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Shri Pradeep Multani
President

India is land of boundless opportunities endowed with huge demographic dividend. The dynamic and vibrant economic reforms undertaken by the Government are instrