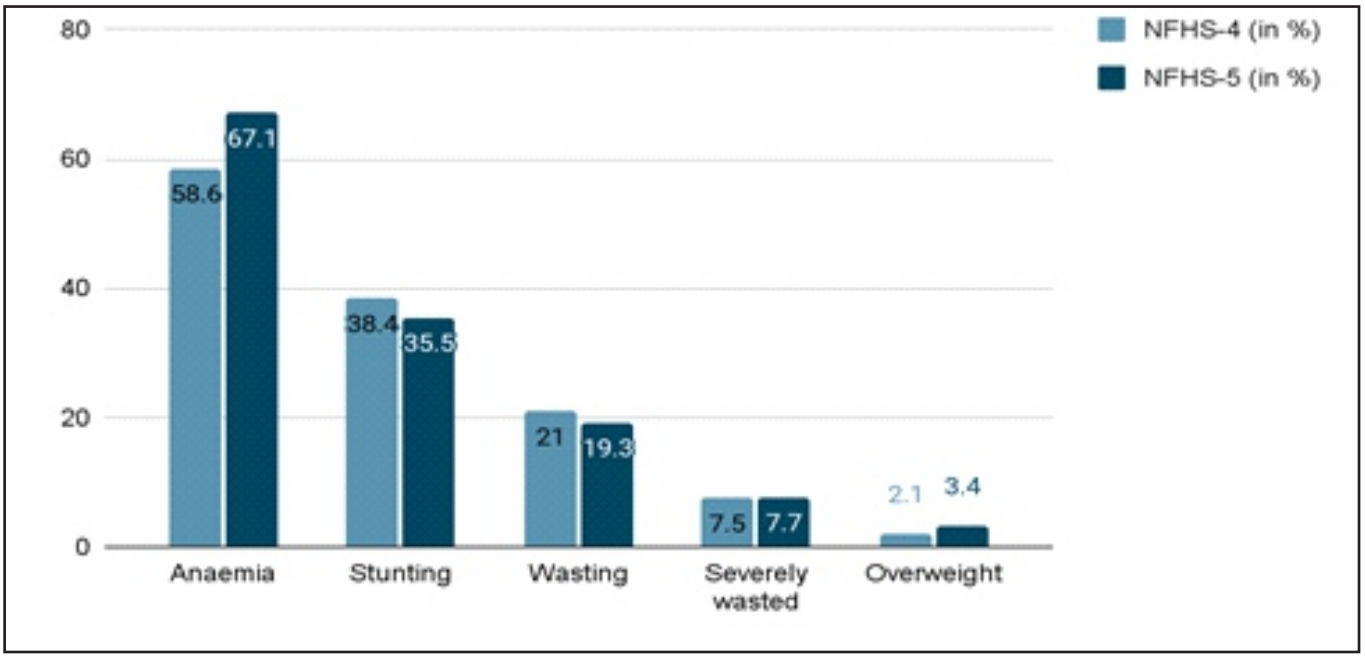
TABLE 2 : Average Per Capita Consumption of Calorie, Protein, and Fats for Rural and Urban Households in India

Year	Calorie (KCal)	Protein (gm)	Fats (gm)			
	Rural	Urban	Rural	Urban	Rural	Urban
1993-94	2153	2071	60.2	57.0	31.4	42.0
2004-05	2047	2020	57.0	57.0	35.5	47.5
2011-12	2233	2206	60.7	60.3	46.1	58.0

Source : Nutritional Intake in India 2004-05 and 2011-12

The Food and Agriculture Organization (FAO) uses a common minimum required calorie norm of 1800 kcal per person per day for both rural and urban populations, while the Indian Council of Medical Research (ICMR) recommends 2400 kcal per person per day for rural areas and 2100 kcal per person per day for urban areas. In India, average calorie consumption has been higher than the minimum required in both rural and urban areas. In 2011-12, an average person consumed 2233 calories in rural areas and 2206 calories in urban areas, according to the above-mentioned table 2. The table also shows that the nutritional condition of both rural and urban households improved between 2004-05 and 2011-12 since consumption of calories, protein, and fats increased over this time.

Figure 3 : Nutritional Status of children under 5 years of age



Source: NFHS 4 and NFHS 5

Retrieved from http://rchiips.org/nfhs/NFHS-5_FCTS/India.pdf)

Nutritional benefits of the food consumed are determined by a host of health, environmental, and cultural/behavioral factors; this is the path from food to nutrition. The graph above illustrates that stunting and wasting decreased from NFHS 4 to NFHS 5, but anaemia, severe wasted and overweight numbers increased throughout the same time span.

CONCLUSION

In this paper, an attempt is made to present various policies and programs that have been adopted in India to achieve food security, with a focus on the SDGs. The most intensely debated topics in India are population increase, poverty, and food security. Every state in India is seeing tremendous population growth, which is causing several problems including hunger, poverty, and food insecurity. The word food security has developed during the last quarter-century. As a result, food security might be described as "ensuring that all individuals have physical and economic access to the fundamental foods they require at all times." The issue of food security in India was a major concern in the 1950s. The elimination of poverty and the accomplishment of food self-sufficiency was the unavoidable goals of India's development policy from 1951 to 1952. India has had significant economic growth and improved food production since independence. Despite these realities, India has a number of challenges in achieving food security. However, India had a massive increase in food grain production following the advent of Green Revolution technologies in the 1960s, and as a result, India became food grain self-sufficient. India's green revolution technology has played a significant role in the country's transition from a food deficit to a surplus. Total food grain production increased from 244491.8 million tons to 297504.5 million tons between 2010 and 2020.

One of the most important components of the Millennium Development Goals, along with poverty eradication and environmental sustainability, is food security. Hunger must be abolished if human development is to be achieved. SDG 2 seeks to eliminate all kinds of hunger and malnutrition by 2030, ensuring that everyone, especially children, has access to enough nutritious food throughout the year. Ending all forms of hunger, doubling agricultural production, and ensuring long-term food security are among its objectives. Despite considerable improvements in malnutrition rates, progress toward SDG 2 has been slow.

Although the Indian government has made numerous reforms to the country's social safety nets in order to improve the delivery of nutrition and food security targets, such as the NFSA, PDS, and NNM, the country's

social safety nets are still in need of improvement. Various policies and programs have been implemented in India overtime to ensure food security. India has implemented a number of policies targeted at eradicating hunger and all types of malnutrition, many of which are strongly linked to the SDG2 targets. Such programs include the National Nutrition Mission (POSHAN Abhiyaan), AAY, ICDS, MDM scheme, PMMVY, and PM-GKY. Despite this, India's ranking on the Global Food Security Index has improved over the last decade. India's nutritional status has greatly improved, according to FAO studies. The number of persons in the country who are undernourished has dropped from 198.3 million in 2000-02 to 208.6 million in 2018-20. Furthermore, the number of children under the age of five who suffered from wasting and stunting was reduced. However, the frequency of anemia among women of reproductive age (15-49 years) has increased from 141.5 million in 2000 to 187.3 million in 2019. Moreover, India's progress on SDG 2 has improved from 35 to 47 for the year 2019-21.

REFERENCES

- Basu, Deepankar, and Amit Basole. The calorie consumption puzzle in India: An empirical investigation. No. 2012-07. Working Paper, 2012.
- Chand, Ramesh, and Jaya Jumrani. "Food security and undernourishment in India: Assessment of alternative norms and the income effect." Indian Journal of Agricultural Economics 68.902-2016-66815 (2013): 39-53.
- Deaton, Angus, and Jean Drèze. "Food and nutrition in India: facts and interpretations." Economic and political weekly (2009): 42-65.
- Dev, S. Mahendra, and M. H. Suryanarayana. "Is pds urban biased and pro-rich?: An evaluation." Economic and Political Weekly (1991): 2357-2366.
- FAO. "World food security: a reappraisal of the concepts and approaches." Director General's Report. (1983).
- Fresco, Louise O. "The 1996 world food summit." Global Environmental Change 7.1 (1997): 1-3.
- Fears, Robin, et al. "Transforming food systems to deliver healthy, sustainable diets—the view from the world's science academies." The Lancet Planetary Health 3.4 (2019): e163-e165.
- Dhak, Biplab. "Food Security Act, 2013: Opportunities and Challenges for the Backward States in India." Journal of Rural Development 33.4 (2014): 475-491.
- George, Neetu Abey, and Fiona H. McKay. "The public distribution system and food security in India." International journal of environmental research and public health 16.17 (2019): 3221.

- National Sample Survey Office. "Nutritional Intake in India 2011–12. NSS 68th Round." Report No. 560 (2014).
- 513(61/1.0/6), National Sample Survey Organisation 2004-05 Report No. Nutritional Intake in India . New Delhi: Ministry of Statistics & Programme Implementation, 2007
- Jose, Shyma, Ashok Gulati, and Kriti Khurana. "Achieving nutritional security in India: Vision 2030." (2020).
- Kharas, H., J. W. McArthur, and K. Rasmussen. "How many people will the world leave behind? Assessing current trajectories on the Sustainable Development Goals. Global economy and development working paper 123." The Brookings Research Institute (2018).
- Meenakshi, J. V., and Brinda Vishwanathan. "Calorie deprivation in rural India, 1983-1999/2000." Economic and Political Weekly (2003): 369-375.
- Patnaik, Utsa. "A critical look at some propositions on consumption and poverty." Economic and Political Weekly (2010): 74-80.
- National Sample Survey Office. "Nutritional Intake in India, 2011-12." 2015.
- Food and Agriculture Organization. Rome Declaration on World Food Security and World Food Summit Plan of Action: World Food Summit 13-17 November 1996, Rome, Italy. FAO, 1996.
- Serageldin, Ismail, and Gabrielle Josephine Persley. Promethean science: agricultural biotechnology, the environment, and the poor. No. 631.523/S481. 1818 H St, Washington, DC 20433, USA: CGIAR, 2000.
- Aayog, N. I. T. I. "SDG India index and dashboard 2020-21 partnerships in the decade of action." NITI Aayog, GoI (2021): 1-202.
- United Nations Children's Fund, New York, NY. Strategy for Improved Nutrition of Children and Women in Developing Countries. A UNICEF Policy Review. ERIC Clearinghouse, 1990.
- World Health Organization. The state of food security and nutrition in the world 2020: transforming food systems for affordable healthy diets. Vol. 2020. Food & Agriculture Org., 2020.
- Food and Agriculture Organization (FAO). "The state of food security and nutrition in the world 2021." Transforming Food Systems for Food Security, Improved Nutrition and Affordable Healthy Diets for All (2021).Dev, S. M., & Sharma, A. N. (2010). Food security in India: Performance, challenges and policies.

Assessing Fiscal Performance at the Sub-National Level in India

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Abstract

The present study is an attempt to measure the fiscal performance at the sub-national level in India using a composite index called fiscal performance index (FPI). The proposed FPI is multi-dimensional in nature and constructed using the relative distance method. This index is an equal-weighted composite score of eight minor indices reflecting various facets of fiscal performance. These eight minor indices are groupedinto four major indices, which are Expenditure Quality Index, Revenue Efficiency Index, Deficit Index and Debt Stock Index. These four major indices have been combined to shape the FPI. Although, fiscal discipline as a criterion for devolution of resources from centre to the states is abolished since the Fourteenth Finance Commission, it is still relevant for the need to measure the fiscal health. Thus, the present study based on FPI scores has evaluated the fiscal progress of the17 non special-category (NSC) states using secondary data collected from the database of RBI and EPWRF (Economic and Political Weekly Research Foundation). The data is of panel nature spanning from 1990-91 to 2019-20. The entire study period is divided into 5 sub-periods viz. 1990 to 1995 (Period 1), 1996 to 2001 (Period 2), 2002 to 2007 (Period 3), 2008 to 2013 (Period 4), and 2014 to 2019 (Period 5) to see the transition in fiscal performance of the states. All the minor indices are calculated using simple average of six years for each sub-period and all fiscal parameters. Based on the FPI scores, it is observed that there is a large inter-state variation in terms of overall FPI scores as well as inter-component analysis.

1. Introduction

Mere analysis of budgetary trends and allocation of resources is not sufficient for a clear picture or scenario of an individual state to assess the developmental performance. The states are having differences in geographical size, resource endowment, demographic features, and level of socio-economic development (Ramji, et al 2001). Therefore, to get a wider and a comprehensive picture of a state, we need to analyze the state finances for the overall fiscal progress of states.

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In recent years, the analysis of public finance at both Centre and state levels gained more attention from researchers, academicians and policymakers. Conventionally, the Centre's finance in India was the prime focus of researchers as well as policymakers and state finance was almost neglected. However, in a federal structure, both the Centre and state finance have equal importance. Moreover, the study of state finances becomes more essential as the size of state's fiscal operations mounts equivalent to the central finances. In the literature, it is evidently recognized that the growth and development of a nation is closely related to the fiscal performance of the country (Mohanty and Mishra, 2016). Fiscal performance is an indicator outlining public sector balance in terms of both revenue and expenditure.

Keeping this in mind, the government of India has initiated many fiscal reforms since independence to achieve a balanced and more inclusive growth for strengthening the economy. However, major reforms took place in the aftermath of the economic crisis in 1991. The objective of these reforms was to increase revenue base of the governments through efficient taxation and improvement in quality of public spending. Vadra (2010) in her study suggested that fiscal reforms are critical to higher growth trajectory at sub national level in India. Similarly, Kopits (2001) made remark for Brazilian economy that the fiscal rules are crucial and challenging at sub national level for a country like Brazil where the goals of fiscal reforms cannot be achieved by the central government alone.

In India, the constitutional provisions assign an important role to the states in the development of nation through various programs of agricultural development, poverty alleviation, human development, providing physical infrastructure, etc. The constitutional provisions and role of state governments in development increase the size of their fiscal operations. The increase in fiscal operations leads to massive deficits in states' finance. Hence, fiscal reforms aiming at reduction in deficit and macroeconomic stability become crucial at sub national level (Mohanty and Mishra, 2016). Stephen, et al (2003) also emphasized the need for state-level reform and made remarks that India would not succeed in the reform process unless the states bring a sound fiscal position. Anand, et al (2002) also suggest that the fundamental weakness in state finance due to fiscal crisis needs structural reforms in the economy for removing such weakness. Therefore, the states should make efforts accordingly to improve the overall fiscal position and sustainability of the economy (Bhargava, 2002).

Considering the importance of state's fiscal position and its sustainability, the Tenth Finance Commission had used an index called the Tax Effort Index measured by the ratio of per capita own tax revenue of a state to its

per capita income as a criterion for horizontal devolution. As per this index, if two states show the same tax effort, the poorer state would get a relatively higher share because of the weight being taken as the inverse of per capita income. The Eleventh and Twelfth Finance Commission have also used this index with some modification as a criterion for the horizontal devolution of resources. As the Tax Effort Index was based on only tax efforts, the Eleventh Finance Commission included expenditure in its devolution criterion. The modified index devised by the Eleventh Finance Commission named the Fiscal Self-Reliance and Improvement Index (FSRII) to measure the fiscal discipline with 7.5 percent weight. It is measured by using the improvement of the ratio of own revenue receipt to total revenue expenditure of an individual state relative to the average ratio across all the states. According to this criterion, the state with better performance in revenue balance would receive a higher share in devolution. Twelfth finance commission with a changed reference period used the same criterion (Mohanty and Mishra, 2016).

Using fiscal prudence as a strong basis to incentivize the states, the Thirteenth Finance Commission continued the Fiscal discipline Index but discontinued the Tax effort Index as a criterion of devolution. However, it increases the weight of the index to 17.5 percent as compared to the combined weight of 15 percent given by the Eleventh and Twelfth Finance Commission. For using a single indicator based fiscal discipline measure, Dholakia (2005) criticized this criterion in her paper and suggested a composite index for the same. For composing an index, she used eight indicators for measuring the fiscal performance of states. In a similar attempt to measure the fiscal performance of the states, Das and Baig (2014) have used four indicators in their study. Apart from this, there are some other studies such as Emes (1999); Rangacheri (2001); Bhide and Panda (2002) and Venkatraman (2003) who used a composite index with multiple indicators to evaluate the fiscal performance of the Union and the state governments.

Based on the relevant literature, it is evident that many studies with past data have understood the relevance of a multi-dimensional approach for measurement of fiscal performanceat the national and sub national level in India, but evidence with recent data at sub national level seems limited. Therefore, recognizing the importance of a multi-dimensional approach for measurement of fiscal performance, the present study uses a composite index with eight indicators for evaluating the fiscal performance at the sub national level in India.

2. Objective and Motivation of the Study

The present study attempts to measure the fiscal performance at the sub-national level in India using a composite index called the fiscal performance index. Although fiscal discipline as a criterion for devolution

of resources from centreto the states is abolished since the Fourteenth Finance Commission,it is still relevant for the need to measure the fiscal health. Therefore, the majority of states are favoring this criterion for devolution of resources to the states. Moreover, the fiscal performance index helps to diagnose the fiscal health of the states. Thus, the present study based on FPI scores has evaluated the fiscal progress of the17 non special-category (NSC) states and categorized them into front-runner, achiever and aspirant states.

3. Fiscal Performance Index (FPI)

The objective of constructing FPI is to track the progress of Indian states in terms of fiscal indicators. The FPI scores and rankings for states are generated to assess the incremental performance (year-to-year progress) and overall performance (current performance). By doing this exercise, it is expected that it helps drive the states' efforts towards achievement of development goals. The composite index is an enabling tool for the state government to identify the parameters in which the concerned states have improved, stagnated or declined. The index provides the magnitude and direction of change at a composite level as well as at individual level of each indicator. The tracking of incremental progress of states not only helps in nurturing optimism amongst thestates that are historically lagging behind in fiscal performance and striving for significant improvements but also reduces gratification among states, which are forward in fiscal performance.

Moreover, the aim of constructing fiscal performance index is to accelerate the pace of achieving fiscal outcomes and to encourage cross-learning among them. The indexes are usually conceptualized as the game changer because it helps to shift the focus of the state from inputs, outputs and budgetary allocations to long-term fiscal outcomes. Further, it leverages co-operative federalism and facilitates states in focusing attention on more targeted interventions and improvement of fiscal outcomes.

3.1 Methodology of Constructing Fiscal Performance Index (FPI)

Measurement of performance using a composite index is a traditional method in the sense that it is used to construct the Human Development Index (HDI) by UNDP taking three core indicators. HDI is calculated using the relative distance method because it is multi-dimensional in nature and covers several indicators. The proposed FPI is also multi-dimensional in nature comprising four major domains. This index is an equal-weighted composite score incorporating eight indicators to estimate eight minor indices reflecting various facets of fiscal performance. These eight minor indices are grouped into four major indices, which are

Expenditure Quality Index, Revenue Efficiency Index, Deficit Index and Debt Stock Index. These four major indices have been combined to shape the FPI. The composite FPI is an equal-weighted average of various indicators grouped as major and minor indices. The index is calculated to measure the fiscal discipline of states for base years and reference years. The composite score of the final reference year (2019-20) provides overall performance while the change in an index score of each state from different base year to the different reference year measures the incremental performance of each state. The structure of the proposed FPI is depicted in table 1.

Table 1 : Structure of Composite FPI

Main	Major Indices	Minor Indices
Fiscal Performance Index	Expenditure Quality Index	Development Revenue Expenditure Index
		Development capital expenditure Index
	Revenue Efficiency Index	State Own Tax Revenue Index
		State Own Non-Tax Revenue Index
	Deficit Index	Gross Fiscal Deficit Index
		Revenue Deficit Index
	Debt Stock Index	Interest Payment to Revenue Receipt Index
		Outstanding Debt Ratio Index

Source : Author's own construction based on previous studies.

3.2 The Major and Minor Indices

The proposed FPI is the combined form of four major and eight minor indices. The indices are calculated using different indicators. The details of major and minor indices are as follows.

3.2.1 Expenditure Quality Index (EQI)

The expenditure quality is a matter of concern as it plays a significant role in development of the nation and

fiscal health of the states. The index is calculated based on two minor indices as follows:

(i) Developmental Revenue Expenditure Index (DREI): it is estimated by using ratio of developmental revenue expenditure (DRE) to revenue receipt (RR) of the concerned state (DRE/RR).

(ii) Developmental Capital Expenditure Index (DCEI): it is estimated as the ratio of developmental capital expenditure (DCE) to revenue receipt (DCE/RR).

The allocation of resources in the form of developmental expenditure on social and economic services is important because it spends to create social and physical infrastructure. The development expenditure generates positive externalities not only in the present but also for the future. The quality and efficiency of expenditure depend on its allocation and utilization respectively but it received less attention at the state level. This index is constructed to examine the composition of expenditure in total revenue available to the state. The higher portion of development expenditure to revenue receipt as revenue and capital expenditure shows the commitment of the government towards the development of state.

3.2.2 Revenue Efficiency Index (REI)

The revenue capacity of states is an important indicator for state finance evaluation as the entire development process depends on it. It consists of two minor indices as follows:

(i) State Own-Tax Revenue Index (SOTRI): it is estimated as the ratio of state own tax revenue to the gross state domestic product (GSDP) in a financial year (SOTR/GSDP).

(ii) State Own Non-Tax Revenue Index (SONTRI): it is calculated as the ratio of state own non-tax revenue to GSDP (SONTR/GSDP).

These two minor indices are estimated as the ratio to state GDP to examine the revenue generation capacity of the state. The higher ratio of these two indices indicates the increase in tax efforts and tax buoyancy of the state.

3.2.3 Deficit Index (DI)

The deficits of states are the excess of expense over its revenue. Keeping deficit in control is the biggest challenge for the states as the expenses of states are rising continuously as comparedto the increase in revenue. The deficit index is estimated using two minor indices given below:

(i) Gross Fiscal Deficit Index (GFDI): it is estimated as the ratio of gross fiscal deficit (GFD) to

the GSDP (GFD/GSDP).

(ii) Revenue Deficit Index (RDI): it is calculatedby taking ratio of revenue deficit (RD) to the GSDP of the concerned state (RD/GSDP).

The revenue deficit shows the difference between excess revenue expenditure over the revenue receipt of the states while the GFD is the total expenditure of the state over its revenue receipt and non-debt capital receipt. These two jointly define the deficit status of the states. The higher ratio of these two as a percentage of GSDP shows the fiscal vulnerability of states. Given the limited financial power and tax autonomy of sub national governments, it is essential to keep their deficit in control for better fiscal performance.

3.2.4 Debt Stock Index (DSI)

The debt stock of a state has an impact on economic growth, it affects the growth positively when the debt taken is used for capital formation through capital account. Further, the public debt of state government is increasing because it is being used for revenue expenditure, not for the capital expenditure. If it is used for the latter purpose, it will affect the growth positively and reduce the debt stock of the states (Das, 2016). Hence, assessment of the debt position of the state helps to understand the debt sustainability and fiscal stress of the states. The DSI is estimated using two minor indices as follows:

(i) Interest Payment to Revenue Receipt Index (IPRRI): it is estimated as a ratio of interest payment on debt stock (IP) to the revenue receipt (RR) of the state government (IP/RR). It is used as an indicator to examine the debt servicing position of the state.

(ii) Outstanding Debt Ratio Index (ODRI): it is calculated using a ratio of outstanding debt (debt stock) to the GSDP of the state (OD/GSDP). This index highlights the debt burden on the states.

These major and minor indices are estimated with the help of the relative distance method to construct the composite FPI. The relative distance method is described in the following sub-section.

3.3The Relative Distance Method

After collecting data on all fiscal parametersmentioned above, the composite FPI is calculated using the relative distance method. In 1989, this method was used in a project to calculate a multi-dimensional composite index called HDI by UNDP (Mohanty and Mishra, 2016-17). In this method, each indicator value is scaled or normalized from 0 to 1 based on the nature of the indicator. This method of calculating index is

unique in nature as it can take both positive and negative indicators simultaneously to construct a composite index. The index calculated for positive indicators is calledthe improvement index, while an index of negative indicators is known as the deprivation index. The scaled or normalized value of both indicators lies between 0 to 1, where 0 refers to the worst performance and 1 refers to the best performance. The formula for calculation of both the improvement and the deprivation index is given below as equations 1 and 2 respectively.

Improvement Index = ((X)– Minimum (X)) / (maximum (X) – minimum (X)) … **(1)**

Deprivation Index = (Maximum (X) – (X)) / (maximum (X) – minimum (X)) … **(2)**

Where, X refers to the actual value of the indicator of the state and Maximum (X) and Minimum (X) are the maximum and minimum values of the particular indicator of the states in a specified period.

In this study, for positive indicators such as DREI, DCEI, SOTRI and SONTRI, we have calculated the improvement index and the scaled or normalized value is assigned in a way that the state with the highest indicator value gets the highest scale value too. While, for negative indicators such as GFDI, RDI, IPRRI and ODRI, we construct the deprivation index, and the scale values for these indicators have been assigned in way, that the state with the lowest indicator value gets the highest scale value.

Thus, based on the above scaled or normalized values, eight minor indices are calculated. These minor indices have been assigned equal weights to create four major indices. Similarly, giving equal weights to all four major indices, a final composite index called FPIhasbeen calculated for the base years and the reference years. The major indices are derivedfrom the simple average of corresponding minor indices respectively. Likewise, the FPI is constructedfrom a simple average of corresponding major indices.

3.4 Data and Sources of Data

The present study is based on the secondary data collected from the database of RBI. In addition to this, the data is also taken from EPWRF (Economic and Political Weekly Research Foundation). The data is of panelnature spanning from 1990-91 to 2019-20 for non-special category (NSC) states. There are 18 NSC states as ofdate but, for the purpose of the study, the researcher is excluding the newly formed state Telangana, and considering 17 NSC states. The entire study period is divided into 5 sub-periods viz. 1990 to 1995 (Period 1), 1996 to 2001(Period 2), 2002 to 2007 (Period 3), 2008 to 2013 (Period 4), and 2014 to 2019 (Period 5)to see the transition in fiscal performance of the states.All the minor indices are calculated using simple average of six years for each sub-period and all fiscal parameters.

4. Empirical Analysis and Results

The composite FPI score and ranking of the statesare presented in table 2. The scores of all four major indices are given in Appendix 'A'. From table 2, it is evident that there is a large inter-state variation in fiscal performance as the gap between the scores of best and worst performer is around 0.5 in all five sub-periods. During period 1, Karnataka, Maharashtra and Goa were the top three performers in terms of fiscal performance. Karnataka and Maharashtra gained first and second position respectively in this period because their performance in DI and DSI was the best as compared to others while Goa gained third position due to being best performer in EQI and REI. The fiscal performance based on composite scores and inter-component variation justifies the use of multi-dimensional approach for assessment because using a single indicator for assessment of fiscal performance may lead to biased result. For instance, during period 1, for Haryana, the value of EQI was as low as 0.147, butthe value of DI and DSI is as high as 0.796 and 0.857 respectively. It implies that in terms of quality of expenditure the state is doing quite badly, but as far as the deficit and debt stock index is concerned its performance is far better than other states. The same is true for UP. In this period, Bihar, UP and Punjab were the least performers due to poor performance in major indices.

In period 2, the top 2 positionswere held by Karnataka and Maharashtra again but Goa slipped to fifth position. Again, the reason behind the best performance of these two states was their best position in DI and DSI whereas Gujarat gained the third position and improves its performance in terms of EQI and DSI. In this period, Punjab also improves its position, however, West Bengal, Bihar, and UP were the worst performers. In period 3, Chhattisgarh was the best performer and Goa and Karnataka were at second and third position respectively. Chhattisgarh gained the top position due to its best performance in DSI, DI and EQI. The reason behind the best performance in DSI and DI may be that it was a newly formed state. In this period, West Bengal, Punjab and Bihar were the bottom three states while UP improves its position due to better performance in terms of EQI, DSI and DI. Because of deterioration in terms of EQI and DSI, Gujarat was pushed down to tenth position from third position in Period 2, whereas Maharashtra slipped to eighth position from second position in the same period due to deterioration in DI and DSI. The reason for the deterioration in fiscal position of Gujarat may be that it faces a severe earthquake during that period.

Table 2 : Composite Fiscal Performance Index (FPI)

State	1990 to 1995		1996 to 2001		2002 to 2007		2008 to 2013		2014 to 2019	
	FPI	R 1	FPI	R 2	FPI	R 3	FPI	R 4	FPI	R5
Andhra Pradesh	0.608	6	0.464	9	0.542	9	0.512	8	0.423	13
Bihar	0.194	16	0.225	15	0.333	15	0.458	13	0.519	10
Chhattisgarh	0.604	8	0.526	7	0.688	1	0.675	1	0.709	2
Goa	0.646	3	0.568	5	0.669	2	0.587	2	0.654	4
Gujarat	0.605	7	0.596	3	0.536	10	0.497	11	0.566	7
Haryana	0.626	4	0.574	4	0.632	4	0.527	6	0.425	12
Jharkhand	0.194	16	0.225	15	0.600	5	0.517	7	0.521	9
Karnataka	0.662	1	0.654	1	0.656	3	0.582	3	0.657	3
Kerala	0.466	11	0.434	11	0.377	14	0.279	15	0.296	15
Madhya Pradesh	0.604	8	0.526	7	0.566	7	0.535	5	0.633	5
Maharashtra	0.661	2	0.603	2	0.555	8	0.502	9	0.556	8
Orissa	0.386	13	0.271	12	0.393	13	0.574	4	0.757	1
Punjab	0.343	14	0.267	13	0.321	16	0.237	16	0.130	17
Rajasthan	0.541	10	0.463	10	0.457	11	0.465	12	0.397	14
Tamil Nadu	0.618	5	0.565	6	0.572	6	0.498	10	0.455	11
Uttar Pradesh	0.264	15	0.260	14	0.400	12	0.417	14	0.619	6
West Bengal	0.401	12	0.224	17	0.136	17	0.124	17	0.224	16

Source: Author's calculation based on data of RBI's Handbook of Statistics on Indian States and EPWRF.

Note 1:R1- Rank of Period 1 (1990 to 1995),**R2**- Rank of Period 2(1996to 2001) **R3**- Rank of Period 3 (2002to 2007), **R4**- Rank of Period 4 (2008to 2013), **R5**- Rank of Period 5 (2014to 2019).

2. The value of Chhattisgarh and Jharkhand for period 1 and 2 is taken from their parent states Madhya Pradesh and Jharkhand respectively.

In period 4, the fiscal performance of the top three states remained the same as there is no change in their rankings. The fiscal performance of all the states was almost same except Orissa which gained fourth position from the thirteenth position in period 3. This improvement in performance of Orissa was due to an improvement in the scores of all four major indices of fiscal performance. In period 5, the performance of the states changed. Orissa, which was at fourth position in the previous period, improved its position as the top performer and secured first rank with an FPI score of 0.757. This happened again due to improvement in all four major indices of fiscal performance. In the same period, UP and Bihar improved their fiscal performance in terms of REI & DI and EQI & REI respectively and secured sixth and tenth positions from the fourteenth and thirteenth positions in the previous period respectively.

It is important to note that the best performers for the entire study period had achieved maximum FPI scores of 0.757 (Orissa in Period 5) as compared to the ideal value of 1. Further, richer states like Maharashtra and Haryana had a relatively high value of FPI during period 1, but by period 5, they slid down considerably. However, poor states like UP, Bihar and Orissa have performed quite well in terms of FPI scores during the study period.

The improvement and deterioration in the ranking of the states in terms of the FPI are presented in table 3 and 4. It is evident from table 3 that there is a large improvement and deterioration in the rankings of the state. Poor states like Bihar, Chhattisgarh, Orissa, and UP have improved their rankings continuously with some fluctuations. However, the rankings of the rich states such as Maharashtra, Haryana, and Tamil Nadu deteriorated considerably. In period 1 to 2, Gujarat improved its ranking by four notches however, states like West Bengal and Andhra Pradesh deteriorated by five and three notches respectively. In the second transition from period 2 to 3, Chhattisgarh and Jharkhand were the top improvers by 6 and 10 notches respectively. This improvement is mainly attributed to the rise in DI and DSI scores. In this transition period, Gujarat and Maharashtra witnessed a sharp drop of seven and six notches respectively. In the third transition from period 3 to 4, Orissa seems to be an interesting case.Being a poor state, it improved its position by nine notches.

Similarly, in the fourth transition from period 4 to 5, UP and Orissa being poor states show commendable improvement by eight and three notches respectively. In fact, Orissa becomes the top performer in the FPI ranking.

Table 3 : Improvement and Deterioration of Ranks

State	Transition 1 R1- R2	Transition 2 R2- R3	Transition 3 R3- R4	Transition 4 R4- R5
Andhra Pradesh	-3	0	1	-5
Bihar	1	0	2	3
Chhattisgarh	1	6	0	-1
Goa	-2	3	0	-2
Gujarat	4	-7	-1	4
Haryana	0	0	-2	-6
Jharkhand	1	10	-2	-2
Karnataka	0	-2	0	0
Kerala	0	-3	-1	0
Madhya Pradesh	1	0	2	0
Maharashtra	0	-6	-1	1
Orissa	1	-1	9	3
Punjab	1	-3	0	-1
Rajasthan	0	-1	-1	-2
Tamil Nadu	-1	0	-4	-1
Uttar Pradesh	1	2	-2	8
West Bengal	-5	0	0	1

Source : Based on table 2.

Note 1:R1- Rank of Period 1 (1990 to 1995),**R2**- Rank of Period 2(1996to 2001) **R3**- Rank of Period 3 (2002to 2007), **R4**- Rank of Period 4 (2008to 2013), **R5**- Rank of Period 5 (2014to 2019).

2. Positive and Negative sign shows improvement and deterioration in ranks respectively.

The overall transition orlarge-scale transition (at least by five or more notches) for the entire study period (from period 1 to 5) is depicted in table 4. It is evident from the table that the large-scale transition in terms of improvement is observed for Bihar (six notches), Chhattisgarh (six notches) Jharkhand (seven notches) Orrisa (twelve notches), and UP (nine notches). However, the large-scale transition in terms of deterioration is observed for Andhra Pradesh (seven notches), Haryana (eight notches), Maharashtra (six notches), and Tamil Nadu (six notches). The large-scale transition analysis suggests that the improvement in the FPI is larger in the poor states as compared to the rich states.

Table 4 : Overall Transition in Fiscal Performance from 1990-91 to 2019-20

State	R1- R5
Andhra Pradesh	-2
Bihar	6
Chhattisgarh	6
Goa	-1
Gujarat	0
Haryana	-8
Jharkhand	7
Karnataka	-2
Kerala	-4
Madhya Pradesh	3
Maharashtra	-6
Orissa	12
Punjab	-3
Rajasthan	-4
Tamil Nadu	-6
Uttar Pradesh	9
West Bengal	-4

Source : Based on table 2.

Note 1:R1- Rank of Period 1 (1990 to 1995),**R5**- Rank of Period 5 (2014to 2019).

2. Positive and Negative sign shows improvement and deterioration in ranks respectively.

5. Conclusion and Policy Implications :

The present study is an attempt to measure the fiscal performance at the sub national level in India. For this purpose, a composite index called the FPI is constructed for 17 NSC states using eight fiscal parameters (minor indices) grouped into four major indices. Based on the FPI scores, it is observed that there is a large inter-state variation in terms of overall FPI scores as well as inter-component analysis. The various components or parameters used to calculate the FPI itself suggest the severity of the states' fiscal condition. The best and the worst values or scores of the FPI help to understand the fiscal performance of the states. In our analysis, it is foundthat the poor states are performing well on the fiscal front as compared to the rich states. Moreover, the transition analysis of state rankings in terms of the FPI scores gives us an idea about the improvement and deterioration. For instance, Odisha, Chhattisgarh, UP, and Bihar have done tremendous efforts to improve their fiscal performance from bottom positions in the 1990s to top positionsin recent times. The construction of composite index for the evaluation of fiscal performance not only helps to track the progress of states and increases competition among them but also helps the top-performing states to negotiate with the institutional lender while borrowing. The states with higher FPI may negotiate for lower costs of borrowing while borrowing from an institution in auctions or during availing loans from external sources. Thus, the states with higher FPI scores may attract lenders with a lower rate of interest thereby reducing their cost of borrowing.

Finally, it can be added that the exercise of constructing the FPI is very comprehensive and illustrative in nature. However, the structure of the FPI maychange or restructure by adding other fiscal componentsto make it more comprehensive for analysis of fiscal situation.

Appendix: A

Major Indices of Fiscal Performance Index																				
	1990 to 1995				1996 to 2001				2002 to 2007				2008 to 2013				2014 to 2019			
State	**EQI**	**REI**	**DI**	**DSI**	**EQI**	**REI**	**DI**	**DSI**	**EQI**	**REI**	**DI**	**DSI**	**EQI**	**REI**	**DI**	**DSI**	**EQI**	**REI**	**DI**	**DSI**
Andhra Pradesh	0.570	0.729	0.477	0.656	0.398	0.605	0.286	0.566	0.728	0.703	0.343	0.395	0.562	0.784	0.345	0.359	0.648	0.434	0.063	0.547
Bihar	0.371	0.402	0.000	0.002	0.165	0.172	0.256	0.307	0.329	0.014	0.615	0.373	0.450	0.023	0.754	0.604	0.504	0.220	0.744	0.607
Chhattisgarh	0.491	0.479	0.711	0.737	0.428	0.283	0.632	0.761	0.582	0.279	0.936	0.955	0.541	0.317	0.844	1.000	0.596	0.713	0.555	0.970
Goa	0.729	0.810	0.678	0.367	0.155	0.735	0.663	0.720	0.791	0.700	0.526	0.660	0.672	0.637	0.487	0.551	0.402	0.940	0.694	0.581
Gujarat	0.647	0.436	0.671	0.664	0.908	0.303	0.476	0.697	0.755	0.229	0.570	0.591	0.791	0.157	0.525	0.516	0.639	0.204	0.752	0.668
Haryana	0.147	0.704	0.796	0.857	0.436	0.382	0.713	0.763	0.352	0.422	0.909	0.844	0.826	0.182	0.369	0.730	0.753	0.314	0.165	0.469
Jharkhand	0.371	0.402	0.000	0.002	0.165	0.172	0.256	0.307	1.079	0.114	0.254	0.955	0.496	0.165	0.667	0.738	0.553	0.287	0.541	0.702
Karnataka	0.557	0.269	0.872	0.950	0.495	0.167	1.000	0.955	0.589	0.252	0.821	0.959	0.709	0.147	0.630	0.843	0.666	0.424	0.655	0.884
Kerala	0.365	0.239	0.644	0.618	0.280	0.186	0.616	0.653	0.309	0.164	0.395	0.641	0.180	0.146	0.291	0.499	0.068	0.483	0.225	0.408
Madhya Pradesh	0.491	0.479	0.711	0.737	0.428	0.283	0.632	0.761	0.706	0.285	0.592	0.682	0.373	0.317	0.768	0.684	0.596	0.543	0.596	0.798
Maharashtra	0.535	0.317	0.865	0.927	0.507	0.214	0.842	0.849	0.642	0.207	0.590	0.783	0.556	0.126	0.643	0.683	0.278	0.405	0.735	0.806
Orissa	0.717	0.106	0.440	0.279	0.724	0.041	0.070	0.248	0.153	0.177	0.812	0.431	0.333	0.237	0.954	0.772	0.685	0.543	0.875	0.926
Punjab	0.372	0.442	0.291	0.265	0.185	0.277	0.346	0.259	0.074	0.465	0.316	0.429	0.117	0.238	0.262	0.329	0.084	0.405	0.031	0.000
Rajasthan	0.572	0.287	0.671	0.633	0.759	0.135	0.483	0.475	0.709	0.237	0.443	0.439	0.529	0.215	0.579	0.539	0.691	0.422	0.034	0.440
Tamil Nadu	0.500	0.318	0.675	0.976	0.215	0.234	0.899	0.913	0.342	0.262	0.777	0.905	0.428	0.190	0.580	0.793	0.381	0.399	0.385	0.657
Uttar Pradesh	0.096	0.167	0.415	0.379	0.303	0.079	0.339	0.318	0.656	0.167	0.376	0.403	0.397	0.226	0.557	0.490	0.431	0.765	0.783	0.498
West Bengal	0.441	0.148	0.534	0.482	0.583	0.028	0.000	0.285	0.390	0.029	0.053	0.072	0.474	0.002	0.012	0.007	0.365	0.049	0.364	0.118

Source: Author's calculation based on data of RBI's Handbook of Statistics on Indian States and EPWRF.
Note: EQI- Expenditure Quality Index, REI- Revenue Efficiency Index, DI- Deficit Index and DSI- Debt Stock Index.

REFERENCES

- Anand, M; Bagchi, A and Sen, Tapas K (2002). Fiscal Discipline at the State Level: Perverse Incentives and Paths to Reform. National Institute of Public Finance and Policy, New Delhi
- Mohanty, A. R. and Mishra, B. R. (2016). Fiscal Performance Index of the States in India. Prajnan, XLV(3), 247-266.
- Bhide, S and Panda, M (2002). Evaluating Quality of Budgets with a Composite Index. Economic and Political Weekly,37(13), 1177-1180.
- Das, B. K. and Baig, M. I. (2014). India's State Finances; Declining Debt but Weak Fundamentals. Deutsche Bank Research, January 30.
- Das, P. (2016). Debt Dynamics, Fiscal Deficit, and Stability in Government Borrowing in India: A Dynamic Panel Analysis (ADBI Working Paper 557). Tokyo: Asian Development Bank Institute.
- https://www.adb.org/sites/default/files/publication/181400/adbi-wp557.pdf
- Dholakia, A. (2005). Measuring Fiscal Performance of States: An Alternative Approach. Economic and Political Weekly, 31 (30), 3421-3428.
- Emes, J. (March 1999). Fraser Institute Fiscal Performance Index. (A Fraser Institute Occasional Paper, No. 20). Canada.
- https://www.fraserinstitute.org/sites/default/files/FiscalPerformanceIndex1999.pdf
- Kopits, G. (1999). Fiscal Policy Rules in India. Economic and Political Weekly, March 3, 749-756.
- Ramji, V. Suresh, S. and Srinivasan, V. K. (2001). A Study on Management of Public Expenditure by State Governments in India. The Indian Institute of Economics.
- Rangachari, A. (2001, December 31). Towards an index of fiscal responsibility. The Hindu
- Stephen, H., Lahiri, A. K. and Stern, Nicholas (2003). State-Level Reforms in India: Towards More Effective Government. Delhi, India: Macmillan India Ltd.
- UNDP, (2021-22). Technical Notes: Calculating the human development indices. United Nation Development Program.
- https://hdr.undp.org/sites/default/files/2021-22_HDR/hdr2021-22_technical_notes.pdf
- Vadra, R. (2010). State Finances in India: Problem and Prospect. International Journal of Management Research. November, pp 43-53.
- Venkatraman, K. (2003). Towards a Fiscal Responsibility Index: Some Preliminary Analysis. Vishleshan, 28(4), October-December.

External Debt of India

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Introduction

When Britishers left India, they owed 700 million British pounds to India and Pakistan. after independence, opted for a model of development characterised by what was then perceived as self-reliance. Hence, till the early 1980s, external financing was confined to external assistance through multilateral and bilateral sources, mostly on concessional terms to or through government. In the 1980s, global developments, particularly the perceptible decline in the availability of official concessional flows in relation to the external financing needs of developing countries, changed the external sector situation at a time when India was initiating liberalisation. The compulsory repayments to the IMF during the late 1980s (of the Extended Fund Facility withdrawals in the early 1980s) added to the problems. Hence, recourse to external debt on commercial terms became inevitable. In addition to institutional sources (such as export-import agencies), syndicated loans and bonds, and deposits from non-resident Indians, were accessed. These had to be supplemented in the late 1980s with significantly large recourse to short-term facilities including, in particular, short-term non-resident deposits. Most of these liabilities were on account of government or government-owned enterprises or government-owned financial institutions.

The object of this paper is to trace the different features of external debt of India including quantum of external debt , ratio to GDP, debt service ratio, ratio of forex to debt, ratio of concessional debt, ratio of short term debt to forex and ratio of short term debt to total..

Data and methodology

For analysing above variable the study period is from 2006 to 2022. The periodicity of data is end March 2006 to End march 2022 covering 17 years.

The source of data is Reserve Bank of India annual publication , ' Handbook of Statistics of Indian Economy' The data on volume of External debt is in Billion US Dollars.

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Review of Literature

The impact of external debt on economic growth is has been a matter of debate , especially to the extent the mechanism through which it impacts .

According to Cohen (1995), the (efficient) servicing of the debt crowds *in* investment. The paper relates this result to the 'debt overhang' argument according to which too large a nominal claim may reduce investment and the market value of the debt.

According to Enrique R. Casares ercg(2015), "The domestic interest rate equals the world interest rate plus the country risk premium. The country risk depends positively on the level of external public debt. Households can borrow abroad and have an external credit constraint. An inverted U-shaped nonlinear relationship between the external public debt to GDP ratio and the growth rate is obtained in the steady state. There is empirical evidence showing the existence of this non-linearity between public debt and growth, for both developing and developed countries." uncertainty arising out of large debt stock could reduce investment, output,consumption and hours worked/employment .2016; Basu & Burdick 2015; Leduc & Lie, 2016).

The debt GDP ratio is one of the most used indicator for evaluating the country's economic health. The other parameters are short term and long term debt. The rate of interest is critical factor in evaluating debt burden. There is another point , the debt in country's own currency or foreign currency too is noteworthy. If the country's own currency has a volatility then valuation changes are important.

Salient features of External Debt of India

As per different reports of the Reserve bank of India , the External debt of India has following salient features.

(i) At end-March 2022, India's external debt was placed at US$ 620.7 billion, recording an increase of US$ 47.1 billion over its level at end-March 2021).

(ii) The external debt to GDP ratio declined to 19.9 per cent at end-March 2022 from 21.2 per cent at end-March 2021.

(iii) There was a decline owing to valuation gain, due to the appreciation of the US dollar vis-à-vis Indian

rupee and major currencies such as yen, SDR2, and euro were placed at US$ 11.7 billion. Excluding the valuation effect, external debt would have increased by US$ 58.8 billion instead of US$ 47.1 billion at end-March 2022 over end-March 2021.

(iv) The long term debt has increased. At end-March 2022, long-term debt (with original maturity of above one year) was placed at US$ 499.1 billion, recording an increase of US$ 26.5 billion over its level at end-March 2021.

(v) There was an increase in short term debt also. The share of short-term debt (with original maturity of up to one year) in total external debt increased to 19.6 per cent at end-March 2022 from 17.6 per cent at end-March 2021. Similarly, the ratio of short-term debt (original maturity) to foreign exchange reserves increased to 20.0 per cent at end-March 2022 (17.5 per cent at end-March 2021).

(vi) Short-term debt on residual maturity basis (i.e., debt obligations that include long-term debt by original maturity falling due over the next twelve months and short-term debt by original maturity) constantituted 43.1 per cent of total external debt at end-March 2022 (44.1 per cent at end-March 2021) and stood at 44.1 per cent of foreign exchange reserves (43.8 per cent at end-March 2021)

(vii) US dollar denominated debt remained the largest component of India's external debt, with a share of 53.2 per cent at end-March 2022, followed by debt denominated in the Indian rupee (31.2 per cent) . The debt in other currencies was less than 10 percent

(viii) The share of outstanding debt of non-financial corporations in total external debt was the highest at 40.3 per cent, followed by deposit-taking corporations (except the central bank) (25.6 per cent), general government (21.1 per cent) and other financial corporations (8.6 per cent).

(ix) Loans remained the largest component of external debt, with a share of 33.0 per cent, followed by currency and deposits (22.7 per cent), trade credit and advances (19.0 per cent) and debt securities (17.1 per cent).

(x) Debt service (i.e., principal repayments and interest payments) declined to 5.2 per cent of current receipts at end-March 2022 as compared with 8.2 per cent at end-March 2021, reflecting lower

repayments and higher current receipts. (RBI June 2022)

(xi) India's debt market is being progressively opened up to the foreign capital .In budget , the government announced a list of government securities that are fully opened to foreign investors without a limit under Fully Accessible Route (FAR). RBI on February 10, 2022 enhanced the investment limit under the Voluntary Retention Route (VRR) by 1 lakh crore. Efforts are underway for a possible inclusion of Indian G-sec in global bond indices.

Summary Statistics, using the observations 2006 - 2022

Variable	Mean	Median	Minimum	Maximum
External Debt US Billion $	400.66	446.20	139.10	620.70
RatioofExternalDebttoGDP	20.429	20.100	17.100	23.900
DebtServiceRatio	6.5000	6.0000	4.4000	10.100
RatioofForeignExchangeReserve	91.982	85.600	68.200	138.00
RatioofConcessionalDebttoTotal	13.376	10.400	8.3000	28.400
RatioofShorttermDebttoForex	21.835	22.400	12.900	33.100
RatioofShorttermDebttoTotal	19.165	19.300	14.000	23.600
Variable	**Std. Dev.**	**C.V.**	**Skewness**	**Ex. kurtosis**
ExternalDebtUSBillion$	152.14	0.37971	-0.32697	-1.2139
RatioofExternalDebttoGDP	2.0715	0.10140	0.24688	-0.86477
DebtServiceRatio	1.6715	0.25715	0.54542	-0.63114
RatioofForeignExchangeReserve	19.605	0.21314	0.70686	-0.30569
RatioofConcessionalDebttoTotal	6.0035	0.44881	1.1784	0.34882
RatioofShorttermDebttoForex	5.5976	0.25636	0.18546	-0.62316
RatioofShorttermDebttoTotal	2.1723	0.11335	-0.39711	0.69540

Model 1: OLS, using observations 2006-2022 (T = 17)
Dependent variable: ExternalDebtUSBillion
Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	*Std. Error*	*z*	*p-value*	
constant	133.640	11.9192	11.21	<0.0001	***
time	29.6694	1.14046	26.02	<0.0001	***

Mean dependent var	400.6647		S.D. dependent var	152.1361
Sum squared resid	11175.70		S.E. of regression	27.29554
R-squared	0.969822		Adjusted R-squared	0.967810
F(1, 15)	676.7934		P-value(F)	6.79e-14
Log-likelihood	−79.27236		Akaike criterion	162.5447
Schwarz criterion	164.2112		Hannan-Quinn	162.7104
rho	0.673234		Durbin-Watson	0.610386

The external debt increased about 30 Billion Us Dollar each year

Model 2: OLS, using observations 2006-2022 (T = 17)

Dependent variable: RatioofExternalDebttoGDP

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	*Std. Error*	*z*	*p-value*	
constant	18.7860	0.817297	22.99	<0.0001	***
time	0.182598	0.0759309	2.405	0.0162	**

Mean dependent var	20.42941		S.D. dependent var	2.071462
Sum squared resid	55.05174		S.E. of regression	1.915755
R-squared	0.198143		Adjusted R-squared	0.144686
F(1, 15)	5.783028		P-value(F)	0.029547
Log-likelihood	−34.10997		Akaike criterion	72.21993
Schwarz criterion	73.88636		Hannan-Quinn	72.38558
rho	0.641797		Durbin-Watson	0.673383

The ratio of external debt to GDP indicates growth rate of 0.18 percent each year in the study period.

Model 3: OLS, using observations 2006-2022 (T = 17)

Dependent variable: DebtServiceRatio

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	*Std. Error*	*z*	*p-value*	
constant	5.80956	1.22590	4.739	<0.0001	***
time	0.0767157	0.108893	0.7045	0.4811	

Mean dependent var	6.500000	S.D. dependent var	1.671451	
Sum squared resid	42.29880	S.E. of regression	1.679262	
R-squared	0.053718	Adjusted R-squared	-0.009367	
F(1, 15)	0.496324	P-value(F)	0.491914	
Log-likelihood	−31.87009	Akaike criterion	67.74018	
Schwarz criterion	69.40661	Hannan-Quinn	67.90583	
rho	0.105908	Durbin-Watson	1.300178	

The positive sign indicate that debt service ratio too has increased.

Model 4: OLS, using observations 2006-2022 (T = 17)

Dependent variable: RatioofForeignExchangeReserve

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	*Std. Error*	*z*	*p-value*	
constant	111.017	8.80101	12.61	<0.0001	***
time	−2.11495	0.873314	−2.422	0.0154	**

Mean dependent var	91.98235	S.D. dependent var	19.60492	
Sum squared resid	4324.654	S.E. of regression	16.97970	
R-squared	0.296764	Adjusted R-squared	0.249881	
F(1, 15)	5.864884	P-value(F)	0.028582	
Log-likelihood	−71.20238	Akaike criterion	146.4048	
Schwarz criterion	148.0712	Hannan-Quinn	146.5704	
rho	0.793790	Durbin-Watson	0.482659	

The foreign exchange reserve to external debt has also decreased.

Model 5: OLS, using observations 2006-2022 (T = 17)

Dependent variable: RatioofConcessionalDebttoTotal debt

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	*Std. Error*	*z*	*p-value*	
constant	22.9147	1.86997	12.25	<0.0001	***
time	−1.05980	0.173126	−6.122	<0.0001	***

Mean dependent var	13.37647	S.D. dependent var	6.003492	
Sum squared resid	118.4114	S.E. of regression	2.809643	
R-squared	0.794664	Adjusted R-squared	0.780975	
F(1, 15)	37.47364	P-value(F)	0.000020	
Log-likelihood	−40.62004	Akaike criterion	85.24008	
Schwarz criterion	86.90651	Hannan-Quinn	85.40573	
rho	0.689522	Durbin-Watson	0.296229	

The negative sign of concessional debt shows that the quantity of concessional debt is declining.

Model 6: OLS, using observations 2006-2022 (T = 17)

Dependent variable: RatioofShorttermDebttoForex

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	*Std. Error*	*z*	*p-value*	
constant	17.7434	2.57091	6.902	<0.0001	***
time	0.454657	0.246223	1.847	0.0648	*

Mean dependent var	21.83529	S.D. dependent var	5.597649	
Sum squared resid	417.0000	S.E. of regression	5.272570	
R-squared	0.168227	Adjusted R-squared	0.112776	
F(1, 15)	3.409656	P-value(F)	0.084640	
Log-likelihood	−51.32087	Akaike criterion	106.6417	
Schwarz criterion	108.3082	Hannan-Quinn	106.8074	
rho	0.779329	Durbin-Watson	0.414152	

The short term debt has positive sign as a ratio of forex.

Model 7: OLS, using observations 2006-2022 (T = 17)

Dependent variable: RatioofShorttermDebttoTotal Debt

Heteroskedasticity-robust standard errors, variant HC1

	Coefficient	*Std. Error*	*z*	*p-value*	
constant	18.5757	1.45900	12.73	<0.0001	***
time	0.0654412	0.119328	0.5484	0.5834	

Mean dependent var	19.16471		S.D. dependent var	2.172251
Sum squared resid	73.75154		S.E. of regression	2.217379
R-squared	0.023143		Adjusted R-squared	-0.041981
F(1, 15)	0.300758		P-value(F)	0.591477
Log-likelihood	−36.59561		Akaike criterion	77.19122
Schwarz criterion	78.85764		Hannan-Quinn	77.35686
rho	0.478815		Durbin-Watson	0.750297

The short term debt to total debt is also positive.

The International Comparison

It is not improper if India's External debt to GDP ratio is compared with other countries of the world. The following table shows the comparison of year 2014 and 2021 of various countries. Many countries have higher external debt :GDP ratio. Japan tops the list . Even USA and UK have higher ratio. The growth ratio has also been calculated.

Country	% of GDP 2021	% of GDP 2014	Growth over 2014
Japan	262.5	233.5	1.12
Venezuela	240.5	84.8	2.84
Greece	199.4	181.8	1.10
Italy	150.8	135.4	1.11
United States	128.1	104.5	1.23
Portugal	127.4	132.9	0.96
Spain	118.5	105.1	1.13
Canada	112.9	85.6	1.32
France	112.6	94.9	1.19

Belgium	108.4	107.0	1.01
United Kingdom	103.8	86.5	1.20
Cyprus	103.6	109.1	0.95
Mauritius	99.1	62.0	1.60
Brazil	92.3	61.6	1.50
Egypt	89.2	84.0	1.06
Saint Vincent and the Grenadines	88.4	75.1	1.18
Montenegro	86.6	63.4	1.37
India	84.2	67.1	1.25

Conclusion

Though India is in comfortable position than many countries, the external debt burden has certainly increased both in terms of absolute value and in terms of ratio of GDP. Each year we add approximately 30 billion US dollars as a liability of external debt.But the ratio of external debt to GDP has increased vehemently since 2014, especially 2014 to 2018. The ratio of external debt to foreign exchange reserves was 68 percent only has now increased to 97 percent indicating a serious situation. The other measures to sum up much is to be done in the field of external debt . The policy makers need to think seriously about the growing external debt scenario which may be a burden on future generation.

- **References**

- Cohen Daniel , (1995) , ' Large external debt and (slow) domestic growth a theoretical analysis ' Journal of Economic Dynamics and Control, Volume 19, Issues 5–7, July–September 1995, Pages 1141-1163
- Enrique R. Casares ercg(2015) ' A relationship between external public debt and economic growth' Estudios Económicos (México, D.F.), vol. 30, no. 2, pp. 219-243, 2015El Colegio de México, A.C.
- Basu, Susanto and Bundick Brent. 2017. “Uncertainty stocks in model of effective demands.” Econometrica, Volume-85, No-3. 937-958.
- RBI Bulletin(May 2022) 'Growth Maximising External Debt of India ' 03AR _17052 022 2D482C14C 2894057886D 8F1AEDD

Food Wastage problem and Remedies : An Analytical study

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The biggest issue in the world right now is food waste, and if we don't pay attention to it in the future, it could get much worse. According to a global report, the UNO estimates that 923 million tons or 23 million trucks with 40 tons of food apiece, are thrown away each year. According to estimates, 17% of the food that was available to our markets, businesses, homes, and restaurants was wasted. Therefore, it is a major issue because so many developing nations, including India, Pakistan, Bangladesh, Sri Lanka, and many more nations in the rest of the world, are involved. Many people live in poverty and lack any kind of structure to help them.

Another report from the World Resources Institute (WRI) in collaboration with the Rockefeller Foundation and the UN's Food and Agriculture Organization (FAO) stated that due to improper storage, transportation, estimation of the amount of cooked food needed, and traditional festival cooking for weddings and other social functions, etc., about one-third of all food produced each year goes uneaten, costing the world economy 1.3 billion tones. Every day, a sizable amount of food is lost or wasted in every nation, from the farm to the household, along the entire supply chain. Every fourth calorie of food that is meant for people is not actually consumed by them.

In addition to the financial expenses, food loss has a big influence on climate change, environmental preservation, and food security. And as a result of this enormous waste, many animals that could have been saved by eating vegetarian food instead ended up dying from consuming non-vegetarian food.

Country like India has the second-largest population in the world. In 2022, the government announced that about 21.2% of the Indian population in rural area and 5.5 percent of the population in urban areas lives below the poverty line. So seeing these figures we can say the problem of the food wastage in country like India is just like to say our major population to sleep without dinner. So our food wastage habit crates starvation problem for poor's. It is estimated that saving 1/4th of the food currently lost or wasted globally would be enough to feed 870 million hungry people in the world.

In light of the aforementioned circumstances, we may conclude that food waste is a difficult issue in India as

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well as the rest of the world. We waste food in so many ways. For example, we waste a lot of food during weddings and other special occasions because we manufacture so many products to pump up and display. Sometimes there are so many items at weddings that guests are unable to test them all. We harvest cereal grains using really outdated machinery this is also a source of food wastage. Some of our food is wasted because our transportation infrastructure does not meet international standards.

In all of the above we waste a lot of food during the processing, packaging, storing and consumption processes. Cooked food waste occurs frequently in our restaurants, hostels, food vender's shops, wrong packaging and homes because of wrong estimation of requirement. Sometimes lot of food wastage due to not taking decisions about extra cooked food in time. By gathering the food and giving it to those in need, numerous organizations and NGO throughout the nation are attempting to eliminate this food waste. The majority of them work in metropolitan areas, yet they are all dispersed, and rural areas have a higher rate of starvation than urban areas. The majority of the time, India's impoverished still relies on luck to be able to obtain a decent dinner. So, beside the above discussion we can say the food wastage is a major problem of the world which required a fast and technical sound solution to save it.

Effects of Food Waste :

Without food we cannot survive for a long time because it is very important to humans. Nature produces enough quantity of food for human being but due to food wastage we created problem of starvation for our self.Hence, we can say it is a problem for them when food seeds are wasted. Some of the costs associated with producing food include land, water, labor, energy, and money. On the basis of aWorld Bank report 2020 Over 70% of the water is used for agriculture, and over 50% of the livable land is used for food productionthe majority of people are working in the agricultural industry in developing nations like India with large agricultural populations. When we throw away food, we actually throw away all the resources needed to produce it.

Wastage of Fertile Land Area and Water :

If we do wastage of food, it is wastage of water and land area also which is used for production for food. As was already mentioned, approximately one-third of the land is used to grow food that is wasted. Or, to put it another way, because of food waste, we are essentially wasting 33% of the fertile land. This land might have

been utilized for other things, like agricultural research, roads development, and industrial development. Additionally, 24% of freshwater is lost due to food waste, despite the fact that millions of people worldwide lack access to safe drinking water.

Decrease in Forest Cover :

For increasing population of the world, we are trying to produce more and more food grains for that purpose we are cutting our forest to increase our agriculture land. According to research between 1990 and 2015, the world's forests shrank from 31.6% of the world's land area to 30.6%. The loss of 1% of the forest cover within 25 years is concerning. Furthermore, it has been made clear that the primary cause of deforestation is the spread of agriculture. There are numerous negative effects of deforestation on the environment. Losing trees accelerates climate change, causes floods, increases greenhouse gas emissions, and causes soil erosion.

Loss of Biodiversity :

The need for food is rising along with the human population, and we need more land to produce more food. There isn't enough land available for food production because about half of it is already dedicated to food production. As a result, we are compelled to clear forests in order to use that area for agriculture. Deforestation reduces the natural habitats of birds, water livings, and animals of forest and pet, which leads in a loss of biodiversity because there is less room for wildlife to exist.At present due to environmental pollution many species are on the verge of extinction.

Increases Class struggle :

Food wastage of rich people create class struggle in society the whole society may divide into two parts haves or haves not and it may be possible that this condition may become lead to class struggle in the society.

Possibilities of spreading diseases :

when the food spoils generally it threw somewhere. This spoils food develops harmful bacteria in it after some time that may be cause of diseases. When this food is eaten by any bagger or cattle it may also a cause of diseases.

Climate ChangeLong-term Effect :

Carbon dioxide is released when food is composted, but methane, which warms the earth 25 times more than carbon dioxide, is emitted when food is disposed of in landfills. Food's impact on climate change is becoming more and more obvious as more and more food is thrown into landfills.

Food Waste and social impact:

Food wastage have social impact also Because there is a limited amount of food due to the scarcity of available land, many people experience food insecurity when those of us who can afford it consume an excess of it. Over 820 million people worldwide experience food insecurity. And in Indian philosophy What sin does a hungry person can not do?So, starvation problem is the grass root problem of many crimes which affect our society.

Political effects :

Food wastage have some political effects also if government in not taking any action against food wastage than this will be create starvation problem in the country and finally it may be a cause of the government change in democratic country. Sometimes wastage of food grain or worst food grain distribution also become a political agenda for the opposition parties which may disturb the image of the government.

Economics Losses :

Food wastage have a lot of economic effect also Each year, trillions of dollars are lost due to food waste.The cost comprises not only the expenses incurred during the food production phase, but also the environmental and social costs that emerge from the exploitation of natural resources and the cost of healthcare.

Benefits of Reducing Food Wastage :

on above discussion we can say that the wastage of the food is a very serious problem in the world and most of the country is affected with this problem in less or large scale. So, food wastage should reduce as more as

possible to save our society. Some of the benefits of reduction of the wastage of food grain can be describe in above points.

Reduction in Gender Disadvantage :

In Developing country like India most of the woman have to take care of the houses in stand of the doing job. Environmental deterioration, natural disasters, and poverty all have a discriminatory element to them. These issues disproportionately affect women because of patriarchy and the caregiving and domestic duties that women perform. Women frequently have to make sacrifices when it comes to their health, education, nutrition, and other issues since food waste results in a loss of cash. This can be properly addressed by addressing food waste. Furthermore, they would have to work on the fields for less time while earning the same amount of money.

Environmental factors :

If we want to save our environment, we must check our food wastage Food waste reduction can lessen the requirement for more agricultural land. As a result, there may be less deforestation, which is beneficial for preserving biodiversity, preventing desertification, and sequestering carbon. Food waste reduction will help lessen the load on landfills, preventing methane emissions. Additionally, less food waste means less food needs to be grown, which leads to soil and water conservation and gives nature a chance to recuperate.

Alleviation of poverty :

poor people have a problem to arrange nutritional food because of the poverty. An enormous amount of food is wasted in world as a result of post-harvest crop loss. Farmers' incomes can increase if this is avoided since they may have a surplus harvest to sell. If farmer income increases than it will be a very positive impact on alleviation of the poverty in rural area Additionally, it lowers value-chain losses, which lowers costs for processors, retailers, and ultimately for each unit of food produced or harvested. In order to maintain future food security, food waste must be reduced.

Remedies to Reduce Food Wastage :

1.Our farmers got good crops but due to lack of proper storagefacility some of the food grain gets worse to

save this they should give the training of evaporative coolers retain food at temperatures lower than room temperature without the need of power, extending the shelf life and preventing rotting. In locations without an adequate infrastructure for electricity or where there are small-scale farmers, this low-cost, low-energy method offers the chance to keep perishable crops for longer. In developing countries farmers are poor so this technique will help them to save foodgrain.

2. farmers have a very poor storage facility of the food grain and due to this problem, some of the food grain eaten by rates and other insects. Farmers lose a lot of food due to inadequate storage, particularly in developing nations where harvesting crops is frequently not kept in a hermetic or airtight environment. To solve this problem small metal silos (kothi), which are typically used by one farmer or one household and carry 200–1000 kg of crops, can be a useful tool for decreasing food loss during the storage stage, especially for cereals and pulses.

3. Now a days a lot of the plastic bags and crates are used to transport food grains, vegetable, fruits and other eatable item to reduced wastage of it. Food losses during handling and storage have been shown to be significantly reduced when using plastic crates instead of other types of containerization, especially for fruits, vegetables, and other fresh products.

4.If there is an excess of the cooked food is over there due to wrong estimation of guest in wedding and other event Programs for food donation or redistribution can help cut down on food loss and waste. The government as well as NGO and other social groups can establish a programmer to collect food from all sources and set up a shelter where the hungry can come and eat themselves for free or at a reduced cost. in order to reduce the amount of prepared food that is wasted. By doing this, they avoid having to look for the hungry people who may be hiding out in a remote area and wouldn't benefit from the service if not present at a specific time or who may not come out and remain undernourished out of pride.

5.Their exacting criteria, which in some cases grade various fruits and vegetables based on characteristics like size, shape, texture, and ripeness, are impacted by customer behavior. Although they are not obligated to, retailers frequently employ these classifications and only carry higher grade produce.

6. Customers should make an effort to shop locally whenever feasible (shorter supply chains mean fewer potential for loss), plan their meals better, learn more about date labelling, and only throw away food when it

is absolutely unusable. They can compost, which is much better. By keeping garbage out of landfills, composting lowers methane emissions. The FAO estimates that household composting has the potential to divert up to 150 kg of food waste each year.19. Dispose of the food that has been cooked and spoiled as a result of poor storage. By doing this, you would contribute to protecting the environment. Reuse the food that is already on hand and try out new ingredients to improve dishes and cut down on waste.

7. All the packed food must have a label mentioned dates such as "use-by," "sell-by," and "best before" that are written on the packaging of food and beverages are meant to alert consumers about the freshness and safety of the food. These ostensibly straightforward dates, however, might really perplex customers on how long it is safe for them to retain food and when they should discard uneaten products. Government can make a provision to distribute those of the product which is just near to expiry date to poor's so that food do not waste at any cost.

8.Given that larger portions increase the possibility that a customer won't finish the food they buy, the size of food portions for restaurants and other foodservice providers can determine by the research per unit average consumption by male and female in lunch and dinner so the size of the meal should be according to the average doing so we can save a lot of the food wests.Extra should be given if required by the customer. There should be an audit of how much food is wasted inside the walls of their establishments. Directly and indirectly reducing consumer portion sizes can reduce food waste while also costing food producers less money.

9. The food sector may make it easier for consumers to understand whether food is still safe to eat by streamlining date labelling. Additionally, public education and awareness efforts on food waste are essential for altering consumer attitudes and habits. Private initiatives can also make a difference.

10. A lot of food wests in our home due to wrong estimation of the diets. How much food is wasted in households is mostly influenced by consumer attitudes and behavior. Communication efforts can assist change consumer behavior at the home level, even if changing how individuals eat and discard food can be challenging.

11.In our weddings and other social festivals lots of food do wastage because of cooking so many items to pump and shows. In modern marriages some of the people order to cook a lot of items even one can not test all

of them so there is a huge wastage of foods so by the social awareness the limits of the items should be finalized and no one should allow to cooks more than limit allowed to him. It will decrease food wastage.

12.There should be an awareness among people about not to waste food ITNA HI LO THALI ME JUTHA NA JAYE NALI ME so people may aware about the food wastage. In so many societies when any religious festival and any PRASHADIevents is over their no one want to waste food saying prasad this thinking must spread saying every seed of the food grains wastage is the disobey of the god of food grain. This type of social awareness will crate a miracle to reduce wastage of the food grain in our home and parties.

13. Buffet systems are now more prevalent in weddings and other events to save money, however because there are fewer stalls, people typically take more food to go and this also causes issues. People are tempted to purchase more than they can consume by all-you-can-eat buffets and buy-one-get-one specials, and because they have extra money, they can afford to throw the leftovers away.

14.There should a concession given by the restaurants and hotels those of the customers who do not waste any type of the food. If people feel economic benefit of not keeping leave food on the plate they will order as per their requirement.

15. Both consumers and businesses want to have a wide range of options. Unfortunately, because products are more likely to reach their "sell-by" dates while staying on the shelf, shelf stuffing promotes waste. Markets then have to get rid of the excess, and a lot of it is just thrown away.

16.Government and other social institutions must spread demerits of the leaving food to the people of the society. There should be the law of If no one gets involved, no matter how hard the government and groups try, nothing will work if it will be not curse by the society. There are specific actions that each individual must take in order to join the effort to save food.

17. In distribution of the food few technologies should require to change to avoid food waste. You should only serve yourself meals that you won't be able to finish. A second serving is constantly accessible. But avoid serving too much and contaminating more food. On Food rooms slogan to save food should written to motivate food eaters.

18. Better farmer education and public and private infrastructure spending are crucial in low-income nations. Improved refrigeration technologies and dependable, renewable energy sources can make a big difference.

19. After creating a meal plan, organize your food shopping carefully and steer clear of impulse buys. Finally, make it a practice to eat every grain of food that is on your plate. That alone will impart to you a great deal of knowledge.

On the above discussion we can say that the wastage of the food is a very serious problem in the whole word today if we will not care about it now than it will create a big problem because our new generation attitude is care free approach on any of the problem. Dur to increase in our world population increase the production of the foodgrain as well as the reduce the wastage of the food grain is the demand of the present era. By political will, social awareness, giving cash benefits to the person who save the food may change the attitude of the people which is most required.

RESOURCES :

- WWF (2020) Living Planet Report. Retrieved from: https://wwf.pand a.org/disc over/ou r_focus/oc eans_pract ice /smart_fishing/l atest_fishing_news/795071/WWFs-Living-Planet-Report-reveals-two-thirds-decline-in-wildlife-populations-on-average-since-1970
- Hannah Ritchies (2019). Half of the world's habitable land is used for agriculture. Retrieved from: https://ourworldindata.org/global-land-for-agriculture
- FAO (2018). The State of the World's Forests. Retrieved from: http://www.fao.org/state-of-forests/2018/en/
- Feeding America. Retrieved from: https://www.feedingamerica.org/hunger-in-america/facts
- World Food Program USA (WFPUSA). Retrieved from: https://www.wfpusa.org/explore/wfps-work/drivers-of-hunger/foodwaste/
- FAO. Food Wastage Footprint. Retrieved from: http://www.fao.org/nr/sustainability/food-loss-and-waste/en/
- https://foodtank.com/news/2015/06/world-environment-day-10-facts-about-food-waste-from-bcfn/
- https://www.theguardian.com/environment/2016/jul/13/us-food-waste-ugly-fruit-vegetables-perfect
- http://www.fao.org/save-food/resources/keyfindings/en/
- http://www.bbc.co.uk/news/uk-26908613
- https://www.theguardian.com/environment/2017/jan/10/uk-throwing-away-13bn-of-food-each-year-latest-figures-show

Impact of Covid-19 Lockdown on OTT Media Consumption Pattern of the Consumers

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ABSTRACT

The paper focuses on the analysis of the change in consumption pattern of OTT media consumption. The industry is still in infancy stage worldwide especially in India. The Covid lockdown period has provided a tremendous opportunity for OTT entertainment content providers to gain a better perspective about the consumer behaviour regarding their services. The focus of the study has been on to learn how much and why the consumers are consuming OTT content as well as the issues which come bearing with it.

Keywords : *OTT, Over The Top, Netflix, Covid lockdown, Consumption pattern*

INTRODUCTION

OTT services are Over The Top streaming services which provide video entertainment content over the internet rather than a cable or satellite or set top box setup. It bypasses all the traditional controllers and the distributers of the video entertainment content. OTT platforms usually work through an internet website or apps using which the users can stream the content they wish to consume at any time and any place without any interruptions. The term "OTT" was derived from the very fact that it goes "over" the cable service providers . Recently it has been substituting the pre-installed infrastructure of the video entertainment business. Thus, OTT is not only a service but it is a business model in itself. Nowadays such OTT platforms are so popular that they are making a jump towards being publicly traded companies. Now, any online service which bypass the usual traditional provider is known as OTT services like Ola and Uber over traditional taxis.

However, we are just concentrating on one of the original OTTs that is the streaming video entertainment services. Although the OTT streaming consumption in India has been on continuous rise, and also that it is estimated to boom by 2024, the recent pandemic has provided an unprecedented opportunity for this industry as due to lockdown people has been stuck inside their homes and due to lack of work they have spending a lot of the free time on many indoor activities including binge watching the online entertainment content. India

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has witnessed the emergence of many OTT streaming platform in last year or so namely Netflix, Amazon Prime, Hot Star, Voot, Alt Balaji, Ullu, MX Player, Zee5, Sony Liv and many others.

People have been indulging in their hobbies learning those things from online platforms such as YouTube, even cooking recipes, DIY (Do It Yourself) projects with help of the OTT providers. With so much of free time and due to stress as well as anxiety of pandemic, livelihood, employment etc., OTT platforms has provided a medium to the masses to keep themselves busy and battle the building fear and frustration. But he question arises that such a drastic shift in the OTT consumption is causing change in consumption behaviour of the viewers and also forcing the providers to rethink their strategies to become a market leader and increasing their market share. Hence, this will be analyzed in this paper, that how the consumption pattern of the viewers have changed for the OTT streaming content during lockdown era.

LITERATURE REVIEW

In the 2018 report compiled by Twentify on topic "Apple of Digital Television" provided aninsight about loyalty and satisfaction research on OTT media services. I t was pointed that gradually the viewership of cable television is declining and is being replaced by OTT content providers such as Netflix, Hulu etc. In 2017, almost 53% of households using wi-fi were using one of the top three OTT media services.Top being Netflix closely followed by Youtube, Amazon and Hulu.

Chen 2019, in the research paper focused on comparison of OTT in North America, Europe and Asia. Paper emphasized on growth of streaming services on internet and more over the platform spread from mobiles to tablets to smart televisions. Analysis was also done between growth of subscriptions of different OTT. Paper also dealt with how traditional television is trying to compete with this new form of entertainment. It derived that the pace it is expanding, traditional television would become obsolete sooner rather than later.

Park, Kwon 2019,presented their research in the conference about relationship between the growth of OTT service market and change in the structure of pay-tv. Recently OTT media has been expanding exponentially due to increase consumer base. With such rise in the viewership, now OTT giants are expanding with merger and acquisition over local and small territorial OTT media providers. OTT companies are using multiple strategies such as Localization, Content differentiation, Service Optimization and defeating Pay-TVs at their own game.

OBJECTIVE

To determine the consumer behaviour towards OTT media in the Lockdown era. This study will try to find the changing trends in term of media and entertainment consumption when people get a break from their hectic lifestyle and schedule.

RESEARCH METHODOLOGY

The study makes use of primary data gathered using structured questionnaire.

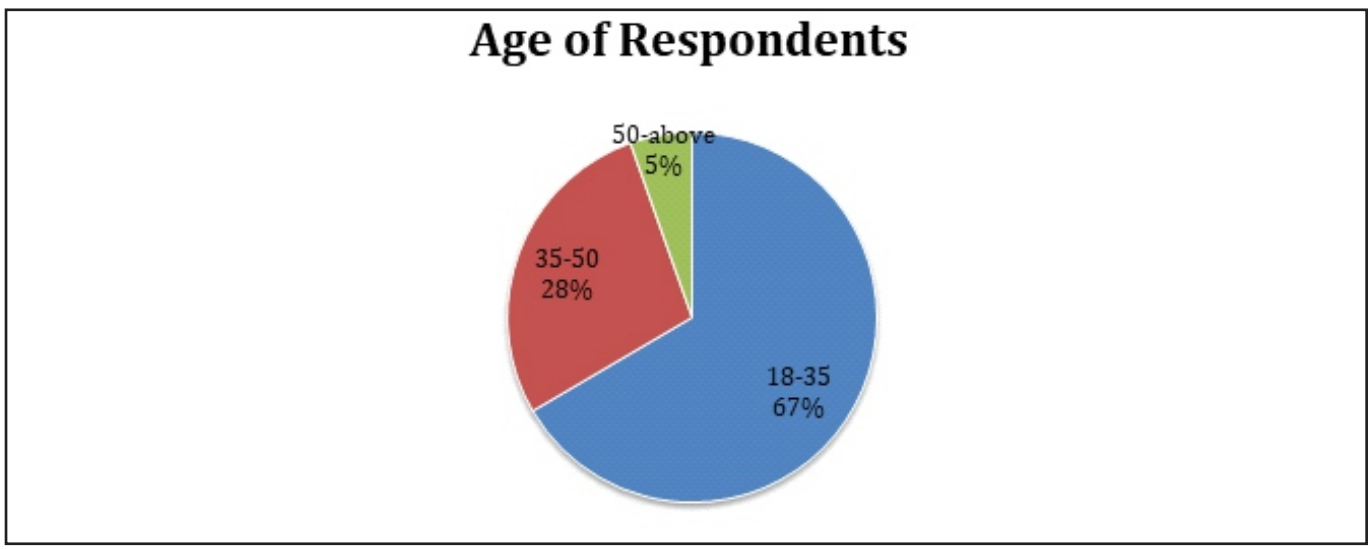
Sample technique: A mixture of convenient, purposive and snowball sampling technique was employed for data collection. Interview of select ready respondents.

*Sample size:*350respondents participated.
*Tools for analysis:*Simple percentage analysis

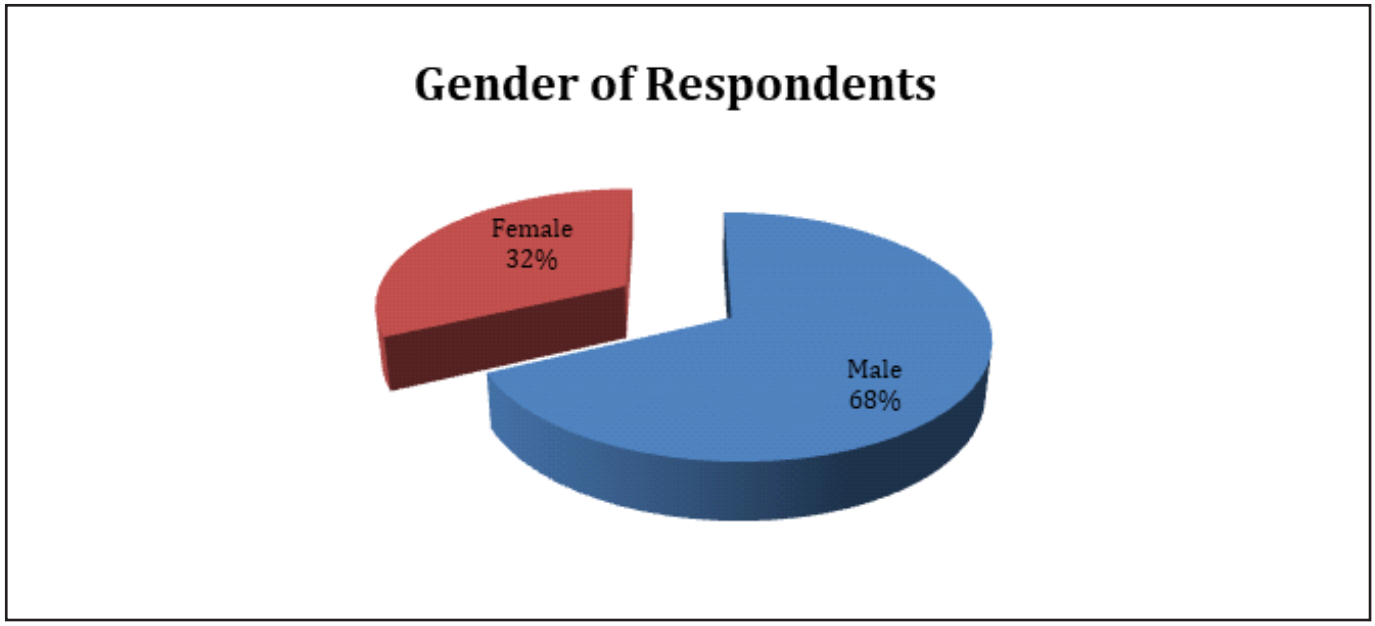
ANALYSIS AND DATAINTERPRETATION

A questionnaire was prepared in google form and a survey was taken with netizens& population started at convenient and purposive sampling and then went on as snowball. The Findings and analysis is as mentioned:

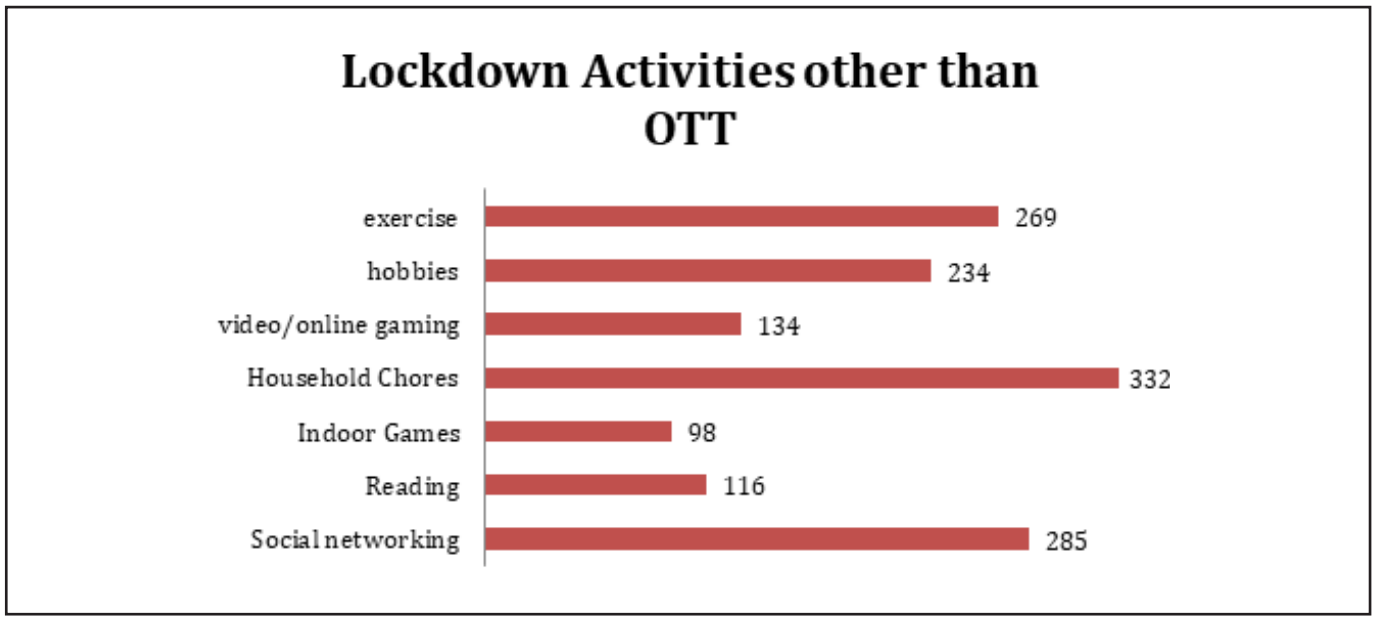
1] *Age of Respondents*: The respondents involved in the survey were heavily among young adults aged between 18 to 35 years at 67% followed by middle aged respondents at 28% and a handful 5% of above 50 years of age



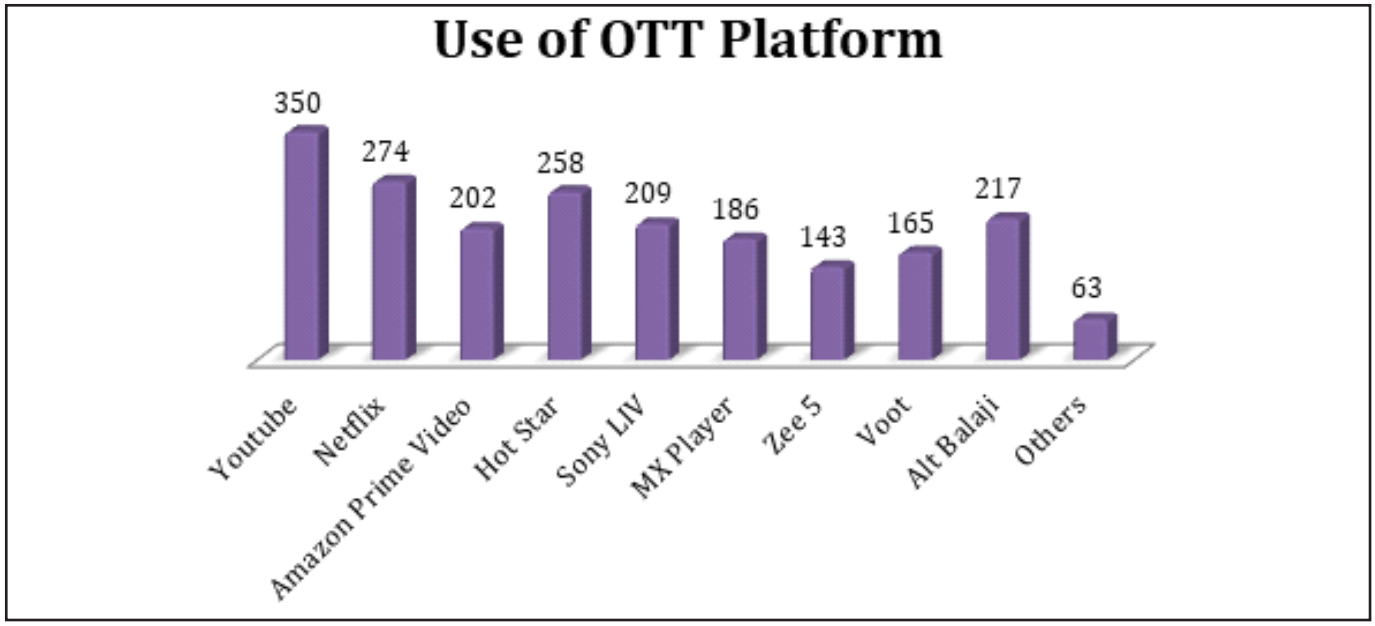
2] Gender : Among the sample a majority of 68% had been males and only 32% females



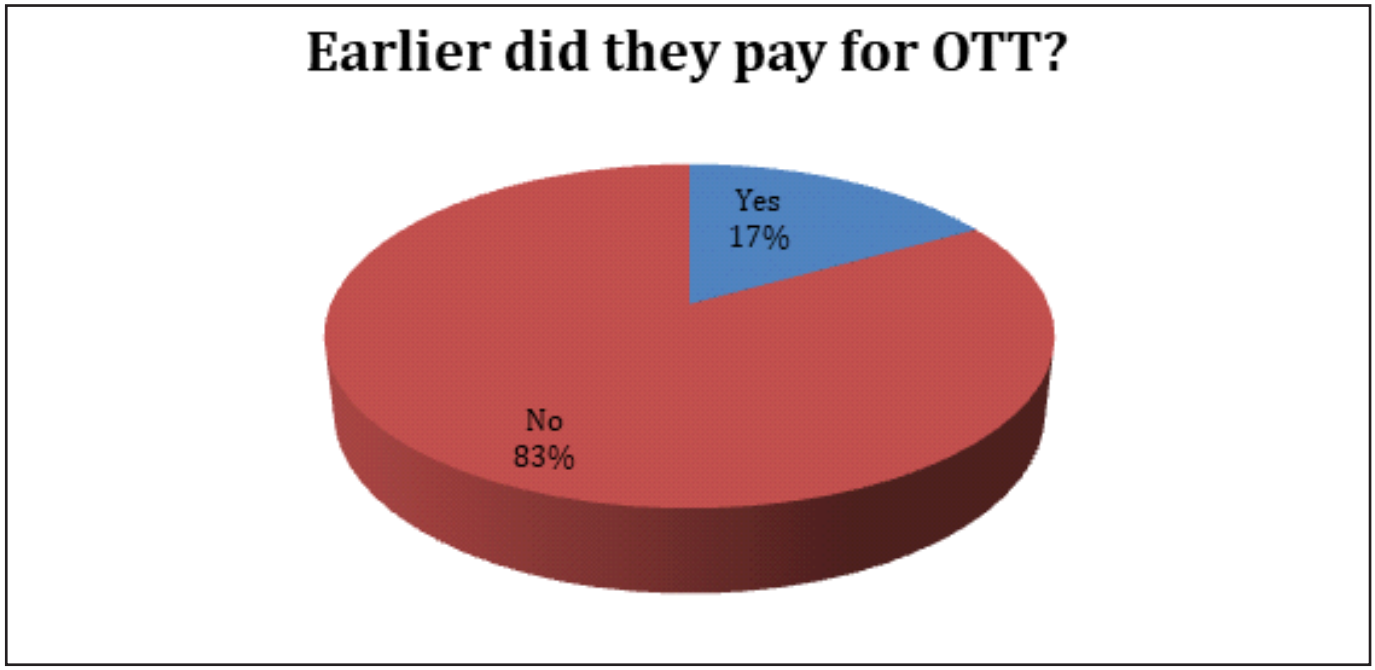
3] *Lockdown Activities other than OTT* : Since the survey was done focusing OTT consumption, consumers' other lockdown activities in which they spent time was also being taken into account. It was a multiple choice where more than one answer could be chosen. It showed that many respondents, other than OTT media consumption, engaged themselves heavily in household chores, social networking, exercise and hobbies. Many respondents also indulged in online and offline (indoor) gaming as well as took upon reading habits.



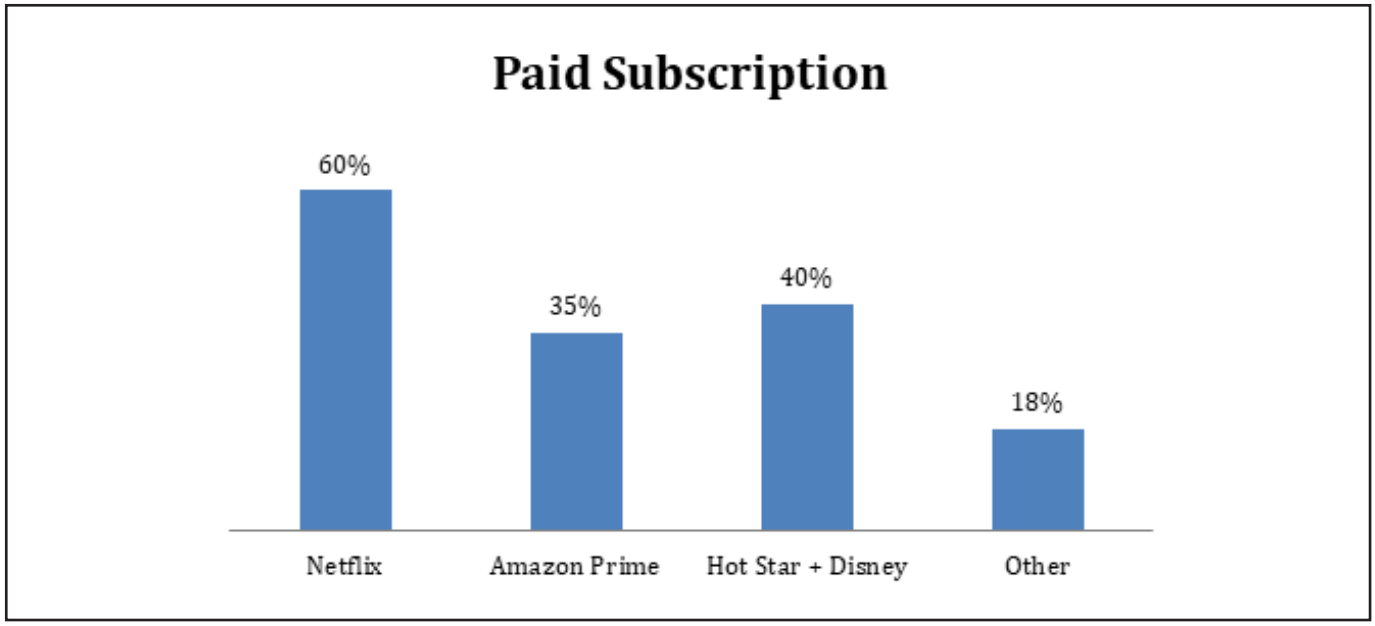
4] *Use of OTT Platform*: This has been again a multiple options question where more than one option could be selected. Not surprisingly all the consumers have been watching Youtube content. Other popular platforms are Netflix, Hot Star, Alt Balaji and so on.



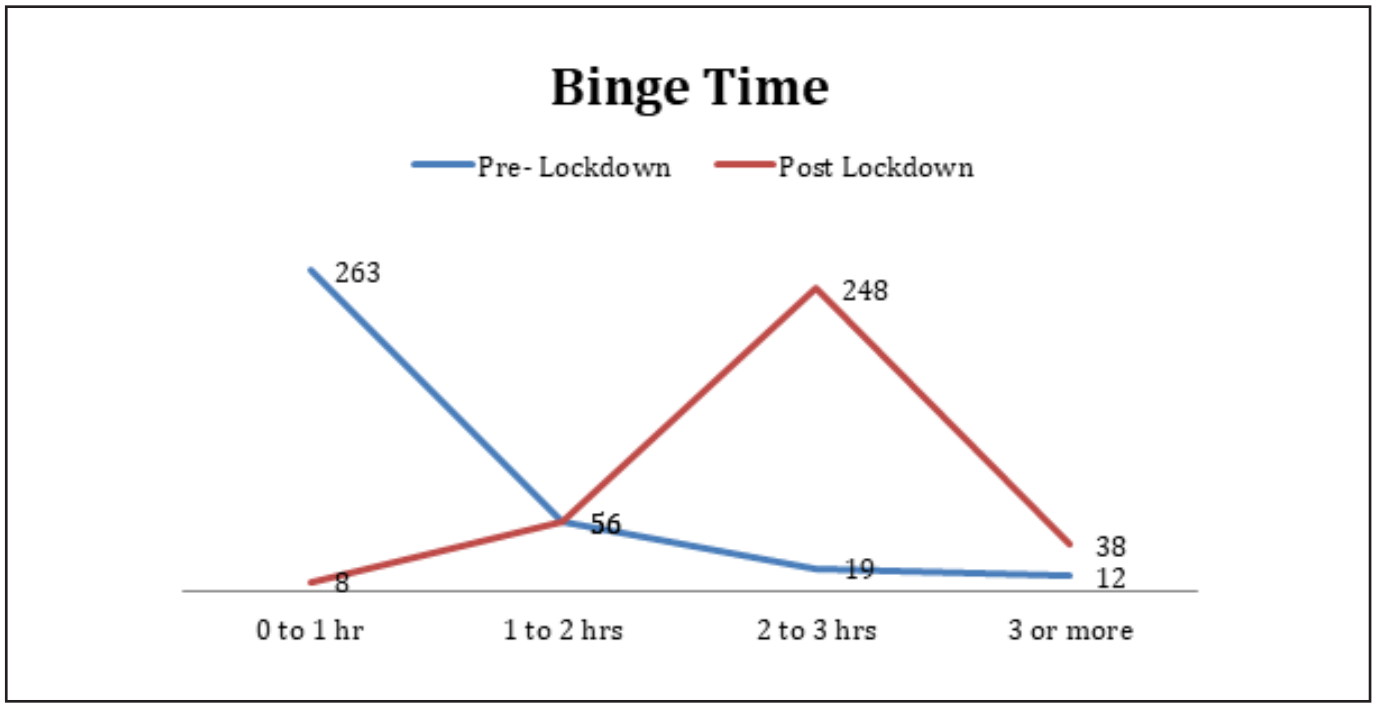
5] *Earlier expenditure on consumption of OTT* : Almost 83% of the users said that they prior to lockdown did not pay for the streaming services. They either used the free services of these providers and ignored the premium content or downloaded the premium content from torrents and other shady sites. These goes according to the fact that all the respondents had been consuming YouTube content. .



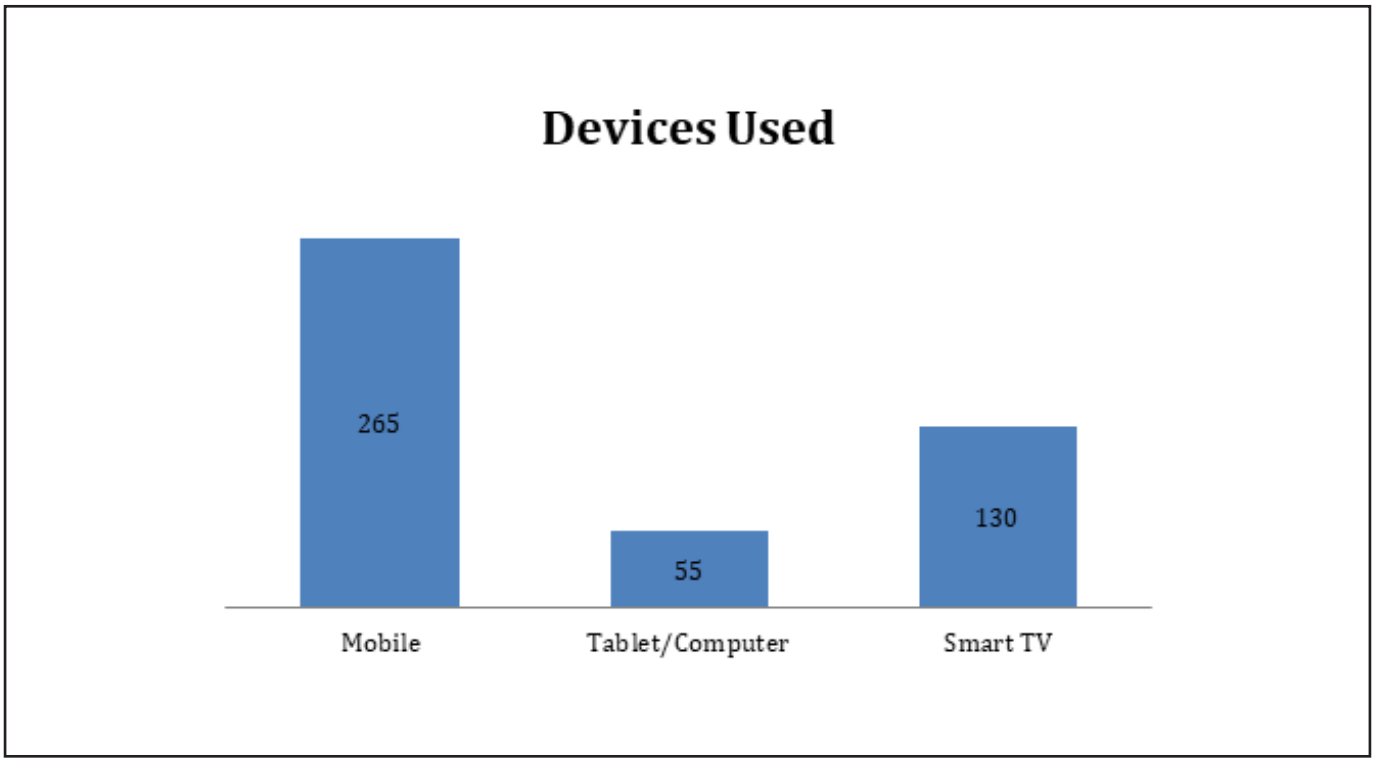
6] *Highest Paid Subscription*: In the lockdown era, perception of the consumers have changed and since they are increasingly consuming streaming content, they have started taking paid subscription and shown interest in more subscriptions. The leading OTT to gain paid subscriptions are Netflix, Hot Star and Amazon Prime.



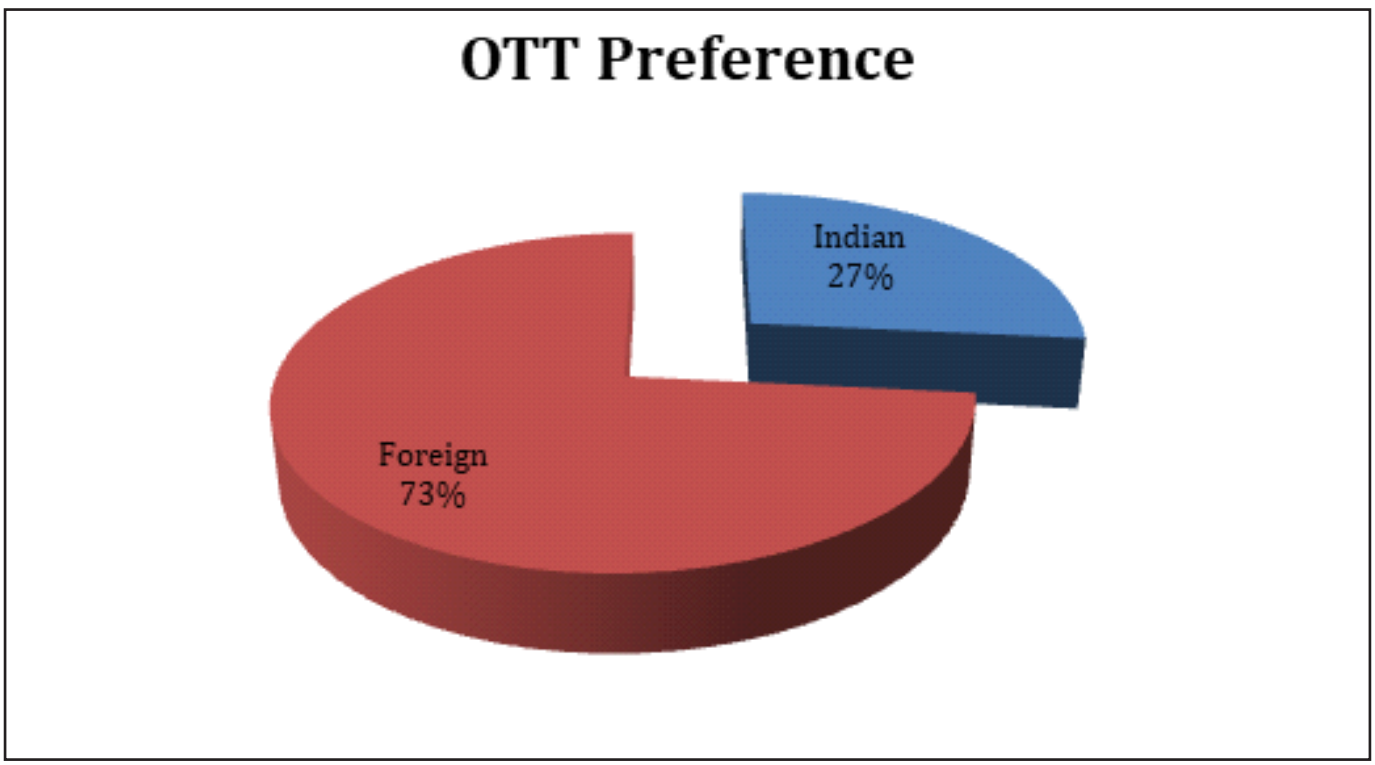
7*] Binge Time*: Also known as watch time. Respondents have admitted to sharp contrast in their binge timings in pre and post lockdown. Earlier the average watch time one hour which increased to average of two to three hours after lockdown.



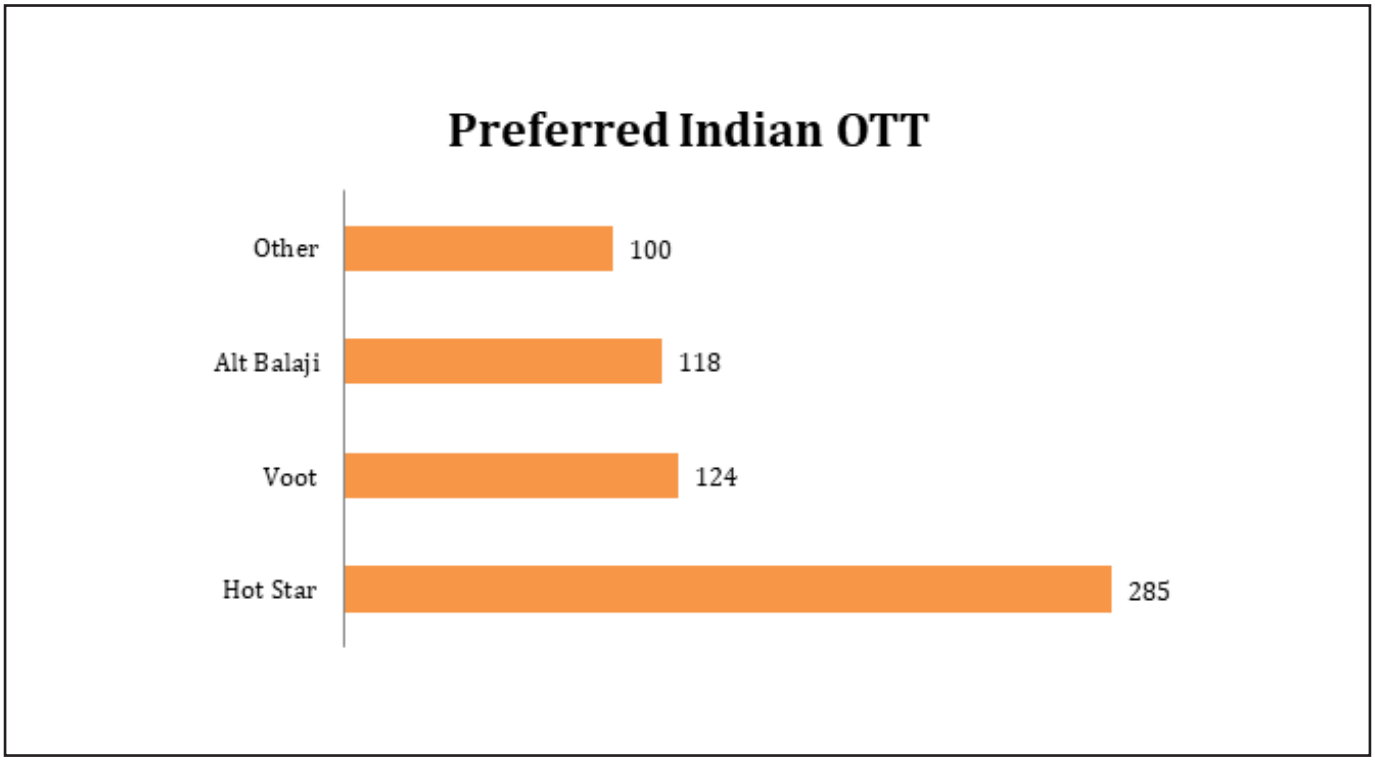
8] Device Used: Nowadays, OTT content can be accessed on a variety of devices. and respondents also use multiple devices to stream content from same providers. Mobile had been the main choice for most of the respondents. Since they have started staying home, smart televisions have emerged as a viable option. Although ,there are very less consumers which use tablet or computers for the same.



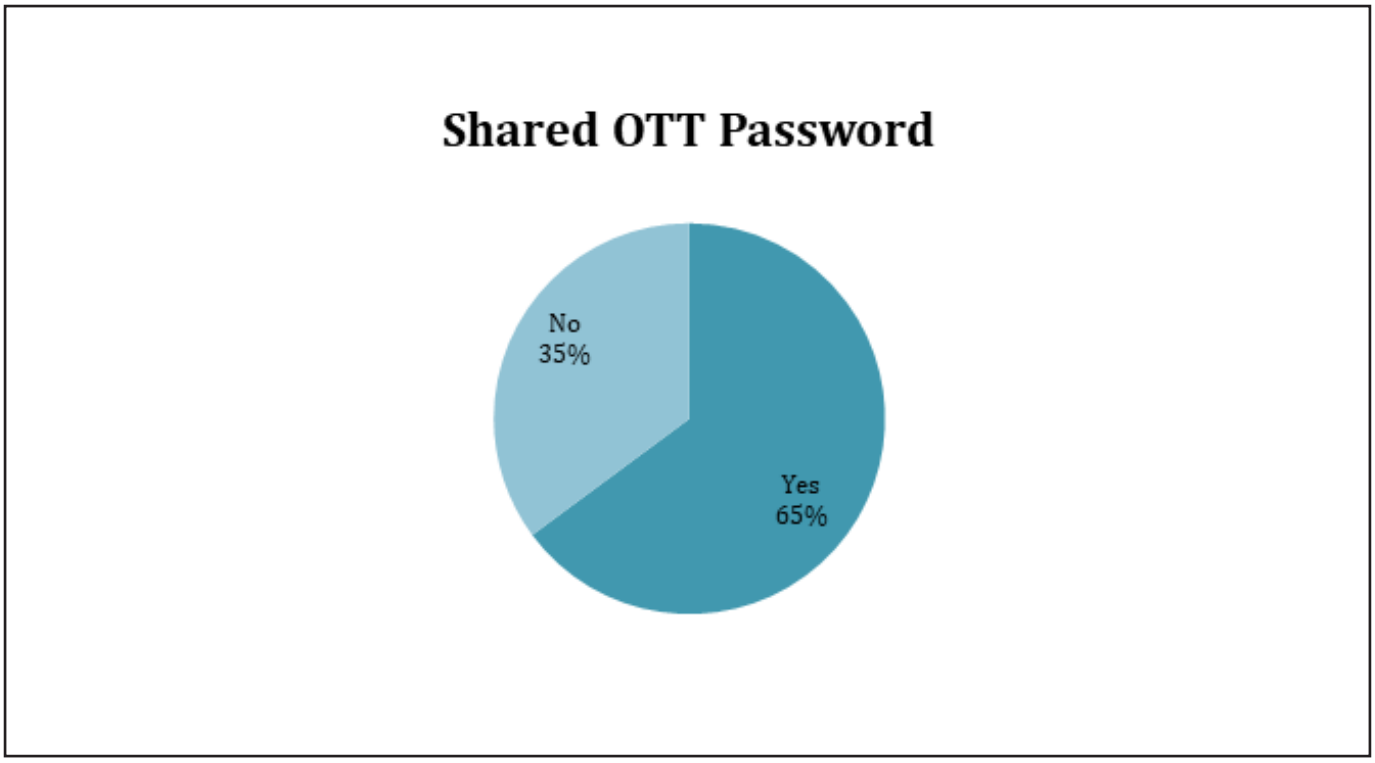
9] *OTT preference*: In terms of content, library size and variety as well technical issues, a majority 73% respondents preferred foreign OTT providers like Amazon and Netflix over India OTT providers like Hot Star, Alt Balaji etc.



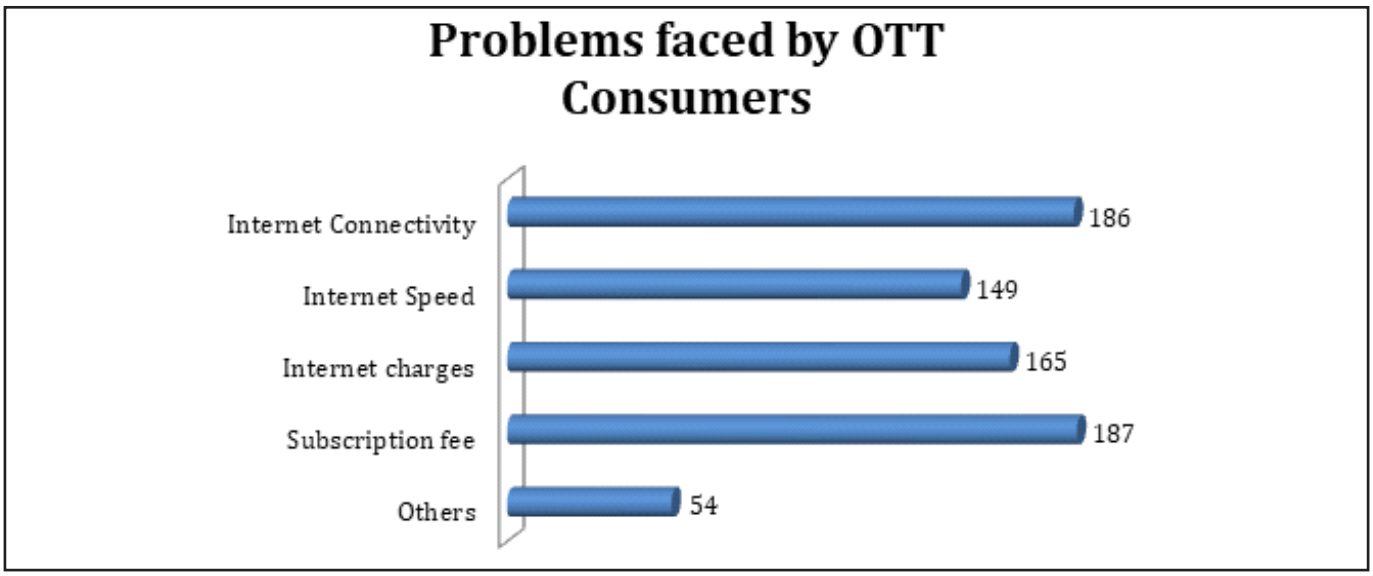
10] *Preferred Indian OTT*: Although respondents preferred more Foreign OTT, they still use Indian OTTs as well. Hot Star has emerged as clear front runner in comparison to other Indian OTTs.



11] *Shared OTT password*: A 65% of respondents have admitted to the fact that they use shared account types which can be shared by a number of users. It shows tendency of shared subscription.



12] *Problems faced by OTT consumers*: OTT consumers have been facing multiple issues while using streaming services. Bigger issues have been internet connectivity and subscription fees (as implied in previous interpretation). Other problems being cost and speed of internet etc.



CONCLUSION AND FINDINGS

As it is evident from the analysis that the consumers are using more and more OTT media and streaming since the lockdown era. The sampling was done from the netizens who have been actively consuming OTT content. The survey shows that maximum people watching web content has been of age group 18 to 35 years. An increasing tendency was also displayed in the age bracket of 35 to 50 years. By looking at the gender ratio of the survey, it was found 68% of consumers are males. Now this finding leads many speculations like mostly males are the ones who are more interested in web content and presumably looking at the societal structure in our country, females are already burdened with household chores so they might be getting less time to consume OTT content. A very interesting fact has also come up that most of females who have been consuming the OTT content with their spouses or partners, usually watch the content selected by their partners and very rarely choose the content themselves. However this fact is true for almost every OTT platform other than YouTube where they select the content they desire to watch. This is largely also affected by the mediumof consumption as YouTube consumption is usually done on separate mobile devices where as people who are consuming the content with partners have been mostly using computers or smart televisions.

When the lockdown activities of the respondents were analysed, it was found that other than OTT media consumption, other activities which they indulged in had been household chores where even males admitted

to participate and help at home. People had also beenengaged in taking care of the fitness. Many had said they exercised and used social media along with watching OTT content.

YouTube had emerged as the top OTT content provider. However, there is more than one catch to it. Respondents said that YouTube had stood *numero uno* for a number of reasons. Mostly used YouTube on a separate device which gave them some solitude and sense of personal space. The variety of content available goes to length on YouTube. The other lockdown activities talked about earlier also include Hobbies and DIY (Do it Yourself) Projects and Online/Offline gaming. People have preferred YouTube to learn new art, craft and rekindle the passion for their old hobbies. Gamers looked on YouTube to watch others stream their game. Many have responded that YouTube had been fastest streaming services with least buffer time and biggest reason that all these content is available freely on this platform even without subscription and thus most people doesn't mind watching advertisement as long as it is free. YouTube also provides premium service but none of the respondents had subscribed to it. Other two front runner OTT platforms had been Netflix and Hot Star (Now with Disney brand). Respondents appreciated the quality of content and genres on Netflix and its subscriptions have also been increasing. Many has described as perfect "Tele-visioning" experience where they could binge watch.

Almost 83% accepted that pre lockdown they did not pay for subscription fees rather used to download it by torrent or other sites but now since lockdown they had been using OTT platform at such long lengths of time that they had taken subscription of at least one of the paid platforms. Netflix emerged as consumer's choice in terms of paid services. Hot Star and Amazon Prime has also been successfully trying to establish their niche audiences. The most drastic change has been observed in the watch timings or as being coined "Binge" timings by Generation Z. The binge timings average has increased from one hour daily to two to three hours daily. In spite of availability of various devices, mobiles has been unsurprisingly the most used device followed by smart TVs and laptops/tablets. Many respondents definitely preferred foreign based OTT providers such as YouTube, Netflix and Amazon Prime over Hot Star and other Indian OTT firms. However, among the Indian OTT companies, Hot Star has stood tall and also been continuously faring well in both perception of respondents and subscription (as per report of Bolivud.com).

Another amusing fact which came up was most of the OTT platform login accounts, especially for paid subscription, are being shared by two or more persons. This is due to the subscription fees which are obviously not affordable for all in current state of economy and most of the platforms can be logged in with

the same account at same time on different devices. The legality of this issue remains debatable. Some providers like Netflix had acknowledged the issue and providing group accounts whish could be used up to by five users officially.

Although the OTT content has provided relief and stress relief in such pandemic time, it comes with its own set of problems. The respondents had realized some practical problems, major ones had been high subscription fees and frequently disrupting internet connectivity. The low speed of Internet and high internet charges in India had also been issue for the consumers. Other areas of concern had been health related like headaches and strain on eyes, neck and back by continuous binging till long hours from awkward sitting positions.

Recently even the OTT platform has been facing financial issues pertaining to which giants such as Netflix will be imposing strict rules regarding account sharing starting from 2023.

To conclude, it could be derived from the analysis, that in the lockdown era, people have increased the OTT media consumption at a "binging" speed. Reports suggest that the OTT market was already supposed to boom by 2024, and this pandemic had come up rather as an opportunity for the OTT players to solidify their position in the India market which is still untapped and has a lot of potential and hunger for OTT media consumption. With introduction of new technology such as V.R. 360° (Virtual Reality), it will be very interesting to map the growth of OTT content and its evolution.

REFERENCES

- https://www.twentify.com/reports/loyalty-and-satisfaction-research-on-ott-media-services
- https://www.econstor.eu/bitstream/10419/205203/1/Park-Kwon.pdf
- Research on the Relationship between the Growth of OTT Service Market and the Change in the Structure of the Pay-TV Market; SungwookPark ,Youngsun Kwon; 30th European Conference of the International Telecommunications Society (ITS) 2019
- Similarities and Differences in Over-The-Top Video Services Across Countries; Kailin Chen;

India-UK Trade Complementarities

*Ms. Kiran
**Davinder Kumar Madaan

ABSTRACT

India and UK share a modern and multi-dimensional strategic partnership since several centuries. Both countries have taken several initiatives to expand bilateral relations following India's economic reforms in the early 1990s. To advance trade and investment relations, both countries formally launched negotiations for a Free Trade Agreement (FTA) w.e.f.13 January 2022, and the third round of negotiations will be hosted by India in April 2022. India-UK bilateral trade relationship is already significant, and both countries have agreed to double their bilateral trade, as part of the Roadmap 2030. The present paper aims to analyze complementarity of bilateral trade between India and UK for the period 2001-2020. The level of complementarities in bilateral trade is above the normal which implies that there is fuller utilization of their bilateral trade. Further, UK's export complementarities with India were higher as compared to India's export complementarities with UK.

Keyword : *Brexit, FTA, India-UK trade, Trade Complementarity.*

1. INTRODUCTION

India and the United Kingdom (UK) share a modern partnership bound by strong historical and cultural ties. Since 2004, the two countries upgraded the bilateral relationship into strategic partnership that paved the way for a multi-faceted bilateral engagement, covering various aspects including trade and economy, science and technology, health, people-to-people ties, climate change and co-operation on multilateral issues. The UK is one of the developed economies of the world and deep economic linkages with India. However, bilateral trade relations between the two nations deteriorated after India's independence in 1947 (Lynch, 2019). Following India's economic reforms in the early 1990s, the two countries have taken several initiatives to enhance their bilateral trade relations. There exist several institutional mechanisms to facilitate their relations. The India-UK Joint Economic and Trade Committee (IUJETC) and India-UK Economic and Financial Dialogue (IUEFD) are the two important bilateral institutional mechanisms between the two nations. Other

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institutional mechanisms in place to support India-UK bilateral economic relations include Joint Working Groups (JEGs), India-UK Financial Partnership (IUFP), Green Growth Equity Fund (GGEF), India-UK CEOs Forum, UK-India Fast Track Mechanism, UK-India FinTech Dialogue and UK-India Tech Alliance (High Commission of India, London, 2021).

According to the World Bank 2020, India was home to 1380 million (mn) people with Gross Domestic Product (GDP) of US$ 2660 billion (bn). Whereas, UK's population was 67.2 mn with a GDP of US$ 2760 bn during same period. In terms of per capita GNI, both countries differ significantly. The per capita GNI of UK was US$ 39830 which was about 21 times more than the India's per capita GNI. During 2020, India was ranked UK's 15th leading trade partner. Bilateral trade between India and UK grown rapidly over the period. India's trade with UK has been risen from US$ 5 billion (bn) in 2001 to US$ in 12.5 bn in 2020 with exports rising from US$ 2.2 bn in 2001 to US$ 7.8 bn in 2020 and imports rising from US$ 2.8 bn in 2001 to US$ 4.7 bn in 2020 (Uncomtrade, 2021).The share of UK in India's trade was 1.8 per cent during 2020. The share of UK in India's trade was 1.8 per cent during 2020. However, India's share in the UK's trade was 1.2 per cent during the same period. India's major exports to UK were articles of jewellery and parts, turbo-jets, medium oils and preparations, parts of aero planes or helicopters, motor vehicles, medicaments, cotton garments, T-shirts and clothing accessories, diamonds-worked, sandstone, internal combustion piston engine, footwear, etc. Similarly, India's major imports from UK included silver, gold, waste and scrap of aluminum, iron or steel, lead and copper, turbo-jets of greater thrust, petroleum coke, liquified natural gas, precious metals, parts and accessories, for tractors and motor vehicles, ethyl alcohol, scotch whiskies, etc.

After 43 years of association, the UK has decided to leave the EU bloc under Article 50 of the EU's Lisbon Treaty through a referendum held by UK on June 23, 2016. The Britain exit from the EU, known as 'Brexit' was mainly related to migration, sovereignty, separate identity, political superiority, etc. The UK finally left the EU on January 31, 2020 and entered into 11-months transition period. The UK left the EU's Single Market and Customs Union on January 1, 2021, becoming free to implement trade deals struck with third countries. In the post-Brexit period, the UK is looking to fast growing emerging markets like India in the context of potential new trade relationships outside of the EU. The UK has also set a target to have FTAs with countries to cover 80 per cent of its trade by the end of 2022. To advance trade and investment relations, both countries would formally launch negotiations for a FTA on 13 January 2022, and the first round of talks for an India-UK FTA have concluded on 28 January, 2022. Moreover, India and UK have also concluded the second round of talks with discussions taking place in as many as 26 policy areas in March 2022. In April 2022, the third round

of negotiations will be hosted by India.

OBJECTIVES :

Based on the conceptual frame of the paper, the objectives of the study are as follows:

1. Analysis of trends of volume of trade between India and UK since 2000.
2. To analyze the composition of trade and respective share in each other's total trade.
3. To analyze the complementarity of trade between India and UK.

DATABASES & METHODOLOGY

The proposed study is based on secondary data. Both published and unpublished sources of data are used. The data is mainly collected through various online and offline sources viz., Uncomtrade, World Bank, UN Publications, Economic survey of India and through various Books, Periodicals and Journals. Data related to composition of trade and complementarity of trade are based on Harmonized System coding at 6-digit level. To analyze the trade potential, the trade complementarity is estimated for the period of 2001-2020. Countries with greater complementarity have more opportunities to trade with each other. For expansion of India's trade with UK, it is important that the trade profiles of the countries match i.e. what is exported by India should be imported by UK. It is, therefore, important to examine whether India's trade profile with UK has become similar over the period of time and facilitate growth, or not. The estimated export Trade Complementarity Index (TCI) can show how well the export profile of India matches with the import profile of UK. The index lies on the range 0-100. It takes the value 100, when a composition of import needs in UK matches perfectly with exports of India. At the other extreme, where India's export has no relevance to the import needs of the UK, the index takes the value of zero.

The TCI can be constructed between India and UK as under:

$TCIikj = 100 - \sum (\left| Mik - Xij \right| \div 2)$

Here Mik = Share of good i in all imports of country k (UK), and

Xij = Share of good i in the global exports of country j (India)

1.1 Key Economic Indicators of India and United Kingdom

It is relevant to understand key economic indicators of India and UK. Table 1.1indicates the same during 2020. India's population was 1380 mn people with GDP of US$ 2660 bn, as compared to UK's population of

67.2 mn with a GDP of US$ 2760 bn during 2020. India is approximately 3287.3 sq.km, while UK is approximately 243.6 sq.km, making India 13 times bigger than UK. However, being a developed country, UK is reflecting greater improvements in her social indicators over India. In terms of per capita GNI both countries differ significantly. The per capita GNI of UK was US$ 39830 which was about 21 times more than the India's per capita GNI. Further, the proportion of urban population in total population was 35 per cent and 84 per cent respectively in India and UK during 2020.

The Human Development Index (HDI) developed by United Nations Development Programme (UNDP) has shown a big difference in HDI ranks for India and UK as shown in Table 1.1. India is ranked 131, while UK is ranked 13 during 2019. It implies that as far as the level of development is concerned both countries are sailing in the different boat. According to the Ease of Doing Business Report, 2020, India was placed at 63rd position, whereas UK was ranked at 8th spot. As far as foreign trade is considered, India's per capita exports and imports with world were US$ 200 and US$ 267 respectively, as shown in table 1.1 during 2020. On the contrary, UK's per capita exports and imports with world were US$ 5887 and US$ 9435 respectively, during same period. Despite of such differences in economic indicators, both India and UK have cordial and warm relations with each other since long time ago.

2. INDIA-UK TRADE

India-UK trade has been growing steadily and got big boost in recent years. Table 2.1 shows India's trade with UK during the period 2001-2020. It can be seen from this table that India's trade with UK have increased from US$ 5.0 bn in 2001 to US$ 12.5 bn in 2020 with Compound Annual Growth Rate (CAGR) of 5.7 per cent during 2001-2020. India's exports to UK have been growing faster than her imports from latter. India's exports to UK have increased from US$ 2.2 bn in 2001 to US$ 7.8 bn in 2020 and imports increased from US$ 2.8 bn to US$ 4.7 bn during the same period. India's exports to UK were growing with CAGR 7.3 per cent during 2001-2020. Whereas, India's imports from UK were growing with CAGR 3.5 per cent during the same period. The total value of mutual trade between two countries rose from US$ 5.0 bn in 2001 to US$ 11.1 bn in the year 2007. However, bilateral trade went down to US$ 10.6 bn in 2009 because of the reason that global crisis of 2008. But it picked up to US$ 14.7 bn in 2012 and US$ 15.7 bn in 2019 before declined to US$ 12.5 bn in 2020 on account of the Covid-19 pandemic. Till 2003, bilateral trade was unfavourable to India. An outstanding feature of this period was the high proportion of capital goods in the context of the developing economy of India. During 2004-20, bilateral trade was in favour of India. It has also been shown that the total

trade turnover amounted to US$ 234.7bn for the year 2001-2020.

The foregoing discussion explains that the potentialities of bilateral trade expansion are largely influenced by the share of India and UK in each other's total trade. The respective share of India and UK's in each other's trade are shown in table 2.2 for the period 2001-2020. It is depicted from table that UK was not much dependent on India for trade. India's average share in UK's total trade was 1.1 per cent during 2001-2020. India's average share in UK's total export and import was 1.3 per cent and 1.3 per cent respectively, during 2001-2020.As regards the share of UK in India's trade, it is crystal clear that India was much more dependent on UK. UK's average share in India's total export, import and trade was 3.7 per cent, 2.1 per cent and 3.3 per cent respectively during 2001-2020. It is clear from the table that per cent share of India in UK's export, import and total trade has marginally increased during 2001-2020. Whereas, the per cent share of UK in India's export, import and in total trade has declined during the same period. A low share of mutual trade has shown that there is enormous trade potential between two nations. Moreover, the proposed India-UK FTA provides a great opportunity to remove trade barriers and to realize the full potential of bilateral relations between the world's fifth and sixth largest economies.

An examination of inter-temporal changes in trade composition in the development process may provide useful insights into the evolving trade pattern of India and UK. For this purpose, traded commodities of these countries have classified adopting 6-digit HS classification. Tables 2.3 and 2.4 depict the composition of India's exports to and imports from UK during 2001-2020. As regards India's exports to UK, these were highly diversified. Her total exports to UK were amounted to US$ 135783 million during 2001-20. The table 2.3 reveals the share of major 10 items exported by India to the UK. It may be noted that the share of these major items was 22.4 per cent only in the total India's exports to UK during 2001-20. Medium oils and preparations, articles of jewellery and parts, medicaments consisting of mixed or unmixed products for therapeutic, motor cars and other motor vehicles, T-shirts, parts of machinery etc. were the major items of India's exports to UK. The major items of India's exports to the UK were medium oils and preparations, and medicaments consisting of mixed or unmixed products, which accounted for 4.7 per cent and 3.4 per cent, respectively, in her total exports to UK during 2001-20. Further, the table 2.3 shows that t-shirts, singlets and other vests of cotton, accounted for 1.9 per cent in the India's total exports to UK during this period. It was followed by 1.4 per cent of diamonds; footwear with outer soles and uppers of leather, covering the ankle and Babies' garments and clothing accessories.

Table 2.4 shows the composition of India's major imports from UK. Her total imports from UK were

amounted to US$ 96751 million during 2001-20. The table 2.4 indicates the share of major 10 items imported by India from the UK. The share of these major items was 43.6 per cent only in the total India's imports from UK during 2001-20. Non-industrial diamonds unworked, silver including silver plated with gold or platinum, gold including gold plated with platinum, whiskies, waste and scrap of stainless steel, parts of aircraft and spacecraft etc. were the major items which India imported from the UK. The major items of India's imports from the UK were non-industrial diamonds unworked, and silver including silver plated with gold or platinum, which accounted for 16.5 per cent and 9.0 per cent, respectively, in her total imports from UK during 2001-20. Further, it was followed by 5.3 per cent of gold including gold plated with platinum, 4.6 per cent of waste and scrap of iron or steel; 1.1 per cent of waste, scrap of paper, board and turbo-jets. Other item like aircraft parts had accounted marginal share of less than 1.1 per cent.

3. EXPORT COMPLEMENTARITIES OF INDIA AND UK

For expansion of India's exports to UK and vice-versa, it is necessary that the trade profiles of the countries match i.e. what is exported by India may be imported by UK, and what is exported by UK may be imported by India. It is, therefore, important to examine whether India's export profile with UK, and UK's export profile with India has become similar over the period of time and facilitate growth, or not. Michaely (1994) used TCI to assess prospects for Latin American trade arrangements. The estimated export Trade Complementarity Index (TCI) can show how well the export profile of India/UK match with import profile of UK/India. The index lies on the range 0 to 100. It takes the value 100, when a composition of import needs in UK matches perfectly with exports of India. At the other extreme, where India's export has no relevance to the import needs of UK, the index takes the value of zero. The complementarity index measures the degree of common characteristics between the export profile of India and import profile of UK. Similar is the case of the export profile of UK and import profile of India. The extent of complementarities reflects the probability of success of a regional trading arrangement countries with greater complementarities have more opportunities to trade with other. As such, it is assumed that higher the TCI more favourable are the prospects for India's exports to UK and UK's export to India. Changes over time may tell us whether the trade profiles are becoming more or less compatible. It may be noted that high complementarities indices may be misleading if the countries are geographically distant, or if the size their economies differ significantly.

The TCI of India's exports to UK, and UK's exports to India during 2001-2020 has been computed as shown in table 3.1. It is clear from this table that TCI for India's exports to the UK has been increasing, and reached to

36.0 per cent in 2020 from 26.9 per cent during 2001 with average of 43.9 per cent. The maximum value of TCI of India's exports to UK was 42.2 per cent during 2012. The table also indicates that there is enhancing compatibility in bilateral trade. However, UK TCI has been decreasing from 41.1 per cent in 2001 to 34.8 per cent during 2020 except for three years i.e. during 2007, 2008 and 2009. Overall, the level of complementarities in bilateral trade is above the normal which implies that there is fuller utilization of their bilateral trade but with declining trend. Thus, some suitable and effective steps to undertake for controlling the falling trend. The table also indicates that UK's export complementarities with India were higher as compared to India's export complementarities with UK.

4. CONCLUSION

International trade has played a vital role in the development of India and UK relations. The study highlights that although there has been a surge in the merchandise exports and imports of India and UK over the last two decades. India's trade with UK have increased from US$ 5.0 bn in 2001 to US$ 12.5 bn in 2020 with CAGR of 5.7 per cent during 2001-2020. India's exports to UK have been growing faster than her imports from latter. India's exports to UK have increased from US$ 2.2 bn in 2001 to US$ 7.8 bn in 2020 and imports increased from US$ 2.8 bn to US$ 4.7 bn during the same period. India's exports to UK were growing with CAGR 7.3 per cent during 2001-2020. Whereas, India's imports from UK were growing with CAGR 3.5 per cent during the same period. The study also concluded that UK was not much dependent on India for trade. India's average share in UK's total trade was 1.1 per cent during 2001-2020. India's average share in UK's total export and import was 1.3 per cent and 1.3 per cent respectively, during 2001-2020. As regards the share of UK in India's trade, it is crystal clear that India was much more dependent on UK. UK's average share in India's total export, import and trade was 3.7 per cent, 2.1 per cent and 3.3 per cent respectively during 2001-2020. It is clear that per cent share of India in UK's export, import and total trade has marginally increased during 2001-2020. Whereas, the per cent share of UK in India's export, import and in total trade has declined during the same period.

As regards India's exports to UK, these were highly diversified, ranging from labour intensive agriculture and clothing and textiles to international production network intensive machinery and medical goods. On the other hand, India's imports from the UK, consist mainly of manufactured goods, which are technology and capital intensive. This implies that while negotiating the FTA with UK, India will have to focus on high value manufacturing sectors that are emerging as a key contributors to Indian exports. It is clear that TCI for India's exports to the UK has been increasing and reached to 36.0 per cent in 2020 from 26.9 per cent during 2001 with average of 43.9 per cent. However, UK TCI has been decreasing from 41.1 per cent in 2001 to 34.8 per

cent during 2020 except for three years i.e. during 2007, 2008 and 2009. The study also indicates that UK's export complementarities with India were higher as compared to India's export complementarities with UK. Another important fact is that TCI of India exports to UK and UK exports to India was completely matched by 41.1 per cent during 2009.

Both countries have already announced pound sterling 1 billion of new trade and investment as part of this new Enhanced Trade Partnership (ETP).At the summit, the UK Prime Minister Boris Johnson and India's Prime Minister Narendra Modi, launched a Roadmap 2030 to expand and deepen bilateral cooperation in five areas: people-to-people relationships, trade and prosperity, defence and security, climate action and health care cooperation. The new deal is expected to generate additional employment in both nations, grow bilateral trade and unlock new opportunities in sectors such as food and drink, business services, defence, education, energy, life sciences and health care. Moreover, the interest and pace of Indian trade market over access to global market has put one more opportunity in its plate following the Brexit .

REFERENCES

- High Commission of India, London, 2021. https://www.hcilondon.gov.in/
- Lynch, K. (2019). UK-India International Trade. American Express. Retrieved from https://www.americanexpress.com/en-gb/business/trends-and-insights/articles/united-kingdom-india-trade-relations/
- Michaely, M. 1994: Trade Preferential Agreements in Latin America: An ex-Ante Assessment," World Bank Policy Research Working Paper 1583
- K. Kaur, "International trade between India and BRIC nations," Ph.D. dissertation, Dept. School of Management Studies, Punjabi University Patiala, Punjab, India, 2016.M. Arora, "INDO-BRITISH TRADE RELATIONS 1929-2005: A HISTORICAL STUDY," Ph.D. dissertation, Dept. History, Punjab University, Chandigarh, India, 2010.Rai, D.K. (2022). India-UK trade and Investment Relations: Challenges and Prospects. Delhi Policy Group, New Delhi, India, Vol. VII, Issue 11.
- https://www.delhipolicygroup.org/uploads_dpg/publication_file/india-uk-trade-and-investment-relations-challenges-and-prospects-3715.pdf
- S.K. Bhatia, M. Bhardwaj and P. Kaur, "An Empirical Analysis of India-UK Bilateral Trade," in BREXIT AND INDIA: Analysing the Implications, S.K. Bhatia, Ed., New Delhi, Punjab, India: New Delhi Publisher, 2018, pp. 3-20.UNDP. (2020). Human Development Report 2020, New York, NY USA.

- https://www.hdr.undp.org/sites/default/files/srhs2022.pdf
- World Bank Group. (2020). Doing Business 2020. Washington, DC: World Bank,U.S. https://documents1.worldbank.org/curated/en/688761571934946384/pdf/Doing-Business-2020-Comparing-Business-Regulation-in-190-Economies.pdf
- World Bank . (2021). World Development Indicators, Data online www.worldbank.org.
- www. comtrade.un.org

Table 1.1 Key Economic Indicators of India and United Kingdom during 2020

Sr. No.	Indicators	India	United Kingdom
1	GDP[1](US$ bn)	2660	2760
2	Total Area[1] ('000 Km Sq.)	3287.3	243.6
3	Population[1](mn)	1380	67.2
4	Urban Population as % of Total[1]	35	84
5	Life Expectancy at Birth[1] (yrs.)	70	81
6	Per Capita GNI[1] (US $)	1920	39830
7	Per Capita Exports[2] (US $)	200	5887
8	Per Capita Imports[2] (US $)	267	9435
9	Ease of Doing Business Rank[4](2019)	63	8
10	HDI Rank[3](2019)	131	13

Source: 1.World Bank 2021, World Development Indicators
2.UN Comtrade database 2021,www.comtrade.un.org
3. UNDP. 2020: Human Development Report 2020
4. World Bank. 2020: Doing Business Report 2020

Table 2.1: India's Trade with UK during 2001-2020

Year	Exports to UK	Imports from UK	Balance of Trade	Total Trade Turn over
2001	2.2	2.8	-0.6	5.0
2002	2.4	2.6	-0.2	5.1
2003	2.8	3.0	-0.2	5.7
2004	3.4	3.3	0.1	6.7
2005	5.0	4.3	0.7	9.3
2006	5.4	4.0	1.4	9.4
2007	6.3	4.8	1.5	11.1
2008	6.6	6.2	0.4	12.8
2009	6.5	4.1	2.5	10.6
2010	6.4	5.2	1.3	11.6
2011	8.9	7.5	1.4	16.3
2012	8.1	6.6	1.5	14.7
2013	10.6	6.4	4.1	17.0
2014	9.7	4.8	4.9	14.5
2015	8.9	5.4	3.5	14.3
2016	8.6	3.9	4.7	12.4
2017	9.0	4.3	4.6	13.3
2018	9.7	7.1	2.7	16.8
2019	8.8	6.9	1.9	15.7
2020	7.8	4.7	3.1	12.5
Total (2001-20)	**136.9**	**97.8**	**39.1**	**234.7**
CAGR (%)	**7.3**	**3.5**		**5.7**

Source : UN Comtrade database; www.comtrade.un.org

Table 2.2 : Share of India & UK in Each Other's Trade during 2001-2020

Year	Exports	Imports	Total Trade	Exports	Imports	Total Trade
2001	1.1	0.8	0.8	5.0	5.4	6.3
2002	1.0	0.8	0.8	4.8	4.6	5.6
2003	1.2	0.9	0.8	4.7	4.1	5.8
2004	1.2	0.9	0.8	4.5	3.3	5.2
2005	1.4	1.1	1.0	4.9	3.1	4.6
2006	1.1	1.0	0.9	4.4	2.3	3.8
2007	1.3	1.2	1.0	4.3	2.2	3.9
2008	1.6	1.2	1.1	3.6	2.0	3.3
2009	1.3	1.4	1.2	3.7	1.5	2.8
2010	1.5	1.5	1.1	2.9	1.5	2.7
2011	1.7	1.5	1.3	2.9	1.6	2.6
2012	1.5	1.3	1.3	2.8	1.4	2.1
2013	1.5	1.5	1.4	3.1	1.4	2.2
2014	1.3	1.5	1.2	3.0	1.0	2.2
2015	1.3	1.5	1.3	3.4	1.4	2.3
2016	1.1	1.4	1.2	3.3	1.1	2.1
2017	1.2	1.4	1.2	3.0	1.0	2.0
2018	1.3	1.4	1.4	3.0	1.4	2.0
2019	1.3	1.4	1.4	2.7	1.4	2.0
2020	1.0	1.2	1.2	2.8	1.3	1.8
Average (2001-20)	**1.3**	**1.3**	**1.1**	**3.7**	**2.1**	**3.3**

Source: UN Comtrade database; www.comtrade.un.org

Table 2.3 : Composition of India's major exports to UK during 2001-20

Sr. No.	HS Code	Commodity Description	2001	2005	2010	2015	2020	Total 2001-20	Per cent Share in Total India's Exports to UK
1	271019	Medium oils and preparations	0	721	272	13	256	6357	4.7
2	300490	Medicaments consisting of mixed or unmixed products	16	100	215	376	462	4592	3.4
3	711319	Articles of jewellery and parts thereof	109	142	201	297	177	4326	3.2
4	870322	Motor cars and other motor vehicles	0	12	269	138	59	2932	2.2
5	610910	T-shirts, singlets and other vests of cotton	40	128	127	160	94	2538	1.9
6	880330	Parts of aeroplanes or helicopters	9	5	154	155	92	2060	1.5
7	100630	Semi-milled or wholly milled rice	64	60	46	157	149	1990	1.5
8	640351	Footwear with outer soles and uppers of leather	49	73	109	133	31	1882	1.4
9	710239	Diamonds, worked, but not mounted or set	50	65	70	127	102	1861	1.4
10	611120	Babies' garments and clothing accessories	16	36	68	157	116	1836	1.4
		Sub Total	**353**	**1342**	**1531**	**1712**	**1538**	**30373**	**22.4**
	Total	**All Products (Including others)**	**2125**	**4932**	**6394**	**8710**	**7768**	**135783**	**100.0**

Source: UN Comtrade database, www.comtrade.un.org

Table 2.4 : Composition of India's major imports from UK during 2001-20

Sr. No.	HS Code	Commodity Description	2001	2005	2010	2015	2020	Total 2001-20	Per cent Share in Total India's Imports from UK
1	710231	Non-industrial diamonds unworked or simply sawn, cleaved	991	1596	1000	7	23	15931	16.5
2	710691	Silver, incl. silver plated with gold or platinum, unwrought	208	169	79	1145	11	8707	9.0
3	710812	Gold, incl. gold plated with platinum, unwrought	401	37	291	285	412	5174	5.3
4	720449	Waste and scrap of iron or steel	99	231	345	276	148	4444	4.6
5	760200	Waste or scrap, aluminium	9	42	96	168	171	2268	2.3
6	220830	Whiskies	3	14	42	115	95	1262	1.3
7	740400	Copper/copper alloy waste or scrap	26	26	54	82	63	1254	1.3
8	470790	Waste, scrap of paper, board	6	32	54	58	108	1088	1.1
9	841112	Turbo-jets, of a thrust >25 kN	0	0	0	83	121	1073	1.1
10	880330	Aircraft parts	30	38	71	50	15	1002	1.0
		Sub Total	**1772**	**2184**	**2031**	**2270**	**1168**	**42203**	**43.6**
	Total	**All Products (Including others)**	**2734**	**4257**	**5107**	**5327**	**4683**	**96751**	**100.0**

Source: UN Comtrade database, www.comtrade.un.org

Table 3.1 : Export Complementarity Index of India and UK with each other 2001-2020

Year	India's Export Complementarity Index with UK	UK's Export Complementarity Index with India
1995	26.9	41.1
1996	27.8	38.5
1997	25.5	37.2
1998	26.4	33.7
1999	25.8	32.0
2000	29.3	35.5
2001	31.1	36.6
2002	34.3	40.7
2003	29.7	38.9
2004	29.8	39.5
2005	31.7	39.7
2006	32.7	39.5
2007	37.6	43.4
2008	38.0	44.3
2009	41.1	41.1
2010	34.9	38.5
2011	36.8	39.1
2012	42.2	39.5
2013	36.5	33.9
2014	35.3	33.9
2015	38.1	32.4
2016	36.5	34.0
2017	37.1	32.8
2018	37.9	34.2
2019	38.5	34.5
2020	36.0	34.8
Average (2001- 2020)	**43.9**	**48.5**

Source : UN Comtrade database, www.comtrade.un.org

Medicinal Plants : A Self-Reliant India in Primary Healthcare

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**Sonal Shrivastava

ABSTRACT:

Affordability of the healthcare system is a growing concern for the entire world due to the growing population. The future survival of 15,000 species of medicinal plants is threatened by factors like habitat loss, excessive harvesting, global warming, and climate change. The availability of cultivation and processing technologies in India, which has a wealth of 8000 medicinal plants, offers excellent potential to combat the economic power of these plants. In this article, we have focused to promote medicinal plants in primary healthcare (PHC) through self-reliant India which are majorly found in the Anuppur district. The study is based on secondary data. To preserve the global wealth of medicinal plants, everyone must become self-sufficient so that primary healthcare can be provided independently.

KEYWORDS : *Medicinal plants, Economic power, Primary healthcare (PHC), Self-reliant.*

Abbreviations : *PHC (Primary Healthcare), MP (Medicinal Plants), TM (Traditional Medicine)*

INTRODUCTION:

Forest-based Medicinal Plants (MP) offer significant direct and indirect health advantages to all people, but particularly to tribal or rural residents who live in or close to forests. From their usage as poisons to their employment in therapeutic procedures—the latter of which earns them the name "Medicinal Plant"—plants have long been used for human goals. This application was motivated by empirical observations of behaviours in other animals, as some species had ingested plants as a result of wounds.

Through such study, people were able to reconcile unique philosophical and cultural characteristics and organize MP use, which laid the groundwork for several branches of medicine. Thus, MP is regarded as having the capacity to reduce or cure ailments and has a history of being used as a medication by members of the community. Additionally, herbal-based products are in high demand due to covid. However, maintaining

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its effectiveness and quality is a challenge.

On the other side, in recent decades, social groups and government initiatives have evolved that support the promotion and integrity of healthcare, traditional knowledge, and human-nature interaction. The World Health Organization (WHO) began to acknowledge the use of MP and herbal remedies as efficient health solutions in 1978 with the Alma-Ata declaration, confirming their curative, preventative, and palliative capabilities.

To better understand MP use in PHC, this study reviewed the literature on the topic. It looked at MP use in PHC in its various forms, user characteristics, factors that encourage use, the information of health practitioners on the topic and policy measures, as well as the problem of inadequate safety and support for Medicinal Plants used in PHC.

Traditional medicine was defined by a World Health Organization (WHO) Expert Group as the sum of all knowledge and practices, whether explicable or not, used in the diagnosis, prevention, and elimination of physical, mental, or social imbalance and relying solely on hands-on experience and observation passed down from generation to generation, whether verbally or in writing (WHO, 1976).It has been well recognized that most developing countries employ traditional medicine and medicinal plants as a normative basis for the preservation of good health (UNESCO, 1996). Traditional medicine (TM), which is practiced in many low and middle-income countries (LMICs), is a significant source of primary health care for many people and households. For instance, in India, more than 70% and around 80% of primary healthcare are provided by TM, respectively (PHC). The TM treatments created for PHC frequently link independence in their approach because of their emphasis on local resources, culture, traditions, and beliefs. In light of this, we saw TM interventions as a chance to conceive self-reliance in connection to TM.

Makaula conducted the research for the paper Primary Health Care in Rural Malawi: A Qualitative Assessment Exploring the Relevance of the Community-Directed Interventions Approach. The findings indicated that there is a working PHC system that covers two separate districts, but its implementation encountered numerous problems with service accessibility and a lack of money. Health service providers and customers discussed their views on the significance of treated bed nets, home malaria case management, managing diarrheal illnesses, treating schistosomiasis, and providing food supplements to prevent malnutrition.

According to Gautam P. and Richhariya G.P. (2015), the majority of the livestock raised by tribal people include cattle, buffalo, goats, and sheep. Most of the time local remedies are used to treat animal ailments and medications that have been derived from various plants. A total of 23 plant species from 20 different families, that once received treatment are being identified. Several veterinary ailments, such as poisoning and foot injuries and mouth, cuts, gastrointestinal issues, and worms, and these Ethnoveterinary plants' animal bone fractures species are typically gathered from local forests or Chitrakoot of Satna's natural vegetation (M.P.) According to Phondani (2016), the Champawat district of India's Uttarakhand state developed a participatory method to encourage MAP cultivation as a tool for biodiversity protection and livelihood improvement. Here are some medicinal plants (species) which are majorly found in Anuppur district of Madhya Pradesh.

Table 1 : SPECIES (MAJORLY) FOUND IN ANUPPUR DISTRICT:

BOTANICAL NAME	LOCAL NAME	FAMILY	HABIT	PARTS COLLECTED	MEDICINAL USES
Acarus calamus	Bach	Araceae	Herb	Rhizome	Dyspepsia, colic remittent fever
Rubia cordifolia	Majistha	Rubiaceae	Small perennial plants	Roots & stem	Jaundice, piles, skin disease
Asparagus racemosus	Satavar	Lilaceae	Climber	Fleshy roots	Goneral & seminal debility
Costus specious	Keokand	Zingiberaceae	Large herb 2-3 feet high	Rhizome	Fever, dropsy, gravel
Centella Asiatica	Brahmi	Umbelliferae	Herb	Whole plants	Anaemia, cough, brain tonic

Source : In survey M.P.C.A. Bhundakona

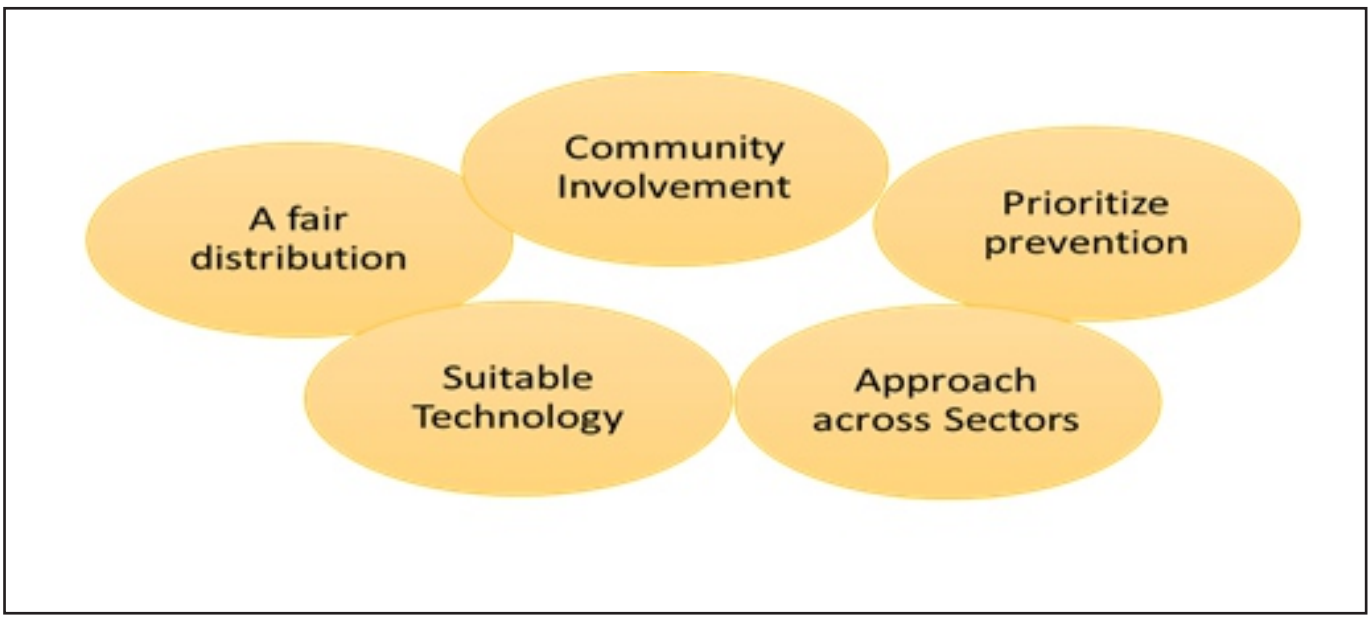
Table 2 : Global Herbal Medicine Marked Size:

YEAR	GROWTH
2021	USD 151.91 BILLION
2022	USD 165.66 BILLION
2029 (Estimated)	USD 347.50 BILLION

Source : Compiled from different sources by the researcher

The global herbal medicine market size is discussed in the table 2. Because of the pandemic herbal medicine witnessing much demand across the regions and in the future demand is high so it is necessary to maintain its supply.

FIVE CORE PRINCIPLES OF PRIMARY HEALTH CARE :



The below discussed principles of PHC can be possible through awareness programmes.

Fair distribution : Everyone has access to equitable and affordable health care. The PHC strategy makes sure the right provider is giving the right care at the right time and place, if people, families, groups, or communities need diagnosis, treatment, rehabilitation, preventative care, as well as support and counselling

to help avoid disease.

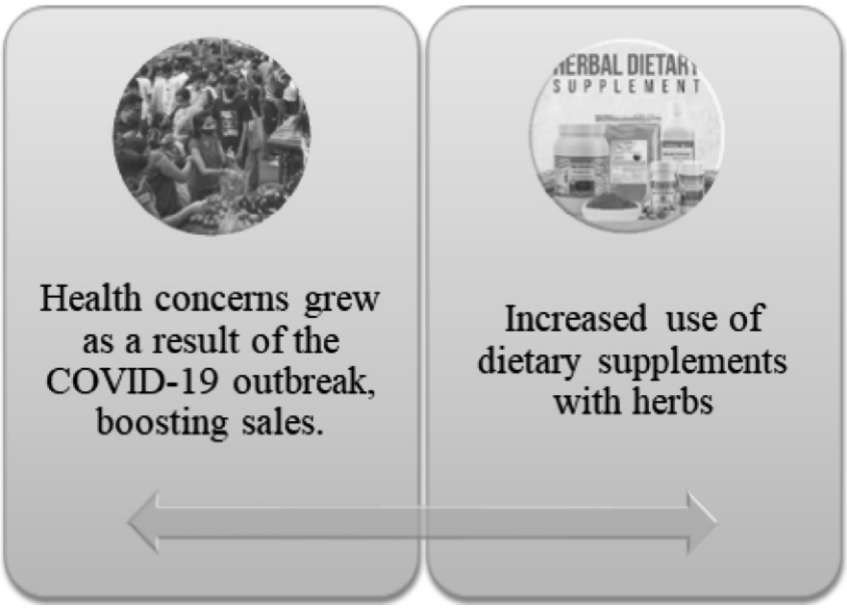
Community involvement : Participating actively in decisions that influence one's health is a requirement for effective health care for people, families, and communities.

Prioritize prevention : In addition to physical and mental health, effective healthcare also considers social, economic, environmental, and spiritual considerations. Making it possible for people to live healthier lives is the aim of health promotion. Activities relating to health promotion, sickness prevention, and significant community involvement are included.

Suitable technology : Based on the health requirements of communities, effective healthcare uses the proper technology. It entails taking into account alternatives to expensive, high-tech services.

Approach across sectors : Collaboration with other industries, such as education, social services, the environment, and others is necessary for effective health care.

Covid-19 Impact :



WHO recognized the covid-19 disease to be a global pandemic. The health and pharmaceutical industries were significantly impacted by the epidemic, and they may succeed in the long and short terms. In Asian nations where herbs are widely accessible, consumers have redirected their attention to unprocessed herbs and locally produced medications that are available to rural or tribal populations to boost immunity.

Medications and nutritional supplements that contain herbal tea, turmeric, coriander, cumin, and other essential spices. As a result, the supply chain was disrupted in the first quarter of 2020. During this time, the global herbal medicine business had average growth. WHO estimates that between 10 and 50 percent of people in affluent nations frequently use herbal products. Its superior immunity to synthetics is the main justification for use.

SIGNIFICANCE OF THE STUDY:

The primary objective is to promote medicinal plants in Primary Healthcare (PHC) through self-reliant India.

Table 3 : Strategy to develop self-reliant India in Medicinal Plants :

• Promotion & Gradual integration
• Research & Development
• Rational uses
• Appoint AYUSH doctor, Healthcare Professionals in the PHC center
• Availability of essential medicine in the PHC center
• Inclusion of AYUSH in different health programs

Source : Compiled from different sources by the researcher

CONCLUSION:

The healthcare system is a key pillar of the culture. Every culture in India creates an efficient medical tradition of its own. The effectiveness of a medical system is challenging to evaluate. Even when the contemporary medical system has achieved its pinnacle in the twenty-first century, the uses of medicinal plants in basic health care has continued to be extremely successful. This is particularly true given that recording traditional medical practices would be very beneficial for independent India and that employing medicinal plants in primary healthcare might have a big impact on future medical care. There are potential opportunities due to the rising demand for natural medicine in developing nations. It is anticipated that the market will experience significant growth prospects as a result of the current trend of using herbal supplements.

REFERENCES

- UNESCO, author. Culture and Health, Orientation Texts-World Decade for Cultural Development 1988 — 1997. Paris, France: 1996. Document CLT/DEC/PRO - 1996. pgs. 129. World Health Organization. WHO Traditional Medicine Strategy: 2002-2005; 2002
- Oyebode O, Kandala NB, Chilton PJ, Lilford RJ. Use of traditional medicine in middle-income countries: A WHO-SAGE study. Health Policy Plan 2016; 31:98491
- Bodeker G, Kronenberg F. A public health agenda for traditional, complementary, and alternative medicine. Am J Public Health 2002; 92:1582-91
- Sofowora, A. (2013). The Role and Place of Medicinal Plants in the Strategies for Disease Prevention. National Library of Medicine, 5(10), 210-229.
  Akerele, O. (1993). Nature's medicinal bounty: don't throw it away. National library ofmedicine,4(14).
- Unnikrishnan , P., & Hariramamurthi, G. (2007). Reviving local health knowledge for self reliance in primary health care. 24-25.
  Patricio, K., & Barbosa, G. (2022). Medicinal plant use in primary health care: an integrative review. 2(27), 677-686. 10.1590/1413-81232022272.46312020
- Savatagi, S., Srinivas, P., & Payyappallimana, U. (2022). Factors influencing the emergence of self-reliance in primary health care using traditional medicine: A scoping review. Indian journal of public health, 2(66), 214-222.
- Payyappallimana, U. Role of traditional medicine in primary health care: an overview of perspective and challenges. Yokohama journal of social science , 6(14), 57-77. (2022, April 17). Medicinal plants await good marketing. 122041700878_1
- Akinyemi O & KA, J. (2018). Medicinal plants and sustainable human health: a review. Horticulture international journal, 4(2), 194-195. 10.15406/hij.2018.02.00051
- Murmu , S., & Pramanik, R. (2018). Medicinal plants in primary health care: a traditional knowledge, Researchgate. (2009). The use of herbal medicines in primary healthcare. WHO Regional office for South- EastAsia.
- Taid, T., Rajkhowa, R., & Kalita, J. (2014). A study on the medicinal plants used by the local traditional healers of Dhemaji district, Assam, India for curing reproductive health related disorders. Pelagia research library, 5(1), 296-301.
- Sohani, S. (2021). Role of medicinal plant in human health perspective. Acta scientific agriculture, 6(5), 65-68.
  Kamatenesi, M., Acipa, A., & Origa, H. (2011). Medicinal Plants of Otwal and Ngai sub counties in Oyam district, Northern Uganda. Journal of ethno biology and ethno medicine, (7), 10.1186/1746-4269-7-7

- Torri, M. (2010). Increasing knowledge and traditional use of medicinal plants by local communities in Tamil Nadu: Promoting self- reliance at the grassroots level through a community based entrepreneurship initiative. Sage journal, 1(15), 10.1177/1533210110379938

- Mathpati, M., Payyappallimana, U., Shankar , D., & Porter, J. (2022). Population self-reliance in health and covid-19: The need for a 4th tier in the health system . Journal of ayurveda and integrative medicine , 10.1016/j.jaim.2020.09.003

Gunjan, M., & Kumar, I. (2015). Marketing trends & future prospects of herbal medicine in the treatment of various disease. World journal of pharmaceutical research, 9(4), 132-154.

- Shanmugam, S., Gayathri , N., & Rajendran, K. (2009). An international journal of ethnobotanicalresearch.

- Giday, M., & Woldu, Z. (2009). Medicinal plants of the meinit ethnic group of Ethiopia: An ethnobotanical study. Journal of ethnopharmacology, 3(124), 513-521.

Role of Tribal Handicraft in the Development of the Rural Economy of Bastar, Chhattisgarh

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ABSTRACT

Bastar district is a tribal and cultural capital of Chhattisgarh, India, which is famous for its dense forest and tribal population. The tribal handicrafts of the Bastar district reflect customs, culture, and social values that contribute to glorifying Bastar. The handicraft sector of Bastar district generates employment for artisans. The sector plays a crucial role in uplifting the rural economy of Bastar. Around 95% of the tribal population of Bastar live in villages and are engaged in producing handicrafts (census 2011). This paper aims to study the role of tribal handicrafts in the Bastar district in the growth of the Chhattisgarh state economy. It is exploratory research based on the information collected through various secondary sources. This study uses the SWOT analysis tool to analyze the socio-economic conditions of tribal handicrafts of Bastar. Handicrafts of Bastar can be an option to develop the rural economy, as it is an essential and integral part of the Bastar's culture.

To conclude, this paper finds a very deep-rooted connection between handicrafts and artisans' life in the context of socio-economic conditions. Tribal handicrafts of Bastar can be the best way to develop the rural economy of Bastar. Bastar's handicraft sector is a suitable livelihood option for skilled artisans. This sector has ample potential to grow, but due to the presence of some challenges, this sector has not grown to its full potential. Colossal development is needed for rural Bastar, and a handicraft sector is an option that will contribute to the overall development of Chhattisgarh's economy.

Keywords - *Tribal handicrafts, Rural Economy, Bastar Culture, Livelihood Option*

INTRODUCTION

Bastar is a tribal district of Chhattisgarh located in the southern part of the state. There are a total of seven blocks in Bastar. Those are Bastar, Jagdalpur, Bakavand, Lohandiguda, Tokapal, Darbha, and Bastanar. According to the 2011 census, the total population of Bastar is 834375, out of which 698864 live in villages

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(83.75% of the total population). Bastar has a tribal population of 520779, out of which 491321 live in villages (94.34% of the total tribal population). Some significant tribal communities of Bastar are Gond, Maria, Muria, Dhruva, Bhatra, and Halba. The tribal handicrafts of Bastar have the rich and traditional heritage of the tribes. People practiced diversified art forms which depict their simplicity, traditions, customs and uniqueness. The tribal society of Bastar is famous for its mastery of making unique and vibrant handicrafts. The handicrafts of Bastar are broadly divided into four categories (1) wood art, (2) Metal art, (3) Clay work, and (4) Fabric. Metal art consists of Bell Metal (Dhokra art) and wrought iron (Loha Shilp). Terracotta comes under clay art, and Kosa Saree of Bastar is famous under the fabric. Some other handicrafts of Bastar are Godna, Tumba art, bamboo art, and sisal art. The tribes of Bastar have practised these art forms that are one of the vital sources of their livelihood. These art forms are natural and traditional talents transferred from one generation to another.

The rural economy of Bastar has majorly based on agriculture and forest produce. Handicrafts of Bastar are one type of business with much potential to developits rural economy. In the changing world scenario, craft products exported to various countries form a part of lifestyle products in the international market. The impact is due to changing consumer tastes and trends (Isaac & Shukla, 2011). It plays a crucial role in the Bastar economy by employing its artisans. Handicrafts have always been an essential and integral part of Bastar culture. It helps to improve the artisan's economic conditions and make their lives easier and more sustainable. These art forms of Bastar are necessary for artisans and to state, as they can be an option for improving the rural economy of Bastar. Plenteous opportunities exist to work in this field to reform the rural economy through conserving and growing handicrafts. Bastar's area where handicrafts are widely practised is Parchanpal, Arrakot, Khorkosa, Taragaon, Jagdalpur, sirmud, Alwahi etc.

LITERATURE REVIEW

(Hemant et al., 2020)The study held in Baster resin of Chhattisgarh focuses on the decreasing sale of Baster art products aiming to assess the effectiveness of the current promotional strategies. The study considers the period from 2014 to 2020, concluding that the sale of tribal products got affected in the past few years. Some reasons behind this are demonetization, higher pricing, increased cost of raw materials, lack of infrastructure, and COVID-19. After the post-demonetization, the sale increased but then decreased from 2018-2020. Some academicians believe that for a reasonable consumption rate, the products should fall between ₹50 to ₹5000.Also; the art should be designed keeping in mind their originality. The study says that consumer

feedback should be necessary for further improvement.

(Duarte et al., 2014)This study examines the case of a micro firm engaged in terracotta art in Impruneta, Italy. It also studies the depth of collaboration among the local artisans aiming to consider collaboration theory in the context of the micro firm. The study finds the multiple benefits of collaboration among the parties. The study was part of a large project investigating micro-firms around the town. It highlights the multiple benefits of collaboration, but very few participants are interested in collaborating. In the investigation, the study finds two groups of terracotta artisans, one who engaged in collaboration and the second who individually followed their interest. Besides that, there are also various numbers of challenges found in the process of collaboration. Collaboration with third parties is helpful for the terracotta artisans for further development.

(Chakroborty et al., 2021) the paper studies the pattern of migration of artisans along with their current socio-economic conditions with particular reference to Dhokra craft. Dhokra art is essential for the artisans from the economic point of view, as they work for their sustenance and cultural and traditional values. The artist of Bankura and Brdhaman are progressive as they adopt the 'Sanskritised' cast designation of 'Karmakar'. Nowadays, they are appreciated as an artist worldwide and have earned respect. The study also finds enough women's participation, indicating women's empowerment in the cluster. As a result of Dhokra art, the cluster and the village have flourished far beyond the area. In recent years, the products of Dhokra artisans are also in great demand in domestic and foreign markets. The artist is trying their best to satisfy the demand of customers.

(Das, 2018) states that the craft cluster in rural India has a source of income generation and innovation for developing sustainable rural livelihood. However, craft clusters suffer a lot in income generation, inadequate policy attention, better market facility etc. The supply-side constraints are the absence of collective actions by the artisans of the cluster. The study is based on primary data aiming to discuss innovation within an informal and poor economic context. The study observes that the production, labour process, and business play a vital role in institutional innovation that would facilitate skills and market channels. Craft clusters must be promoted as a business activity for better livelihood facilities. The study tries to understand the nature of discouragement to inclusive innovation in the rural cluster of Rajasthan. Craft as an art form and livelihood needs to be specified towards developing a healthy approach to inclusive innovation.

(Banerjee & Nagwani, 2017)It is a descriptive study based on the Dhokra art of Chhattisgarh, its challenges

and features. The study says that Chhattisgarh is blessed with the traditional talents of Dhokra artisans, which have emerged with different periods of growth. The famous regions of Chhattisgarh for Dhokra art are Baster, Kondagoan, and Jagdalpur. Promoting tribal art will reveal hidden talents and strengthen the Indian culture worldwide. Traditional artisans of Dhokra art need help to flourish, Help with marketing, social networking, funding or investments. The study says they cannot take advantage of government schemes due to a lack of literacy.

(Ghimire, 2008) this study examines farmers' dependency on bamboo resources to fulfil their livelihood. The study concludes that bamboo can play an essential role in the rural economy and will improve the livelihood of the rural economy. Bamboo is one of the income-generating modes for poor and landless people of Nepal. It plays a significant role in boosting the rural economy through employment by bamboo craft making. The study also finds that most Pahari people have less land for agriculture, which is not enough to feed their families. To fulfill this food insufficiency, the Pahari people do bamboo work as their alternative source of income. Bamboo craft making has been a traditional occupation of the Pahari people for hundreds of years. It is a family-based occupation. The study highlights the problems faced by the people and bamboo organizations: lack of market, bamboo raw materials, technical knowledge, skill development training, small land holdings, subsidies etc. The people have the opportunity to shift their traditional technique of work to modern to earn more.

(Jena, 2016) in his article states that Indian art is a combination of local tradition with outside influences. The study has been undertaken to analyze the terracotta artisans' socio-economic status and their marketing strategies. During the study, he finds the artisans' strengths, weaknesses, opportunities and threads. The significant challenges of the artisans are marketing the products; due to lack of awareness and illiteracy, the artisans benefited less. An attempt should be made by the govt to preserve them and also to bring sustainable development to the culture. There is much more scope for further development of the craft market of India.

–(Pani, 2016) in his empirical study, he described consumer preference concerning tribal handicraft products. The study says that demographic factor like age and gender does not affect consumer preference. In reality, consumers are affected towards the simplicity, natural design, creative expressions, eco-friendliness and uniqueness of the art. These are all things consumers find in buying tribal handicrafts. The study is fruitful for organizations, researchers and academicians to examine buyers' behaviour towards tribal products.

(Ghosh, 2014) provides a detailed description of the terracotta art in Bankura, West Bengal. The study says

that the economic return of terracotta production is high for marginal workers. The incomes of the households are irregular because of the lack of market facilities and the presence of intermediaries. Even though their monthly income is above the poverty line, their economic condition is deficient because of an uncertain market and internal problems. The major problems they face are the availability of soil, good market, inactiveness of potter's cooperative society, lack of modern technology etc. The study concludes that more encouragement should be from the statecraft council and government to promote the craft at the national level. We should make a good network of terracotta art to attract tourists.

(Roy, 2014) focus on consumer cognition about the bell metal and the problems the artisans and cooperatives faced. It also studies the possibilities of the bell metal industry in Assam. The study finds that most artisans who have worked for more than ten years have problems witha lack of raw materials, finance and training. Earnings of most of the artisans have gradually increased after joining the cooperative, but this is not sufficient for them; they want a pension and life insurance from the government. The customer wants some changes in the product which suit the modern lifestyle, like changes in design, size and shape of the product. The study concludes that the condition of the bell metal sector is not good as they face the problem of a lack of raw materials, which leads to an increase in the price of finished goods. The artisans have been suffering from a lack of basic facilities like drinking water and sanitation, which leads to declining health for the workers and their family members. Technological upgradation is needed as the whole process is done through traditional techniques, which consumes time and hard labour.

RESEARCH GAP

After going through an extensive literature review based on the socio-economic conditions of handicrafts of Chhattisgarh and different forms of art and culture, many studies focused on several problems like promotional and marketing issues, problems and prospects of the artisans, livelihood and economic matters of different art forms. The point that is not focused on yet is the contribution of handicrafts to the overall growth of the rural economy of Bastar.

OBJECTIVE AND SIGNIFICANCE

This paper aims to study the role of tribal handicrafts in the development of the rural economy of Bastar.

The handicraft sector is significantly essential for artisans as well as districts. It plays a vital role in the

upliftment of Bastar. Providing artisans with adequate facilities and promoting their crafts will bring them up and open the road map for developing a rural economy.

HANDICRAFTS OF BASTAR

Bastar is famous for its dense natural forest and great tribes. The tribes of Bastar are famous and have mastery in making unique and indigenous products of handicrafts. It is a tribal region where we will see pure tribal arts and crafts forms. It will not be strange if we feel entirely amazed by the richness and charisma of the arts and crafts of tribes. The region's people are rich in rare artwork, liberal culture and innate nature. Bastar's area where handicrafts are widely practised is Parchanpal, Arrakot, Khorkosa, Taragaon, Jagdalpur, sirmud, Alwahi etc. The very famous and popular handicrafts of Bastar are-

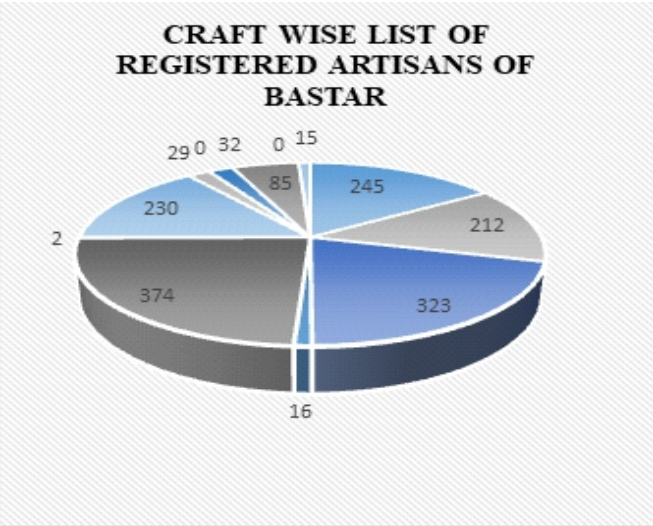
- **Bamboo Art-** The tribes of Bastar are skilled in making bamboo products that include items like baskets, wall hangings, table mats, table lights, fishing traps, hunting tools, etc. Bastar is a highly dense forest area where the availability of bamboo is abundant.
- **Terracotta-** Bastar has skilled artists making terracotta products. Artisans collect the most refined quality clay from the bank of the river Indravati. They make primarily decorative terracotta items like table lights, elephants, tigers, deer, jewellery, pots etc. The artisans still use the traditional technique to make terracotta.
- **Bell Metal (Dhokra) -**Bell metal, also called Dhokra, is an age-old art transferred from one generation to another. The bell metal of Bastar is very famous and popular. Artisans make bell metal products by using brass and bronze. It is a non-ferrous metal, using the lost-wax technique or hollow casting to produce Dhokra. A tribe like Ghadwa in Bastar is practicing this art. Dhokra is made in a single piece, and no two pieces can ever be the same.
- **Wrought Iron (Loha Shilp)** is another craft form of Chhattisgarh. Artisans use mostly recycled scrap iron to make items of wrought iron. This art is produced by beating metal in the hearth and making shapes using tongs. The efficiency of the craftsman is such that no joints appear in the product, some of the wrought iron products are figures of deities, toys, lamps, candle stands etc.
- **Godna-** tribes of Bastar used to wear lots of ornaments. In this sequence, they use godna as their permanent ornament. They spiritually believe that godna is the only ornament that comes with them after their death. Initially, they made godna on their body, but nowadays, they also print it on textiles. They use natural colour collected from the forest and mix it with acrylic paint to make it more stable on fabric.

- **Wood Carving-** The wood carving art of Bastar has been primitive for a long back. The skilful craftsman of Bastar makes beautifully carved wooden products like sculptures, combs, masks, doors, and ceilings. The artisans use wood like shisam, sal, teak, and kikar, collected from the forest to make items. They also make window frames and pipes. Bastar is a densely forested area where artisans can quickly get raw materials for their work.
- **Tumba Art-** This art form is a less-known craft widely produced in the Bastar region. It originated with the widespread use of empty gourd shells. Tribes inspire this art. They use hollow gourd shells as containers to store water and "Salfi".
- **Cotton Fabrics-** One of the famous and attractive handicrafts of Bastar. These fabrics are made of Kosa threads from a worm found in the forest. This art form is hand weaved and hand-printed by tribes. Printing is generally donewith natural colours extracted from the forest. This fabric comprises dress materials, drapes and cotton saris – well-known as Bastar Kosa saree.
- **Wall Painting-**The ancient tribal art form known as wall painting displays Bastar's well-known and lesser-known tribal festivals on both the wall and the canvas. This art is based on folk art and culture.
- **Sisal-**Sisal is a wild plant from whose leaf fibres are extracted, usually white.The artisans make various decorative and valuable items from sisal fiber. In the Bastar district, the plantation of sisal is done by the forest department, so the raw material is quickly supplied.
- **Cowrie Art-** Cowrie is the local name for shell work. Banjara tribes of Bastar weave beautiful garments in cowrie. This craft is primarily seen in tribal ornaments.

As per the record of the Chhattisgarh handicraft development board, the total number of craft-wise registered handicraft artisans in the Bastar districts 1563. (Table 1, Fig. 1)

Table 1, Diagram 1, Number of registered artisans of Bastar and their respective craft forms.

NAME OF CRAFT	NO OF ARTISANS
Bell Metal	245
Bamboo	212
Wood	323
Wrought iron	16
Terracotta	374
Stone	2
Shisal	230
Godana	29
Wall painting	0
Kashidakari	32
Traditional cloths	85
Tumba	0
Cowary	15
TOTAL	**1563**



Source: C.G. Handicraft Development Board Raipur.

Table 1 and diagram 1 provide information regarding the number of registered artisans of Bastar. Terracotta shows the highest number of registered artisans,374; after that, wood carving and bell metal are in a row of 323 and 245, respectively. Wall painting and Tumba arts have zero number of registered artisans.

BASTAR HANDICRAFT MARKET

The handicraft market of Bastar is not that developed. This sector is highly unorganized and labour-intensive. Numerous artisans are engaged in handicraft work as their definitive work from generation to generation, and some work part-time. The sector generates employment opportunities for skilled artisans and the weaker section of society. The artisans generally sell their products through government emporiums, weekly haat bazaars, government exhibitions, e-commerce and fairs. There is an escalating demand for these products in countries such as Italy, Germany, Switzerland and France, which makes this craft one of the vital factors for attaining foreign currencies. There is necessary to improvise the marketing process for these artworks. Since this market is unorganized, the artisans do not earn sufficient wages (Hemant & Pawar, 2019).This sector is important from an economic point of view as it demands low capital investment and has a high ratio of value addition.

KEY FACTS ABOUT BASTAR HANDICRAFTS

- The sector is highly labor intensive and Bastar has numerous skilled artisans.
- Bastar has abundant natural resources as around 45% of the area is forest cover, providing artisans raw materials for their craftwork.
- Tribal handicrafts of Bastar are one of the essential sources of income generation, which can be an option for further rural development.
- This age-old artwork of the tribes of Bastar is not just their source of livelihood, but it reflects their rich traditional culture and social values.
- Artisans still follow traditional methods to produce craftwork that portrays their simplicity and love for nature.
- Most artisans live and practice their work in rural areas and have a tremendous capacity to grow.

SWOT ANALYSIS OF BASTAR HANDICRAFTS

STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
• Skilled human capital • Abundant natural resources • Diversified product range • Low capita investment • High rate of value addition • Flexible nature • Environmental friendly • Aesthetic value and performing quality	• Lack of finance • Lack of promotion • Incomplete market knowledge • Insufficient infrastructure • Improper marketing methods • Low wages • Low income generation • Dependency on middleman	• Enormous market potential • Innovation possibilities • Promotion leads to grab large market • Rural development • Employment generation • Training facilities to artisans • Encourage tourism	• Government policies and rules • Enhanced technological facilities • Lesser demand

STRENGTHS

- Having a large no of skilled human capital is an advantage of Bastar in the uplifting rural economy
- Bastar is blessed with natural resources, and effective utilization of these resources will develop the economy
- A diversified product range attracts consumers towards handicrafts
- This sector needs meagre capital investment and has a high ratio of value addition
- Having deep-rooted aesthetic value and performing quality is the originality of the products
- Tribal handicrafts depict ancient art and culture, which makes them more original and natural
- The sector has flexible nature to adopt modern designs and technology
- The handicrafts of Bastar are produced by using environmentally friendly methods

WEAKNESSES

- Lack of adequate finance is a significant issue in this sector

- Lack of promotional activity restricts the crafts to the village only
- Improper market knowledge cause artisans fewer earnings
- Insufficient infrastructure decreases the interest of artisans in continuing this work
- Insufficient marketing strategy is a barrier between consumers and the products
- Low wages for workers demotivate the artisans, and because of that, they shift their interest to doing other work
- The handicraft sector fails to generate sufficient income for the artisans
- High dependency on a middleman to sell their products causes the low-income generation

OPPORTUNITIES

- The tribal handicrafts sector has enormous market potential to grow
- It has large scale innovation possibilities due to its flexible nature
- Promotion of handicraft leads to grab large market
- The handicraft sector has the potential to contribute in rural development
- Tribal handicraft sector has capability to provide employment to the rural artisans at large level
- Training facilities to artisans will make them more talented to produce innovative products
- This sector will encourage tourism by attracting consumers towards tribal handicrafts

THREATS

- Government policies and rules to procure raw materials from the forest are one of the threats in the handicraft sector
- Enhanced technological facilities in competitive nations lead to cut-throat price competition.
- Lesser demand in domestic as well as the foreign market is another challenge for the handicraft sector

CONCLUSIONS

From this study, we can conclude that tribal handicrafts of Bastar can be the best way to develop the rural economy of Bastar. Bastar's handicraft sector is a suitable livelihood option for skilled artisans as there are 1563 registered artisans in Bastar. The tribes of Bastar have magical talents and gifted hands. Using their talents to develop the rural economy and betterment of people can be the best-suited development strategy for

rural Bastar. Utilizing skilled human resources effectively and efficiently will improve economic conditions. The SWOT analysis of tribal handicrafts of Bastar says that this sector has ample potential to grow, but due to the presence of some challenges, this sector has not grown to its full potential. Incremental progress is not enough. This sector needs a high jump to grow significantly as rural Bastar conditions are not good. Massive development is needed for rural Bastar, and a handicraft sector is an option.

SUGGESTIONS

As we have seen in the SWOT analysis, Bastar's tribal handicrafts face several problems, and the study suggests the following measures to overcome and face those problems-

- Advertising Bastar's talents and arts in domestic and foreign markets.
- Developing a systematic market to sell produced handicrafts will help earn more.
- Proper infrastructure facilities encourage artisans to continue their work and create further employment.
- Promoting this beauty of Bastar to attract consumers around the world.
- Fixing the wage rate for artisans by the government will help artisans to generate a decent income.
- Providing financial help to artisans will boost their motivation to work effectively.

REFERENCES

- Banerjee, S., & Nagwani, A. (2017). "Dhokra" The Tribal Art of Chhattisgarh State. Journal of Rural Development Review, 3(3), 1–12.
- Chakroborty, R., Chatterjee, S., & Choudhury, S. (2021). Changing Paradigm of Life : An Empirical Study among the Dokra Brass Casters in West Bengal, India. 9(2), 17–29.
- Das, K. (2018). Crafts, innovation and exclusion: posers from a terracotta cluster in rural Rajasthan.
- Duarte, A., Alessandro, A., Alonso, A. D., & Bressan, A. (2014). Collaboration in the context of micro businesses The case of Terracotta artisans. https://doi.org/10.1108/EBR-08-2013-0107
- Ghimire, A. (2008). An Assessment of the Dependency of Farmers on Bamboo Resource for Rural Livelihood in Lalitpur District, Nepal Ananta Ghimire Research Supervisor Co-supervisor Co-supervisor Shyam Paudel. August.
- Ghosh, D. B. K. (2014). Economics of Eco-friendly Terracotta Products in Bankura District of West

Bengal Dr. Bikash Kumar Ghosh 1. 2(2), 233–245.

- Hemant, S., Management, M., & Hiraben, S. (2020). A STUDY ON THE IMPACT OF MARKETING STRATEGIES ADOPTED. 19(4), 3738–3745. https: //doi.org /10.17051 /ilkonline .2020.04.764780
- Hemant, S., & Pawar, A. (2019). Diorama of Tribal Crafts Market : With Special Reference To Bastar. International Journal of Advanced Research, 7(12), 528–534. https://doi. org/10.21474/ ijar01/ 10177
- Isaac, J., & Shukla, H. (2011). Chhattisgarh Handicrafts Development Board-Success through Market Coverage Strategy:A Case Study. Review of Professional Management- A Journal of New Delhi Institute of Management, 9(2), 93. https://doi.org/10.20968/rpm/2011/v9/i2/100419
- Jena, S. K. (2016). Plights of Terracotta Artisans of Orissa : A case study of Kotpad Block Plight of Terracotta Artisans of Orissa : A Case Study of Kotpad Block. June 2006.
- Pani, D. (2016). An Empirical Study of Impact of Demographic Variables on Consumer Preference towards Tribal Handicraft – A Case of Rayagada District during Chaiti Festival. 8(7), 61–68.
- Roy, R. (2014). "Entrepreneurship Evolution of Cluster Industry in Assam" with special emphasis to Bell metal Industry of Sarthebari. International Journal of Research in Management & Business Studies (IJRMBS, 1(3). www.ijrmbs.com

Market Information among Farmers in Madhya Pradesh

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Abstract

Having achieved a steady growth in the production aspect of agriculture, Madhya Pradesh looks forward to realising its untapped potential in the area of agricultural marketing. Information is widely recognized as an important component of agricultural marketing having the ability to reduce disparities and ensure greater participation. The study is an attempt to identify the sources, accessibility, usage of mobile, pattern of information and constraints to agricultural marketing information (AMI) in the three agricultural divisions of Madhya Pradesh. The sample size consisted of 360 farmers based on purposive and random sampling technique from Indore, Gwalior and Ujjain. The study finds that informal marketing information sources (progressive farmers), though not formally organized, are the most readily available sources of agricultural marketing information among the respondents and there is a lot of reliance on these farmers for information on agriculture and related aspects as well.78.3% of the surveyed farmers had access to market information while 21.6% of them had no access to market information, suggesting that agricultural market information is accessed by a high proportion of the respondents, which is a good indicator. Accessibility to information was found to be significantly associated with landholding, education, income, and distance from the nearest town and road connectivity. Usage of mobile for gathering market information is higher in the above the poverty line (APL) farmers (59.5%) and amongst non-users of mobile, it is higher in the category of below the line (BPL) farmers (68.5%). Poor extension facility was sighted as the biggest constraint by the farmers; while prices in local markets, quality and grade norms and demand in different markets were accessed most by the farmers. The study recommends that proper integration of various agencies for adequate and efficient dissemination of vital agricultural marketing information with a localized approach is the solution.

Keywords: Agricultural Marketing Information, Regulated Markets, Mobile, Madhya Pradesh

INTRODUCTION :

"Market information is a means to an end, not an end in itself."

With an ever-increasing demand of agricultural produce, changing consumption pattern and expanding

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markets, farming has become a knowledge-intensive industry and an access to information can act as a useful tool towards effective decision making by the farmers. Reducing knowledge gaps and sharing agricultural marketing information to farmer is an essential input for increasing productivity and boosting agricultural growth in rural areas. Farmers must be able to seek out and compare the information available for different outlets if they are to sell to best advantage. Price information is less useful if there is only a single market outlet, or if farmers are price takers rather than price seekers. Where there is a very wide gap between the farm gate price and the price paid in wholesale markets and by consumers, market information can help narrow the gap, but only as part of an efficient marketing system.

In the context of meeting the holistic needs of increasing agricultural production, yet do so in a sustainable manner, information dissemination on appropriate technologies and agronomic practices need a more pro-active and participatory role initiating and facilitating mutually meaningful and equitable knowledge-based transactions among agricultural researchers, trainers and primary producers. All this needs to be done in an effective and cost-efficient manner (Sharma, 2002). Market information is the lifeblood and important marketing function which ensures the smooth and efficient operation of the marketing system. Accurate, adequate and timely availability of market information facilities decision about when and where to market the products is needed. Market information creates a competitive market process and checks the growth of monopoly or profiteering by individual. However, whether or not this access leads to impact often depends on issues related to markets, institutions, policies and resource availability. For deciding which crop to sow, farmers need information on current price, market arrival related information and forecasting of market trends. Along with the information of the spot market, the forward and futures market prices are also required to be disseminated to farmers. They need to be trained in taking appropriate signals from the forward and futures prices. Crop sowing decisions can thus be taken by farmers based on prevailing spot market price/futures price, and crop planning can be done based on signals transmitted from market through futures prices. As regards perishable crops like onion, potato, vegetables, fruits, etc, price spikes and glut situations can be avoided by strengthening production clusters, developing distributed warehousing facilities, putting in place agri-logistics arrangements like cooling and processing facilities, transportation, etc. For years, farmers in India have had inadequate access to market information regarding their crop prices. They have been at the mercy of arthiya's, commission agents and middle men to sell their produce. These arthiya's and commission agents often gave farmers loan for cultivation, that too at very high interest rates. Often times farmers just wanted to sell their produce and get money to eke out their living. Since access to information regarding crop prices was minimal, they sold their produce to the commission agents and traders, at whatever

prices they quoted. When sold in open markets farmers lose out on prices besides being subject to commission charges, loss in weighment etc. Availability of accurate, timely and adequate market related information enables farmers in informed decision making as to when and where to sell their produce (Acharya, 2003). ICTs are becoming more and more important in connecting farmers and providing information. However, traditional channels (audio, radio and video) used in new, innovative ways - including in combination with ICTs - retain a vital role in communication (Thorp,2016). The role that ICT can play as an instrument of change is potentially transformative. Smallholder farmers, particularly women involved in agriculture, have a huge advantage when the right ICTs are brought into the agriculture value chain. The access to the right information at the right time gives them the capacity to make informed decisions that affect their livelihoods and thereby play a major role in ensuring food security (FA0,2017) Finally, it should be remembered that while the lack of marketing information is an important constraint for farmers in developing countries, there are other urgent problems. Information is only one of the constraints facing farmers in remote parts of Asia who are trying to earn money by growing produce for sale. Other difficulties include poor roads, the distance from urban markets, the lack of transport, the lack of a good grading system, and poor packaging so that produce is spoiled in transit. Marketing chains are long. Produce passes from one dealer to another, in a journey that may take many hours or even days to reach its final destination. Where farmers face these difficulties, and where they have little choice over marketing outlets, even a very good marketing information service may not help much. It may be a prerequisite for an efficient marketing system, but it is not enough in itself to create one.

Several studies have shown that the wide availability and multiple sources of information have not significantly changed farmers' behavior towards new technologies and information - a fact that is often attributed to a lack of knowledge or understanding of farmers' perspectives and needs on the part of information providers(Mittal & Mehar,2013). Here, (Bonnen, 1975) suggests that three distinct steps need to be taken before one can produce data which purport to represent any reality. These are conceptualization, operationalization of concept (definition of empirical variables) and measurement. Market Intelligence or the dissemination of market information is an important area which could play a significant role in farmers' decision making regarding the production and marketing decisions of agricultural commodities by the farmers.

Methodology

The sample was decided on the basis of the cultivator's population from the different agricultural divisions of

Madhya Pradesh, of which Gwalior, Indore and Ujjain were subsequently selected. 120 farmers each from these three regulated markets were interviewed and thus, in all a total of 360 respondents were interviewed based on various objectives of the study. The study makes an attempt to critically study the prevailing market information systems in the state and evaluate their role in advanced agricultural practices. Also, come up with actionable suggestions for setting up growth-oriented market information systems in the state.

1. To identify existing information sources, accessibility to market information and factors influencing the access to market information.
2. To explore the usage of mobile among the respondents
3. To study the pattern of utilization of agricultural marketing information by different categories of sample farmers,
4. To identify the major barriers faced by farmers in utilizing the benefits of information

Results and Discussion:

In accordance with the objectives of the chapter, collected data on related questions was tabulated and analyzed. To understand the role of institutionalized sources like extension agencies and newspapers etc., and their comparative importance in disseminating information about improved farming practices among farmers, further probing into the problem was necessary, and hence sources of market information, accessibility to market information and its association with selected socio-economic variables was checked. The role of mobiles as an emerging tool for collecting market information was subsequently explored. For knowing the pattern of usage of information, a five-point Likert scale was used to collect score from 5 for the most accessed to 1 for the least accessed.

(1) Sources

Different stakeholders in agriculture need varying amount of information and data. The accuracy, timeliness and reliability of information decide its value. Thus, respondents' choice of source and their interaction plays a crucial role in shaping their future course of actions. During the field survey; about 17 different sources of information were identified. For the purpose of analysis, these different sources were grouped together in four categories (face-to face interaction, other farmers, traditional media and modern ICTs) as done in s study by Mittal and Mehar, 2013.

The most common sources of information as shown in Table 1.1 are Progressive farmers-relatives/friends(69.4%), traditional media like TV, Radio and Newspapers (45.83%), extension agents (39.44%); mobiles and internet under the category of modern ICT (29.1%). This result suggests that informal marketing information sources (progressive farmers), though not formally organized, are the most readily available sources of agricultural marketing information among the respondents and there is a lot of reliance on these farmers for information on agriculture and related aspects as well. This also asserts that non-institutionalized source of information is very important for Indian farmers (Dasgupta, 1965).

On one hand, these progressive farmers are the main information informants to the farmers and on the other hand, government agencies and extension agents rely on them as the key contact person in the village for dissemination of information, field trails and frontline demonstration of technologies.

Traditional media still dominates the arena with 45% users. The implication of the foregoing results is that enough efforts have not been put in the area of formal marketing information sources (print and electronic media) as far as carrying out the function of information generation and delivery to rural farmers is concerned. Literacy affects farmer's use of newspapers, also noticeable is the fact that most of the newspapers do not have extensive coverage of agriculture related news. Despite several efforts to reach small-scale farmers, however, India's current extension system often fails to effectively communicate with them. This is largely due to issues such as generic, top-down content to which the farmers cannot relate. While the content may be scientifically accurate, it may not be presented in a way that the farmers can easily grasp, either due to language barriers or because it is presented in brief or abstractly (Sylvester, 2015). In the case of extension agents, these agents meet some members of the farmers' groups who then pass on the information to the others in the groups who are absent during meeting. Extension agents meet the farmers in the groups for group meetings or workshop. This could explain its wide use next to other farmers as sources of market information among the respondents. Krishi Vigyan Kendra (KVKs)- though quite large in number in Madhya Pradesh have been reported to have underperformed and are in question for their reach and effectiveness. Few villages reported that the agriculture staff do not visit them frequently and many a times deal only with certain large/progressive farmers of their area, thus neglecting the small and marginal ones. Modern ICT- mobile and internet are slowly and steadily making inroads into the life of farmers, through the toll-free numbers, kisan apps, Kiosks and kisan Call Centers.

Table 1.1: Distribution of respondents by sources of marketing information

Source of Information	Frequency	Percentage
Fellow Farmers	250	69.4
Traditional Media- TV, Radio and Newspapers	165	45.83
Modern ICT	105	29.1
Extension agents/KrishakMitra	142	39.44

**Source: Author's estimation based on field survey*

**Multiple Responses were collected by the researcher*

(2) Accessibility to Market Information:

The uneven spread of infrastructure – market, finance, administrative (e.g., government services) and physical (roads, etc.) – is equally problematic in developed and developing nations, leading to significant differences in the ability to leverage individual and regional strengths. Insufficient extension services and poor access to information widen the gap in the adoption of new technologies and can lead to lower long-term productivity. Most farmers in developing countries therefore lack access to consistent, reliable information for many of their needs and often rely on a combination of these varied but inconsistent sources, plus traditional knowledge, experience and estimates, when making decisions (Miller, 2013). There is an ever-growing demand for timely, accurate and comprehensible information in agriculture as it has acquired the status of a multi-dimensional industry owing to diverse set of stakeholders and risks involved. To survive and to remain competitive, access to information is a sine quo non. Farmers can develop broad and well-informed perspective only when they have information, which they can exploit to make better decisions. Agricultural decision makers rely on information provided by private and public entities (Thornsburyet.al. 2003).

The results in Table 1.2 shows that majority of the respondents (78.3%) had access to market information while 21.6% of the respondents had no access to market information. This result suggests that agricultural market information is accessed by a high proportion of the respondents, which is a good indicator. Economists have long recognized the important role, the information specifically price plays in the efficient functioning of markets (Jensen, 2009).

Table 1.2 : Percentage distribution of respondents by Marketing Information Accessibility

Access to information	Frequency	Percentage
Yes	282	78.3
No	78	21.6
Total	360	100

(3) Factors influencing the access to market information

After knowing the distribution of respondents on the basis of their access to information; it is logical to have an in-depth analysis of the factors that may impact the accessibility to information in the selected districts. Hence, some of the vital parameters/variables are put to test to measure their influence if any on the accessibility to information among the farmers of the surveyed districts. For this purpose, a series of hypotheses have been constructed with the background of knowledge of similar studies. Further, these hypotheses have been systematically tested.

In order to assess the association between farmers having an access to information and the below-mentioned socioeconomic variables, the following hypotheses are tested by applying Chi-Square -X^2 test of independence. The results are presented in table 1.4.

1. Size of landholdings of the farmers
2. Annual Income of the farmers
3. Education level of the farmers
4. Distance from the nearest town
5. Road Connectivity.

Hypothesis (H_0) $_1$*Accessibility to information has no significant association with the size of the landholdings of the farmers*

Hypothesis (H_0) $_2$*Accessibility to information has no significant association with the income of the farmers*

Hypothesis (H_0) $_3$*: There is no association between accessibility to information and the education level of the farmers*

***Hypothesis (H_0) $_4$**: Accessibility to information is not significantly associated with distance from the nearest town.*

***Hypothesis (H_0) $_5$**: There is no association between accessibility to information and the road connectivity*

Table1.4 : Chi-Square test for independence

Hypothesis	Variable	Chi-Square Value	df	Significance Level	Hypothesis
$(H_0)_1$	Accessibility to information and size of the landholdings	75.797	4	0.00*	Rejected
$(H_0)_2$	Accessibility to information and income of the farmers	81.740	2	0.00*	Rejected
$(H_0)_3$	Accessibility to information and education level of the farmers	6.765	5	0.034*	Rejected
$(H_0)_4$	Accessibility to information and distance from the nearest town	8.318	2	0.016	Rejected
$(H_0)_5$	Accessibility to information and road connectivity	31.206	2	0.000	Rejected
Tested at 5% level of significance					

Table1.4 presents the results. Here, accessibility to market information is found to be significantly associated with all the variables; the size of the landholdings of the farmers, income, education level, road connectivity as well as the distance to the nearest town.

These results signify that as the size of the landholdings increases, so does the access as with an increase in the land size, the variety and volume of information is bound to increase, resulting into an increased search for reliable and updated information. Farmers having better socioeconomic status have high social participation and are more inclined towards gathering information. With higher agricultural income, information search may be higher, as the capacity to access and apply information is greater.

Literacy among Indian farmers is extremely low, their attitude to farming is comparatively traditional and there is a considerable paucity of means of communication, especially mass media. Naturally, one can expect some differences in information seeking habits and patterns of among the farmers in India. The findings of the investigation tend to show that education level of farmers does have an impact on their accessibility to information. Literacy empowers farmers to treat agriculture as a business enterprise, make them rational in their approach and develops a scientific mindset among these literate farmers. This suggests that education raises producers' knowledge and awareness of the complexity of the marketing system and leads them to demand more accurate and reliable information. This is because education is a form of human capital that should serve to enhance producers' understanding of the complexities of the marketing system and lead them to demand improved marketing information (Asogwa,Ezihe and Ogebe, 2012).

With better roads the access to information gets better as roads connects farmers to towns and cities, enhancing their exposure and interaction with agents of information. Roads are a particularly important form of rural infrastructure, providing cheap access to both markets for agricultural output and for modern inputs (Jacoby,2000). With the expansion of rural electrification, many farmers have got access to mobile telephone services in recent periods although the network coverage is still very poor. Mobile phones and other ICT devices have reduced the costs and need related to transportation, by facilitating social and commercial communications among the farmers. The results clearly indicate that farmers who are close toan institutional center, be it the open market, cooperative, or the village center, have a higher probability of using various information sources for information searching than farmers who are far from such centers(H_0 4). Farmers closer to markets might have better access to information sources from which they obtain reliable information about current and expected prices as they might have better social ties with traders and institutions in the market than distant farmers, which has been proved in previous studies (Tadesse & Shively, 2013).Living in a close proximity to a market is likely to increase high search behaviour, as it may be easier and more convenient to access different information sources (Babu et.al.2011)

(4) Usage of mobile for gathering Market Information

Mobile phones have been widely recognised as the new and emerging tool to communicate and stay connected. Mobiles have become a part and parcel of urban as well as rural population. The usage of mobile for gathering market information is critical as it is convenient, cost effective and reliable source of information. With the advent of mobile phones, its usage and effectiveness in gathering information on

various aspects of agricultural marketing is an interesting area to explore. Also, to assess how these modern instruments are being used among the different socio-economic class of farming community. The data gathered from surveyed farmers was tabulated and analysed for distribution against social category, education levels and land holding sizes. Table 1.5 summarizes the distribution.

Table1.5 : Profile of User and Non-users of Mobile for gathering market information (N=360)

Distribution by Poverty	User N= 84 (% 23.3%)	Non-User N=276 (%=76.7%)
BPL	34 (40.5%)	189 (68.5%)
APL	50 (59.5%)	87 (31.5%)
Distribution by Education	User N= 84 (% 23.3%)	Non-User N=276 (%=76.7%)
Uneducated	11 (13.1%)	54 (19.6%)
Primary education	29 (34.5%)	136 (49.3%)
Above Primary education	44 (52.4%)	86 (31.2%)
Distribution by Landholding	User N= 84 (% 23.3%)	Non-User N=276 (%=76.7%)
Marginal	24 (28.6%)	171 (62%)
Small	27 (32.1%)	60 (21.7%)
Semi-medium	13 (15.5%)	26 (9.4%)
Medium	17 (20.2%)	18 (6.5%)
Large	3 (3.6%)	1 (0.4%)

Field Survey,2020

Table 1.5 data suggest that by improving the communication flows, mobile phones could potentially strengthen the link between farmers, extension agents and research centers, and vice versa – thereby overcoming criticism of the "disconnect" between the two in many developing countries (Aker, 2010). Jensen (2007) finds that the introduction of mobile phones in Kerala led to a decrease in fish prices of approximately 4%, with enhanced arbitrage between markets. However, due to the reduction of wastage, fishermen's profits increased by an average of 8%.

Usage of mobile for gathering market information is higher in the above the poverty line (APL) farmers (59.5%) and amongst non-users of mobile, it is higher in the category of below the line(BPL) farmers (68.5%). When it comes to distribution of education levels, above primary educated farmers constitute highest chunk (52.4%) while amongst non-users, primary educated farmers were found to be biggest group with 49.3% share. There is an interesting fact that comes out when we look at the distribution of users by land holding sizes. Marginal and Small farmers constitute almost 61% of mobile users, while their share amongst non-users is equally high at 84%. As such information is geared towards large or medium sized farmers (Tackie et.al.1998). To fight such a digital divide, Information Communication Technologies (ICT) can act as a game changer. ICT enables farmers to exchange information, establish cooperation and peer review, and maybe even develop informal information systems that can complement the formal information system of controlling authorities. ICTs are becoming more and more important in connecting farmers and providing information. However, traditional channels (audio, radio and video) used in new, innovative ways - including in combination with ICTs - retain a vital role in communication (Thorp, 2016).

District-wise usage of mobile for market information:

A district-wise analysis of data of surveyed farmers was done to assess which district has a better adoption of mobile for information gathering. This will help in obtaining a clear picture on the usage of mobile phones among the farmers at district level. Table 1.6 presents the district wise users and non-users of mobile.

Table 1.6 : District-wise users and non-users of mobile for gathering market information

	Don't use Mobile	Use Mobile
Alirajpur	76.7%	23.3%
Barwani	90.0%	10.0%
Shajapur	71.7%	28.3%
Neemuch	65.0%	35.0%
Guna	61.7%	38.3%
Murena	95.0%	5.0%

Figure 7.2 : District-wise Users and Non-Users of Mobile for gathering market information

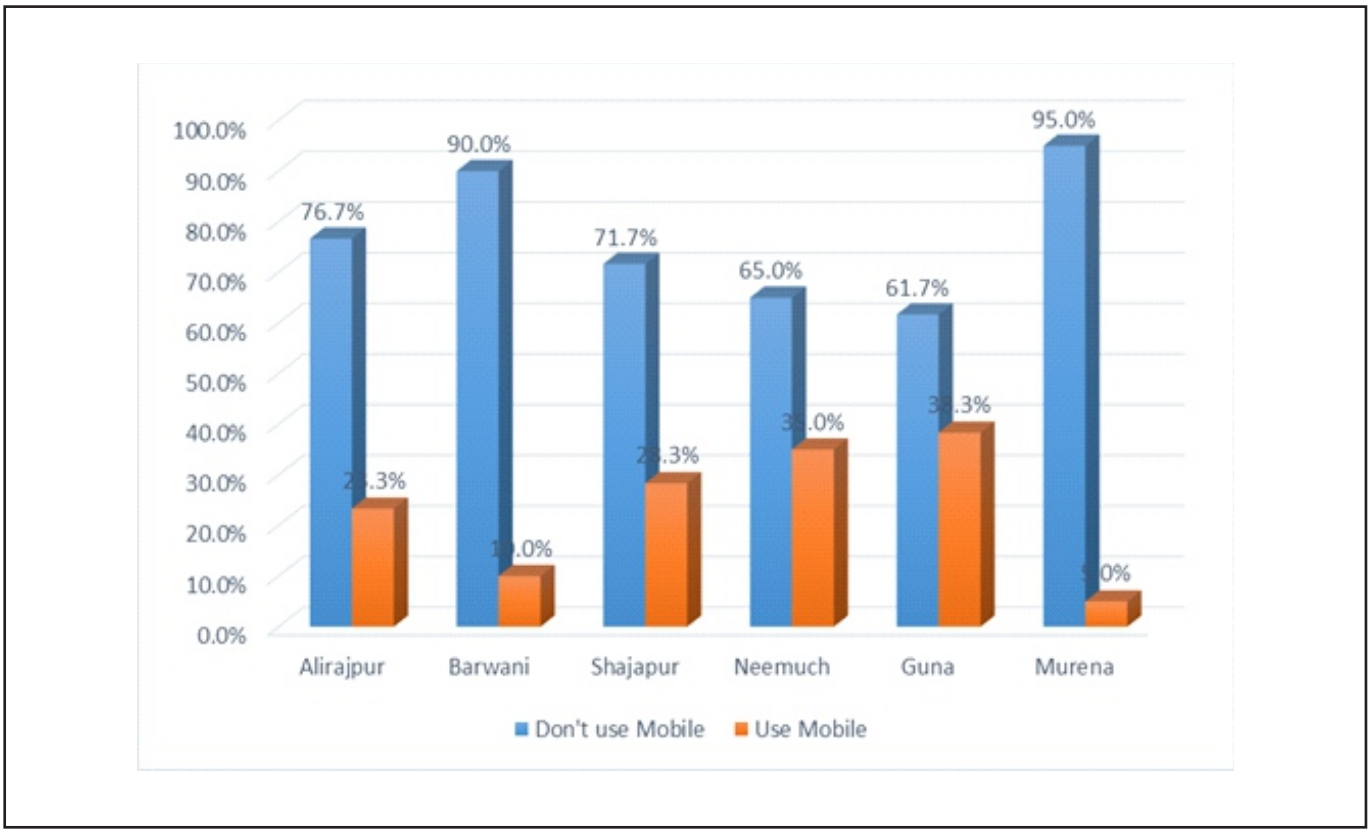

Figure7.2. shows the district wise users and non-users of mobile phones for gathering information among the farmers in the survey area. Guna has highest number of farmers (38.3%) who use mobile for getting market information, followed by Neemuch (35%) and Shajapur (28%). Murena has lowest number of farmers (5%) who used mobile for market information systems as per figure 2.As evident from figure 2, emerging technology like mobile phones are currently under-utilized to access information in the study districts. Despite an increasing ownership, access to market information via mobile phones was found low.

(5) BarrierstoMarketing Information in Agriculture:

Babu et al. (2011) carried the study on farmers' information needs and search behaviours and found that the major constraints to information access for the farmers is poor availability, poor reliability, lack of awareness of information sources available among farmers and untimely provision of information. The traditional theory of competitive markets presupposes that all information is costless and, thus, fully and equally available to all participants. Such theories obviously do not apply to agricultural markets in which there are both information asymmetries and market power (Perloff and Rausser,1983).Despite availability of market

information, there are scenarios where surveyed farmers were not able to derive real benefits from the information and so the survey asked them about the constraints they face while accessing the information.

The barriers are summarized under nine categories as shown in table 1.7 below.

Table 1.7 : Major Barriers faced by farmers in utilizing the benefits of information (N=360)

S.No.	Constraints	Frequency	Percentage	Rank
1	Poor extension facility	108	90	I
2	Inappropriate availability of quality inputs (seeds, pesticides, fertilizers etc)	89	74	III
3	Poor access to irrigation and electricity	80	67	IV
4	Poor storage facility	65	54	VI
5	Poor access to Markets	78	65	V
6	Inadequate Prices	96	80	II
7	Poor or an absence of industry linkage	60	50	VII
8	Labour and other factors pose challenges	35	29	VIII
9	No Problems as such	04	3	IX

**Multiple responses were recorded*

Unavailability of support facilities such as poor access roads, poor transportation system, poor electric power supply, poor telecommunication and poor storage facilities as well as prevalence of natural and man-made shocks all contribute negatively to the provision of marketing information to farmers. Here in the survey poor extension facility was sighted as the biggest constraint by the farmers, followed by Inadequate prices (2^{nd}), Inappropriate availability of quality inputs as 3^{rd}, and poor access to irrigation, electricity(4^{th}) and poor access to markets (5^{th}). The other two important constraints sighted were poor storage facility and absence of industry linkages. So even though farmers have information (e.g., what seeds to use and when to sow), they are unable to implement it because of the sighted constraints. Removal of these constraints will enable the farmers to act on the available market information and derive benefits out of the same. Extension agency should encourage all farmers to subscribe to the various farmersgroups that abound in the state. Thiswill make information

easily accessible to them andenhance information utilization among the farmers.

(6) Pattern of farmers' access to different types of market information

Farmer's access to different types of market information is a major determinant of his overall activities and decisions regarding production and marketing of agricultural produce. But this important aspect of infrastructure usually gets overlooked. Market information needs to be more sophisticated than just price information. Agriculture markets are characterized by numerous types of uncertainties and fluctuations be it climatic, yield and price related, political, labor, global markets, terms of trade thus impacting information in a huge way. Almost all the stakeholders in agriculture make decisions and mitigate risks based on information related to these uncertainties. The persons facing some sort of underlying uncertainty may work directly in commodity production (i.e., farmer or processor) or be a service provider (Extension economist, agri- cultural journalist, strategic consultants (Just et.al. 2002). Under such scenario, it becomes extremely significant to explore and understand the variety of market information, farmers collect and utilize for production and marketing related decisions. Farmers have different types of information needs during each stage, ranging from weather forecasts, pest attacks, inputs (seeds and fertilizer), improved cultivation practices, pest and disease management and prices. Understanding farmer's information needs will help in designing appropriate policies, programs and organizational innovations. Table 1.8 presents the farmers access to different types of market information with their mean scores. Ten types of information related to market were selected and respondents were asked to rate their preferences on a scale of 5- Highly accessed to 1- least accessed.

Table 1.8: Pattern of farmers' access to different types of marketinformation

S. No.	Types of market information	Means
1	Prices in local market	**3.98**
2	Quality and Grade Norms	**3.97**
3	Demand in different markets	**3.93**
4	Post-harvest processing technologies	**2.64**
5	Storage- options and costs	**2.83**
6	New Buyers	**2.28**
7	Best Practices in Production	**2.91**
8	Govt. Policy/schemes	**1.94**
9	Packaging- cost and options	**1.80**
10	Membership- FPO/Society	**1.70**

Results of the findings as shown in Table 1.8 reveal that Prices in local markets (x=3.98), quality and grade norms (x=3.97), demand in different markets (x=3.93) were accessed most by the farmers. Options and costs related to storage (x=2.83), post-harvest processing technologies (x=2.64) and new buyers (x=2.28) were moderately accessed by the farmers. The least accessed information wason Govt. policy/schemes(x=1.94), cost and options about packaging (x=1.80) and memberships (x=1.70) as clear from the table given above. These findings have significant implications as the data suggest that Prices matter most to the farmers, and they are also realising the importance of quality and grading as a vital component of the overall marketing process. Due to better transport facilities, expanded road networks and enhanced penetration of ICT-Information Communication Technology, the farmers are also keeping track of demand in the nearby areas/markets which shows progress in their network and increased participation in markets. From production related information to the marketing related decisions, information can empower farmers to grow and prosper.

Conclusion:

Farming has become an information-extensive enterprise and plays a pivotal role in increasing farmers income by enhancing productivity and reducing associated risks. In Madhya Pradesh, where agriculture is dominated by small landholdings, information access and usage can have profound impact.The findings of this chapter have significant policy implications as it provides a wonderful insight into the reasons behind farmers accessing information or for that matter not accessing it. Information regarding prices is most sought after, while the information on FPOs, New Buyers, Govt. Schemes etc. comes under less sought ones. Also, the findings throw light on the barriers faced by farmers while accessing information. The barriers as stated by the farmers emphasize the need of strengthening the government existing network and further partnering it with the other stakeholders to improve the information system. There is a need to popularize the benefits farmers can have by accessing information and acting upon it.

This can enable farmers make better decisions, mitigate risks, adopt technologies, diversify and reach new buyers and markets. Expanding IT networks, increasing mobile density, internet penetration can make a lot of change in the socio-economic status of the farmers as well the economy of the state.The use of mobile technology is expected to improve market transparency and efficiency and strengthen the farmers 'position as sellers of commodities. Modern days apps and technologies have immense potential to reach many farmers; that have been relying upon the traditional channels and thus the impact can be huge. An appropriate gap

analysis- Farmer and their requirements, content- localized and demand led, training - skill sets and knowledge are few vital areas that the stakeholders in the creation, provision and dissemination of agricultural information need to keep in mind. These suggestions if implemented in letter and spirit can eliminate information asymmetries in the agricultural system thus, making farming more profitable, predictable, and productive.

REFERENCES :

- Acharya, S. S. (2003). Analytical Framework for Review of Agricultural Marketing Institutions. *Institutional Change in Indian Agriculture*, 327.
- Aker, J. C. (2010). Information from markets near and far: Mobile phones and agricultural markets in Niger. *American Economic Journal: Applied Economics*, *2*(3), 46-59.
- Asogwa, B. C., Ezihe, J. A. C., &Ogebe, F. O. (2012). Agricultural marketing information usage among soybean farmers in Nigeria. *International Journal of Innovation and Applied Studies*, *1*(2), 160-170.
- Babu, S. C., Glendenning, C. J., Okyere, K. A., & Govindarajan, S. K. (2012). *Farmers' information needs and search behaviors: Case study in Tamil Nadu, India* (No. 1007-2016-79468).
- Bonnen, J. T. (1975). Improving information on agriculture and rural life. *American Journal of Agricultural Economics*, *57*(5), 753-763.
- Cartmell-Thorp, S. (2016). A new opportunity for the agricultural system. *Spore*, (180), 13-17.
- Dasgupta, S. (1965). Communication and innovation in Indian Villages. *Social Forces*, *43*(3), 330-337.
- FAO. (2017). Information and communication technology (ICT) in agriculture: A report to the G20 agricultural deputies.
- Jacoby, H. G. (2000). Access to markets and the benefits of rural roads. *The economic journal*, *110*(465), 713-737.
- Jensen, R. T. (2010). Information, efficiency, and welfare in agricultural markets. *Agricultural Economics*, *41*, 203-216.
- Mittal, S., & Mehar, M. (2013). Agricultural information networks, information needs and risk management strategies: a survey of farmers in Indo-Gangetic plains of India (Vol. 10). CIMMYT.
- Perloff, J. M., &Rausser, G. C. (1983). The effect of asymmetrically held information and market power in agricultural markets. *American Journal of Agricultural Economics*, *65*(2), 366-372.Sharma, R. (2002). Reforms in agricultural extension: new policy framework. *Economic and Political weekly*, 3124-3131.

- Rajput, N. K., Gandhi, N., & Grover, B. A. (2020, December). ICT in Indian Agriculture: An Overview of the Major Services, Their Penetration and Infrastructural Development. In *International Conference on Innovations in Bio-Inspired Computing and Applications* (pp. 429-440). Springer, Cham.
- Sylvester, G. (2015). Success stories on information and communication technologies for agriculture and rural development. *RAP Publication*, (2015/02).
- Tadesse, G., & Shively, G. (2013). Repeated transaction in rural grain markets of Ethiopia. *The Journal of Development Studies*, *49*(9), 1172-1187.
- Thornsbury, S., Davis, K., & Minton, T. (2003). Adding value to agricultural data: a golden opportunity. *Applied Economic Perspectives and Policy*, *25*(2), 550-568.

Impact of Covid-19 on Public Expenditure of India and Its Most Populated State of Uttar Pradesh

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Abstract

Covid-19 a pandemic that caused great damage to the global economy not only financially but also caused huge loss of life and human resources. This pandemic also caused an unprecedented increase in government spending which increased the burden of additional spending on the government. In this paper, we discussed and analyzed the impact of Covid-19 on government expenditure of central government as well as in Uttar Pradesh. Every event/ change has two aspects. Although here negative impact is more dreadful yet there are also some positive lessons behind this pandemic. This Pandemic has showcased the transformation of health crisis into an economic and social crisis. With the analysis of the committed expenditure of Uttar Pradesh Government, we have also tried to focus on challenges and issues of COVID-19. A lot of opportunities are there to increase government revenue by encouraging tourism sector and capacity to maintain fiscal situation. The state of Uttar Pradesh as well as India, where the population load is more; can grab the available opportunities by using the demographic dividend as human resource.

Keywords*: Government Expenditure, Health Expenditure, Fiscal Deficit and Committed Expenditure*

Introduction

India is the second largest populated country in world which holds 17.5 percent of total population of the world (World Bank) and Uttar Pradesh is the most populated state holds 16.3 percent of total population of India (Censes, 2011). There has always been a need for finance because when a human being wants something, financial resources play a big role for satisfying that want, because through which we are able to meet the urgent requirements, especially, when we are facing a major global pandemic. At the same time, not only do we try to turn the direction of spending by reducing old unnecessary expenses, but also search for new means of income to deal with the sudden situation. Hansen and Sargent (2001) recommend a policy focussed on minimising losses in a worst case scenario. It has been history that the financial requirement has always played an important role when we look at it in ancient times or look at the various tragedies of the nineteenth century which has came in the form of world wars, natural disasters or come in any other form. The current

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pandemic has also directed to all economies of the world, to relocate the expenditure and increased in current expenditure.

Faced with an unprecedented pandemic, loss of scores of human lives captured this worst case scenario. Moreover, epidemiological research highlighted the importance of an initial, stringent lockdown especially in a country where high population density posed difficulties with respect to social distancing. Therefore, India's policy humane response that focused on saving human lives recognised that the short-term pain of an initial, stringent lockdown would lead to long-term gains both in the lives saved and in the pace of the economic recovery. The scores of lives that have been saved during this pandemic and the V-shaped economic recovery is being witnessed bear testimony to India's boldness in taking short-term pain for long-term gain. Fiscal situation shows the financial situation of the government and a strong fiscal situation is very important for better and smooth functioning and meeting all of the expenditure of the government. In order to improve the fiscal situation, the central and state as well as local authorities will have to implement fiscal reforms and initiatives (Dev and Sengupta, 2020).

COVID-19 & Economy

According to the World Economic Outlook released by the International Monetary Fund (IMF) in October 2020, the Indian economy is projected to experience an overall decline of 10.3 per cent in 2020 (IMF, 2020). According to growth projections released by the International Monetary Fund (IMF) in October 2021, India's economy which is contracted by 7.3 percent due to pandemic is expected to grow by 9.5 percent in 2021 and 8.5 percent in 2022. In the latest released (January 2022) world economic outlook estimations for the year 2020 was 9 percent and projections were 9 percent and 7.1 percent for the year 2022 and 2023 respectively. This pandemic has had a great impact on all other goods and services (Kumar, 2020). In the history of current centaury, as much as this pandemic has made the global economy grind to a bad halt, hardly any epidemic has done it.

In the present society where the requirements have become so high that we are able to produce a small portion of what we consume, therefore we have to import. The division of labour and specialization gave it further impetus and interdependence also increased. This dependency also led to a lot of problems when the detention took place at the time of lockdown. Only the production and distribution of essential goods was allowed and other production was stopped when the basic industry was shut down. The people started becoming unemployed, the pace of the economy was hampered which caused a very bad effect on the economy and the

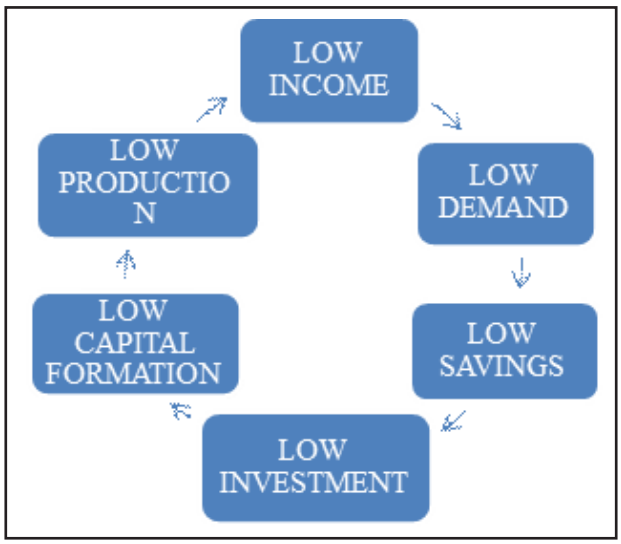
country's GDP declined.

The lockdown caused Covid-19 also badly affected the supply chain. Somehow the daily supply requirements were met because the suppliers who had the raw material in stock had their production in progress but many small producers did not have the raw material in stock in large quantities. It must have been for the first time in the present history that its factory had to be shut down, that despite the sufficient availability of capital and labour, production was disrupted for a long time. It was a shock to the people of small, middle and large sections & it was a shock that changed a lot the lives of human being. Shocks operate at two levels-supply side i.e. disruptions and reduction in aggregate demand during any crisis in the economy (Patnaik and Sengupta, 2020). The impact of Covid-19 pandemic has been more on the poor class, due to which the poor section has become more poor and weak (Dev and Sengupta, 2020).

Breach of Savings

Due to Covid-19 and even after, the source of income was standstill. Except the few essential items, the production, sale, and consumption of goods and services were standstill (Kumar, 2022). Due to which the savings have to be used for consumption because necessary consumption cannot be stopped, it; hence the consumption requirements were met by spending the savings. Non creation of income on one side and on the other side use of savings for consumption rather than investment, led to decrease in credit deposits in banks which affected both production and investment, that caused a slowdown in the economy. RBI interest rate policy also will not prove to be effective in speeding up the economy because when the industries are closed down, people will not come to them and there will be no savings, neither producer will create credit demand for investment nor consumer will demand credit for consumption. (Fig 1)

Fig 1 : Breach of Savings



Source: Constructed by Author's

Objectives and Methodology

With the important null hypothesis that this Pandemic is not able to induce any change in Government Expenditure, the major objective of this study is to analyse that what type of changes and impact has been made in fiscal situation specially in expenditure in India as well as in most populated state Uttar Pradesh before, just after and during covid-19 situation. With the above main objective we also tried to focus on following few more objectives like- to analyse the impact of the pandemic on the economy, to analyse the change in income and expenditure of government in this pandemic era, importance and usefulness of helicopter money during pandemic and to find out challenges and issues for the Government. The study is based on secondary data from different sources like Handbook of statistics of Indian states (RBI) and handbook of statistics of Indian Economy (RBI), Ministry of Finance, Ministry of family and health welfare etc.

Covid-19 & Government Expenditure

To deal with the pandemic and get rid of it completely, the government will have to invest most in the health sector. The government had to increase its expenditure much more than before because the most important financial step to deal with this pandemic has been of the government only. Increasing the government income will be a big challenge for the government, even if the government tries to reduce government expenditure, still some committed expenses which the government has to do it such as interest payment, security, health expenditure etc. For example Rs. 2, 23,846 crore outlay for Health and Wellbeing in BE 2021-22 (Union Budget) as against Rs. 94,452 crore in BE 2020-21 – an increase of 137 percent. It focuses on strengthening three areas: Preventive, Curative, and Wellbeing. In 2021-22 amount transfer to state as a support for Covid-19 Vaccines was Rs. 39000 crore which was higher than Rs. 35,000 crore for COVID-19 vaccine in Budgeted estimates 2021-22 (Union Budget 2021-22). In the latest Union Budget allocation for this is Rs. 5000 crore. On the fifteenth finance Commission's recommendation, Rs. 1, 18,452 crore have been provided as Revenue Deficit Grant to 17 states in 2021-22, as against Rs. 74,340 crore to 14 states in 2020-21(Report of fourteenth & fifteenth finance commission, GOI).

To overcome the challenges, many relief measures have been taken by the Government of India. In the 36-hour lockdown in India, Finance Minister Nirmala Sitharaman announced a fiscal package of 1.7 lakh crore rupees which was supposed to be about 5 percent of public expenditure and about 1 percent of GDP, which

was aimed to insure at least food and some relief amount to the poor and weaker sections in this difficult time (India Today, 26 March, 2020).

The new package announced by Finance Minister was different from the Rs. 1.7 lakh crore packages announced March, 2020. This was the second package to be announced by the government, its goal was not only be to increase the rate of economic growth by removing the current demand shortage but it will also emphasize to find a multi- faceted solutions to the problems of the Indian Economy. By this package, about two-thirds of the people were expected to ensure food security (The Hindu, 17, May, 2020).

Under the Pradhan Mantri Garib Kalyan Yojana, not only the people were provided food and water, but many employees of small private companies, doctors, nurses and other departments also benefited from it. Under the scheme PMGKY adequate steps were taken by states for free distribution of food grains, so that the food security of many poor families could be ensured in the difficult situation of Covid-19. Whatever schemes have been launched by the government due to Covid-19, whether it is food free distribution scheme under PMGKAY, insurance scheme for medical staff or frontline workers or cash transfer or helicopter money in the account (www.mohfw.gov.in) From the schemes where the people have been given a lot of relief, but on the other side the burden of additional expenditure on the central government has also increased.

Table 1 state the fund release under various central sector schemes. States sought exemptions of their financial deficit limit as 1-4 percent of their respective GSDP to deal with excess expenditure and sudden revenue fall due to the outbreak of Covid-19.

Table 1 : Central Sector Schemes (Rs. In Crores)

Central Sector Schemes	Actual 2019-20	B. E. 2020-21	R.E. 2020-21	Actual 2020-21	B.E 2021-22	R.E. 2021-22	B.E. 2022-23
1	4683.48	6020	7517.25	6839.80	7000	7400	10000
2	206.27	130	37.38	966.18	130	39	130
3	-	-	11756.96	10528.63	-	315	978.87
4	-	-	360	136.92	-	-	-
5	-	-	30	30	30	75	200

Source : Department of Health & Family Welfare, Government of India.

1. P. M. swasthya surakhsa yojna, 2. Health Sector Disaster Preparedness, response & human resource development for emergency medical services 3. Covid-19 Emergency response and health system preparedness package 4. Covid-19 Vaccination for health care workers & frontline workers- NHM 5.National Digital Health Mission.

Note- Amounts are in total form i.e. Revenue Expenditure & capital Expenditure. B.E. = Budget Estimates, R.E= Revised Estimates.

Under the FRBM, it is mandatory for states to keep their fiscal deficit below 3 percent. The Centre had reduced the GSDP rate to 3.5 percent for the financial year 2020 but states sought more exemption in this limit in the financial year 2021 because of Covid-19 (Economic times, 02, April, 2020).

Allocation to the Ministry of Consumer Affairs, Food and Public Distribution in union budget 2021-22 had increased by 48 percent over 2019-20 due to a higher allocation for food subsidy. So, with the same reason, the related Ministry revised allocation for 2020-21 had also been increased, by Rs 3, 26,151 crore (262 percent) from the budgeted allocation for the year (prsindia, budget analysis, 2021-22). In 2020-21 the Ministry of Health & Family Welfare was allocated Rs. 67,112 crore at budgeted stage, which had been increased by 24 percent to Rs. 82,928 crore at the revised stage. This increase is primarily due to an allocation of Rs. 11,757 crore for Covid-19 Emergence Response & Health System Preparedness Package (Department of health & family welfare) Allocation to the Ministry of Health and Family Welfare in 2021-22 (RE) was Rs 86,001 (prsindia, budget analysis, 2021-22) which is increased by 0.2 percent at the budgeted stage in 2022-23 union budget. In U.P budget 2021-22 Rs. 50 crore allocated for Covid-19 vaccination (prsindia, budget analysis, 2022-23). Budgeted estimates for 2020-21 for devolution to state Uttar Pradesh by the Union is Rs. 140,611 crores which was 19 percent increased amount from revised estimates for 2019-20 (Rs. 117, 5818 crores). Government spending was also increased in December, 2020 which was 62 percent higher than in December 2019. In the Economic Survey, 2021 it is also said that even if the fiscal deficit increases, the government should increase spending without worrying about its sovereign rating.

In Uttar Pradesh the following steps have been taken to deal with Covid like financial assistance of one thousand rupee was provided to 80 lakh labourers of the state, free treatment was provided to Covid infected patient in Uttar Pradesh. Binoy Goswami, Raju Mandal & Hiryana K. Nath examines and presents early evidence of the differential economic impacts of Covid across states and UTs in India. The panel regression analysis conducted by them indicates that states experiencing higher spread of this virus and with the adverse initial economic conditions and larger employment dependency on secondary and tertiary sector have

suffered significantly larger economic losses while states with better conditions and relatively larger dependence on primary sector have experienced smaller losses (Goswami, B., Mandal R. & Nath, K.H., 2021).

The notion of helicopter money was given by Milton Friedman in his paper" The Optimum Quantity of Money" (Friedman, 1969). The concept of helicopter money can be more efficient today. The main principle behind this was the central bank wants to increase production and inflation so that the economy can get momentum Because of lockdown people did not have employment and people were short of money, many people were not able to get their two times meals. In such a situation, the expenditure of income was also being spent only on food and other essential things. For this the government had made a direct transfer of money in their Jan Dhan account of the people so that they can use this currency for goods and services so that economic growth can be accelerated but here it is important that the public must spend this money on their needs otherwise the purpose of government behind this helicopter money method will not be fulfilled and its negative effects will be seen which can cause over inflation problems etc. The "money financing of fiscal programme" (MFFP) is a variant of helicopter money (Buiter 2014; Bernanke 2016; Aggarwal and Chakraborty, 2019). It is hard to measure the macroeconomic uncertainty which is created by this pandemic. The situation requires simultaneous policy interventions in terms of public health infrastructure, livelihood and humanitarian issues emanating from the interstate migration crisis. Innovative sources of financing the deficit and "money financing of fiscal programme" by helicopter money can be a solution of increasing deficit.

Explanation

The fiscal situation during covid-19 period of the country is given in the following table 2, 3 and Fig 2 and 3. The total amount of the Union Budget for 2020 to 2021 has increased by about 14.49 percent and the government proposes to spend Rs. 3944909 crore in 2022-23, which is an increment of 4.6 percent over the RE of 2021-22 (prsindia, budget analysis, 2022-23). There has been a decrease of 11.9 percent in the budgeted income of the Government in 2021-22 but the expected income was increased by 4.8 percent over the RE of 2021-22. The revenue deficit is 5.1 percent of GDP which has increased from the 2020-21 while the fiscal deficit is budgeted at 6.8 percent of GDP, which has also increased as compared to 2020-21.

Table 2: Union Budget of India (Rs. In Crores)

Title	2020-21 (B.E.)	2021-22 (B.E.)	2021-22 (R.E.)	2022-23 (B.E.)	% change @ 2020-21 BE	% Change @ RE 2021-22 to BE 2022-23
Expenditure	30,42,230	34,83,236	37,70,000	39,44,909	14.49	4.6%
Receipts*	22,45,893	19,76,424	21,78,911	22,83,713	-11.9	4.8%
Revenue Deficit	6,09,219	11,40,576	10,88,352	9,90,241	87.21	-9.0%
Revenue Deficit (% of GDP)	2.7%	5.1%	4.7%	3.8%	2.4 #	0.9
Fiscal Deficit	7,96,337	15,06,812	15,91,089	16,61,196	89.21	4.4%
Fiscal Deficit (% of GDP)	3.5%	6.8%	6.9%	6.4%	3.3 #	0.5
Primary Deficit	88,134	6,97,111	7,77,298	7,20,545	690.96	-7.3%
Primary Deficit (% of GDP)	0.4%	3.1%	3.3%	2.8%	2.7#	0.5
Nominal GDP Growth Rate (%)	10	14.4	9.6	11.1	4.4#	1.5
Health and Family Welfare	67,112	73,932	86,001	86,201	10.16	0.2%
Ministry of CAF & PDS^	1,24,535	2,56,948	3,04,454	2,17,484	106.32	-28.5%

*(Without Borrowings), "(Real Growth+ Inflation),^ Ministry of Consumer Affairs Food and pds, #=(Difference)

Source: *Union Budget Documents, 2020-2021, 2021-2022 & 2022-23, Handbook of statistics on Indian states, RBI 2020-21, @ Authors compilation.*

Revenue deficit in 2022-23 is targeted at 3.8 percent of GDP, which is lower than the revised estimate of 4.7 percent in 2021-22 and fiscal deficit in 2022-23 is targeted at 6.4 percent of GDP, lower than the revised

estimate of 6.9 percent of GDP in 2021-22 (Gattani, 3 Feb, 2022). Budgeted estimates for health and family welfare has increased by about 10.16 percent in 2021-22 over BE of 2020-21 but in Union budget 2022-23 this amount is expected to increased by 0.2 percent over the RE of 2021-22. Apart from this, expenditure on Consumer affair food and PDS is 28.5 percent, lower than the revised estimates of 2021-22.

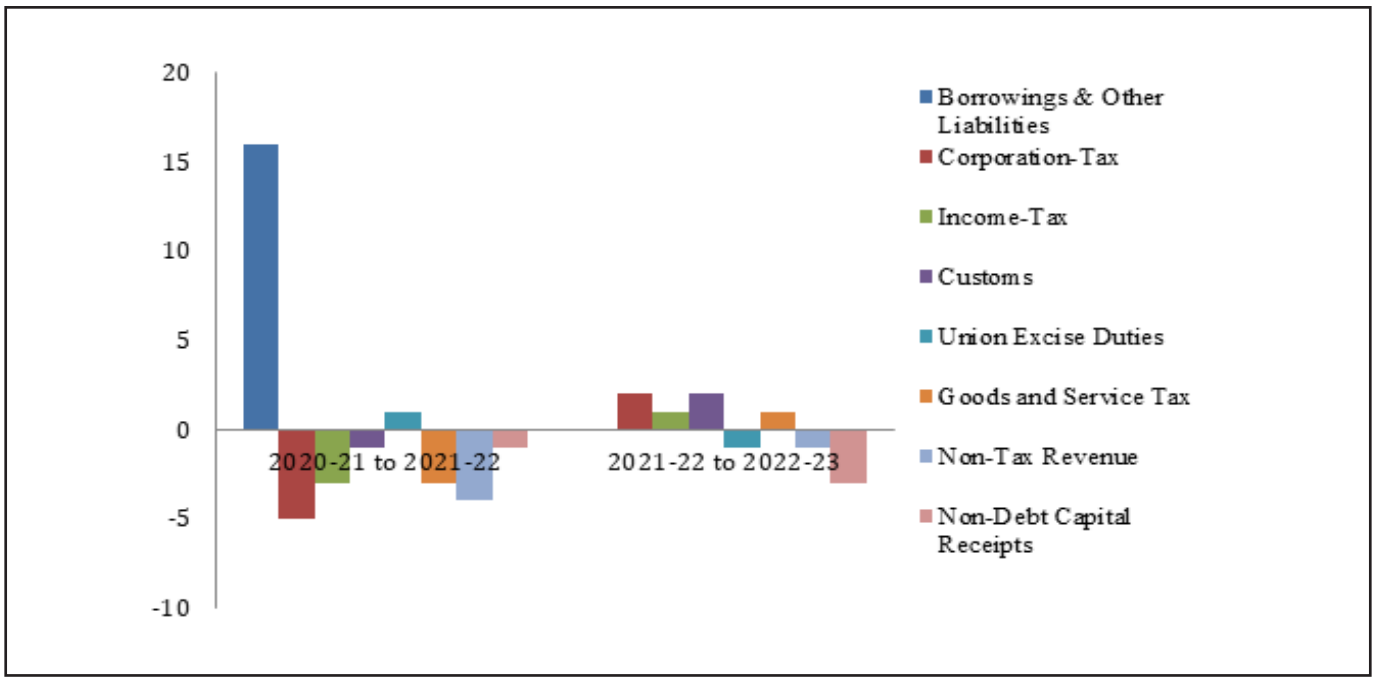
Table 3 : Rupees comes from and Goes to (Values in %)

	2020-21	2021-22	2022-23	Change from 2020-21 to 2021-22	Change from 2021-22 to 2022-23
Rupee Comes From					
Borrowings & Other Liabilities	20	36	36	16	0
Corporation-Tax	18	13	15	-5	2
Income-Tax	17	14	15	-3	1
Customs	4	3	5	-1	2
Union Excise Duties	7	8	7	1	-1
Goods and Service Tax	18	15	16	-3	1
Non-Tax Revenue	10	6	5	-4	-1
Non-Debt Capital Receipts	6	5	2	-1	-3
Total	100	100	100		
Rupee Goes To					
Centrally Sponsored Scheme	9	9	9	0	0
Central Sector Scheme	13	13	15	0	2
Interest Payments	18	20	20	2	0
Defense	8	8	8	0	0
Subsidies	6	9	8	1	-1
Finance Commission & Other Transfers	10	10	10	0	0
States' share of taxes & duties	20	16	17	-4	1
Pensions	6	5	4	-1	-1
Other Expenditure	10	10	9	0	-1
Total	100	100	100		

Source: Government of India Budget, 2020-21, 2021-22 and 2022-23

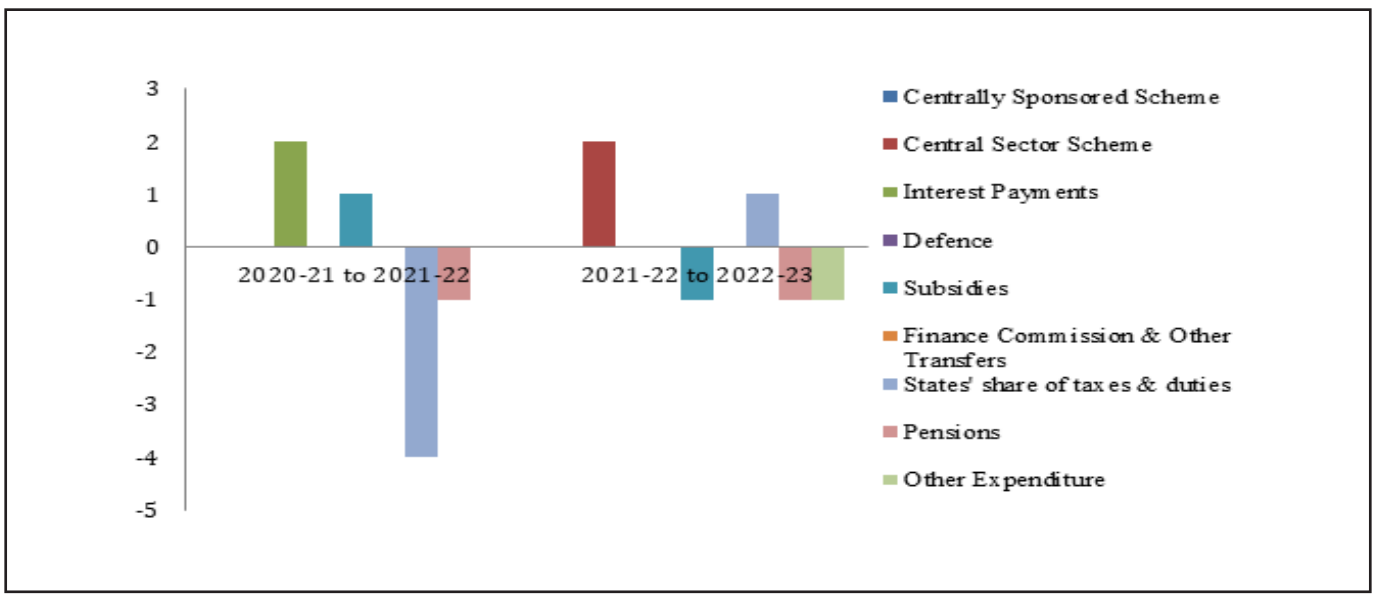
The unexpected increase in these expenses was mostly due to Covid-19. As the unexpected increase in expenses will be compensated by the highest borrowings and other liabilities as the rupee has increased by 16 paisa/percentage over the 2020-21 from this source (20 percent to 36 percent) but in 2022-23 it is decreased by 1 percent (table3).

Figure 2 : Change in Rupee comes from



Source : Constructed by Authors based on table 3

Figure 2 : Change in Rupee Goes To



Source: Constructed by Authors based on table 3

The fiscal situation of Uttar Pradesh during covid-19 is given in table 3 and 5. The estimated budget of Uttar Pradesh for financial year 2022-23 is more than 11.56 percent of previous year 2021-22. While in 2021-22, it was about 7.29 percent more than the financial year 2020-21. When we look at the fiscal deficit, due to the effect of covid-19, it was increased by 70.56 percent in 2021-22 from the financial year 2022-21 (Table 4). Although, in the current financial year 2022-23, fiscal deficit reduced by 10.53 percent from its previous year. Thus, it appears that the Uttar Pradesh government is trying to control the huge deficit due to the impact of covid-19 (Table 4).

Table 4 : Fiscal Indicators of Uttar Pradesh (Rs. In Lakh Crore)

Indicators	**UP Budget** 2020-21 B.E	**UP Budget** 2021-22 B.E	**UP Budget** 2022-23 B.E
Total Expenditure	**512861**	**550270**	**615519**
1. Revenue Expenditure	395117	395130	456089
2. Capital Expenditure	117744	155140	159430
Total Receipts	**500559**	**506182**	**590952**
1. Revenue Receipts	422568	418340	499213
2. Capital Receipts	77991	87841	91739
Fiscal Deficit	53195	90730	81178
Primary Deficit	15104	47200	35191

Sources : Uttar Pradesh Budget 2020-21 & 2021-22, B.E= Budget Estimation

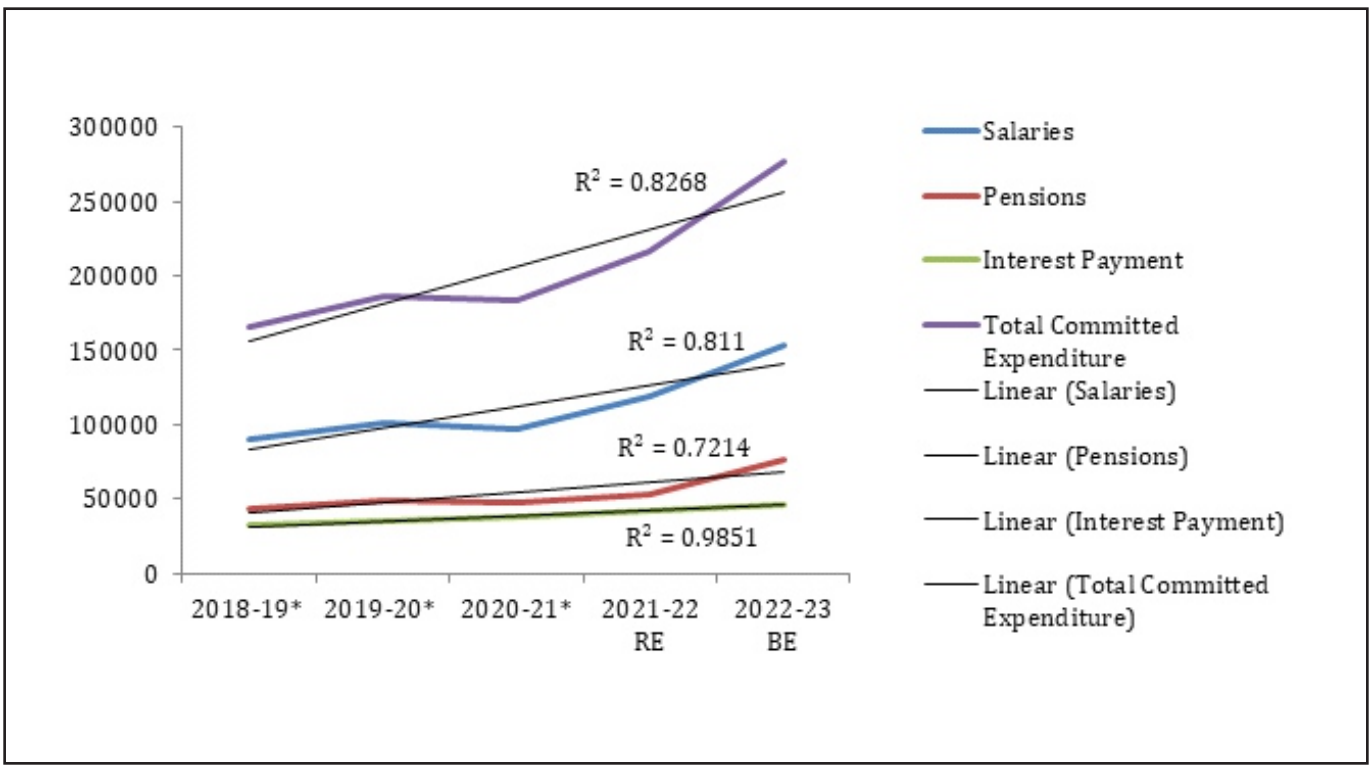
The committed expenditure of Uttar Pradesh is showed in the following table 5 and figure 3. Total committed expenditure of Uttar Pradesh was Rs. 183080 crores in 2020-21 while it was Rs. 166329 crores in 2018-19. Although it was decreased in 2019-20, a considerable increase is visible in the proposed budget expenditure in 2021-22 as well as in 2022-23 after covid-19. Important is that the all committed expenditure continuously increases with payment of interest. It shows that the fiscal burden of committed expenditure will also be increased.

Table 5 : Committed Expenditure of Uttar Pradesh (Rs. in Crores)

Items	2018-19*	2019-20*	2020-21*	2021-22 BE	2021-22 RE	% change from BE 21-22 to RE 21-22	2022-23 BE	% change from RE 21-22 to BE 22-23
Salaries	90263	101781	97432	144345	119664	-17%	153570	28%
Pensions	44024	49603	48219	68697	53715	-22%	77078	43%
Interest Payment	32042	34813	37428	43530	42504	-2%	45987	8%
Total Committed Expenditure	166329	186197	183080	256572	215883	-16%	276635	28%

*Sources: Author's compilation, Uttar Pradesh Budget Documents 2020-21, 2021-22 and 2022-23 (Annual Financial Statement), PRS. * Actual Committed Expenditure*

Figure 3 : Committed Expenditure of Uttar Pradesh



*Source: Constructed by Author's, based on table 5, * Actual Committed Expenditure*

Issues and Challenges

The unprecedented increase in the expenditure of Government of India will increase the burden on government, which will also increase the obligation to pay back the loans taken by the government. Agarwal Surabhi, Singh Archana have stated the impact of Covid-19 pandemic on the entire economy and said that along with moving towards the sustainable future, we should focus on challenges like population, environment degradation, economic inequality, self centred growth.

The Indian Economy may have to face the economic downturn after the challenge of this crisis; because crores of people have lost their jobs, there will be a big reduction in income of the public, so that they will spend only on their basic and important needs. Demand will be low and due to low demand, production will be low and due to low production, the economy may or will have to face a severe slowdown. Using data for a small sample of 5,779 households collected from 27 states by the Centre for Monitoring of Indian Economy (CMIE) during April 18-30, Bertrand M., Krishnan K., Schofield H. (2020) shows a sharp and broad negative impact of Covid-19 lockdown on household income - with nearly 84 percent of Indian households reporting decreases in income.

As the COVID-19 continues its disruption, the livelihood of many entrepreneurs and small business owners has been threatened. Goldman Sachs survey was say's, 50 percent of business owners that were surveyed said they didn't think they could continue business operations for more than three months and the current situation is deeply unsettling. Entrepreneurs was facing many obstacles, including ensuring the businesses they have put their blood, sweat, and tears into continue to stay afloat. On top of that, many of them have employees that they're trying to protect and reassure a monumental task when they themselves are struggling with burnout.

Credit rating agency “Acuite Rating”, was focused, The Indian economy was expected to lose more than Rs. 32000 crores (US $ 4.5 billion) every day during the first 21 days of lockdown. Barclays had said that the cost of the first 21 days of the shutdown as well the total cost of the last two minor detainees would be around US $ 120 billion (The Hindu business line, 2020). On March 27, the moody's investors services reduced India's GDP growth forecast from 5.3 to 2.5 percent (Business-standard, 2020). CII, ASSOCHAM & FAITH estimated that a large part of the tourism related work force in the country is facing unemployment (Jayasawal, 2020). India will be one of the 15 largest economies in the world affected by Corona virus (UNCTAD) and UNICEF estimates that more than 20 million children will be born at record levels in India in ninth month (by December 2020) of the declaration of the Covid-19 epidemic in March 2020 and also bad

effect on pregnant women and newborns all over the world.

There will be many challenges before the banks as well, they also have to play an important role, a large number of people will come to take loans, especially small and medium industries will require working capital. Keynes argued that by increasing government expenditure aggregate demand can increase which also increase private investment creates employment opportunities (Keynes, 1936). This will last until full employment is achieved. In which the demand for real employment is reduced from the total supply at the level the level of employment, the main reason is the decrease in aggregate demand, the decline in export (global recession), reduction in investment, reduction in consumer spending. Thus by increasing the demand of the consumers, the production will increase which will increase the employment opportunities, which will bring economic growth to a faster rate, the govt. will reduce taxes so that it will increase consumer personal consumptions and spend more which will also increase investment.

The International Monetary Fund (IMF) had launched a policy tracker to help member countries to be informed about the experience of other countries in fighting this pandemic COVID 19 and the discretionary policies taken to help them to combat the pandemic more effectively (IMF 2020). The IMF policy tracker was launched on 24 March 2020. In India, the response of fiscal- monetary policy to Covid-19 has come after this tracker launching. (Chakraborty Lekha and Thomas Emmanuel, 2020) As stated in the Economic survey2020-21 India's GDP is estimated to contract by 7.7 per cent in FY2020-21, composed of a sharp 15.7 per cent decline in first half and a modest 0.1 per cent fall in the second half. The V-shaped economic recovery is supported by the initiation of a mega vaccination drive with hopes of a robust recovery in the services sector. Together, prospects for robust growth in consumption and investment have been rekindled with the estimated real GDP growth for FY 2021-22 at 11 per cent. India's agricultural sector has shown its resilience amid the adversities of COVID induced lockdowns. The Agriculture and allied activities was the sole bright spot amid the slide in GDP performance of other sectors, clocking a growth rate of 3.4 per cent at constant prices during 2020-21 (Government of India Press Release, 21 March, 2021).

Positive impact

As we know that everything has two sides. If we look at the positive side of current pandemic, then some things have gone very well like e-commerce/e-marketing, online payment, work from home, online education etc. The sectors which are positively affected are hospital facilities and infrastructure, digital

internet platform. There was a sudden jump in demand for medicines, mask, sanitizers and other chemicals and its demand will continue to increase in upcoming years as well. Govt. expenditure on health facilities will also increase during this pandemic (Agarwal and Singh, 2020). Apart from these, there are some other good things also have been seen like:

- Awareness of hygiene has increased in general public due to corona virus. People have learned to clean themselves. Respect for clean workers has increased.
- Around the world record huge reduction in green house gas emissions during lockdown. In such a situation, the benefits of avoiding traffic jams and lack of pollution in the future will start to be seen immediately.
- In the field of education study from home is being adopted, maybe there will be some changes in the classroom, school system in a few years and we can bring the vision of famous science fiction writers Isaac Asimov into reality. (Asimov, 1981)

Future Perspective

In RBI's Systemic Risk Survey (October 2020) the survey respondents felt that tourism and hospitality, construction and real estate, aviation, automobiles and retail were the major sectors adversely affected by the COVID-19 pandemic. As Compared to the last survey round, more respondents expected recovery prospects for tourism and hospitality, aviation and automobile sectors. The slow pace of overall economic recovery and lingering uncertainty about the duration of the pandemic is, however, likely to moderate the revival prospects for the travel, tourism and hospitality sectors. Over 60 percent of the respondents predicted that the post COVID-19 economic recovery is likely to be U-shaped, i.e., immediate fall followed by a longer period to recovery, which was similar to the findings of the last survey. Another 16 per cent of the respondents expected a quick V-shaped recovery, which was not expected by any respondent in the previous survey round.

In The twentieth round of the systemic risk survey (April 2021) Over 60 per cent of the respondents anticipated K-shaped recovery post the second wave, i.e., different parts of the economy recover at different rates. About 17 per cent of the responses indicated a quick recovery followed by a second decline (W-shaped) and another 14 per cent of the respondents projected a long period for recovery (U-shaped). The COVID-19 pandemic has emphasized the importance of healthcare sector and its inter-linkages with other key sectors of the economy.

Conclusion

This pandemic has showcased how a healthcare crisis can get transformed into an economic and social crisis. This pandemic has had a profound impact on the global economy and also has highlighted the deficiencies in health infrastructure. In India, those with savings and access to shelter and food have managed to weather the storm albeit with difficulty. People have suffered a lot due to this corona virus. The downfall that has come in the economies, its effect can be seen even after this crisis is completely gone and also it will not be easy to put the economy back on track so soon. COVID -19 has presented unexpected economic challenges to the country. As the lockdown is over now things are slowly coming to their place, there is a gradual recovery in production investment and employment, but small businessmen, artisans and workers whose work the means of livelihood have been snatched from them, will need greater help from government as the industries which have been shut down need financial help to re-establish. Due to fear NPA, Banks will not easy able to come forward for financial assistance to restore industries downfall. So, the government should take some more strong actions. So that at least they don't have to face more hunger.

We should have to move forward on the basis of optimistic outlook. Government must use its fuller capacity to maintain fiscal situation. The state of Uttar Pradesh as well as India, where the possibilities are high, for bringing the economy on the path of progress it is must to grab the available opportunities by using the demographic dividend as a human resource. Promoting the travel sector will be beneficial for the state of Uttar Pradesh. Therefore, it is essential to utilise its excess capacity and demographic dividend in a right direction to put the economy of Uttar Pradesh on the high growth path.

REFERENCE

- BBC news online (30 Jan, 2020). Corona virus declared global health emergency. https://www.bbc.com/news/av/world-51319967
- Bernanke, Ben (2016), What Tools Does the Fed Have Left? Part 3: Helicopter Money, Brookings, 11 April.
- Bertrand M., Krishnan K., Schofield H. (2020), How are Indian Households Coping Under the COVID-19 Lockdown? Eight Key Findings. Rustandy Center for Social Sector Innovation blog.11 ,11may 2020 https://www.chicagobooth.edu/research/rustandy/stories/indian-households-coping-with-covid19-

lockdown-8-findings

- Buiter, W (2014), Helicopter Money-Irredeemable Fiat Money and the Liquidity Trap Or: is money net wealth after all?, NBER , January 1, 2004
- Business-standard (27 March, 2020), https://www.business-standard.com/article/pti-stories/moody-s-slashes-india-gdp-growth-in-2020-to-2-5-pc-120032700256_1.html
- Chakraborty Lekha and Thomas Emmanuel (2020), COVID-19 and Macroeconomic Uncertainty: Fiscal and Monetary Policy Response, W. P. No. 302, NIPFP, New Delhi. Accessed at https://www.nipfp.org.in/publications/working-papers/1899/
- Department of Health & Family Welfare, Government of India, www.mohfw.gov.in
- Dev, S, Mahendra and Sengupta, Rajeshwari (2020), Covid-19 Impact on the Indian Economy, Indira Gandhi Institute of Development Research. Working Paper 22020-013
- Economic survey (2020-2021), Ministry of Finance, Government of India.
- Economic times, (02 April, 2020). https://economictimes.indiatimes.com/news/politics-and-nation/states-want-frbm-limit-raised-to-4/articleshow/74956828.cms?from=mdr
- Fourteenth and Fifteenth Finance Commission (2021-26 and 2015-20), Ministry of Finance, Government of India
- Friedman, Milton. (1969), The Optimum Quantity of Money, In The Optimum Quantity of Money and Other Essays. Macmillan. London.
- Gattani, Vaibhav (3 feb, 2022). Union Budget 2022-23: Short Summary, https://lawstreet.coUrl: https://lawstreet.co/executive/union-budget-short-summary-nirmala-sitharaman/
- Goldman Saches, (2020), The Sudden Stop: A deeper Trough, A bigger Rebound, https://www.gspublishing.com/content/research/en/reports/2020/03/31/014c2296-44d2-4e7f-bcdc-cc8a76f447e4.html
- Goswami, B., Mandal R. & Nath, K.H. (2021), Covid-19 Pandemic and Economic Performances of the States In India, Economic Analysis and policy, 69, 461-479 https://doi.org/10.1016/j.eap.2021.01.001
- Government of India Press Release, (21 March, 2021), https://pib.gov.in/PressReleasePage.aspx?PRID=1693232
- Hansen, L. P. and Sargent, T. J. (2001), Robust control and model uncertainty. The American Economic

Review, 91(2):60–66.

- Hindustan times, (21 March, 2020), https://www.hindustantimes.com/india-news/nirmala-sitharaman-reviews-sectors-that-may-need-intervention/story-KhFNT5NejEDB4F3K8RPM0H.html
- India Today, (26 March, 2020), https://www.indiatoday.in/business/story/finance-minister-nirmala-sitharaman-live-updates-economic-relief-package-india-coronavirus-1659912-2020-03-26
- International Monetary Fund (2020), Policy Responses to COVID-19, viewed on 29 March 2020, https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19.
- International Monetary Fund (2020), World Economic Outlook: A Long and Difficult Ascent 2020 October. Washington, DC: IMF.
- International Monetary Fund (2022). World Economic Outlook: Economy Updates, January 2022, Washington, DC: IMF, https://gjepc.org/pdf/economy_updates/2022/IMF-WEO-January-2022-Economic-update.pdf
- Jayasawal Rajeev (2020 March, 2021), Nirmala Sitharaman reviews sectors that may need interventions. Hindustan times, https://www.down to earth.org.in
- Joseph Andrew (30 Jan, 2020), WHO declares , corona virus outbreak a global health emergency. Accessed at https://www.statnews.com/2020/01/30/who-declares-coronavirus-outbreak-a-global-health-emergency/
- Keynes, J. M. (1936), General Theory of Employment Interest and Money. United Kingdom, UK Palgrave Macmillan.
- Kumar, Arun, (2020), COVID-19 Crisis: Understanding the state of Economy during and after the Lockdown, Economic and political weekly, 55(19) https://www.epw.in/engage/article/covid-19-crisis-understanding-state-economy-during-and-after-lockdown
- Patnaik, I. and Sengupta, R. (2020), Impact of Covid-19 on Indian Economy: An Analysis of Fiscal Scenarios, Working Paper No. 2020-026, Indira Gandhi Institute of Development Research, Mumbai.
- Press Trust of India (2020, March27), Corona virus: moody's cuts India's GDP growth forecast to 2.5% from 5.3%. Business Standard, https://www.business-standard.com/article/pti-stories/moody-s-slashes-india-gdp-growthin-2020-to-2-5-pc-120032700256-1html

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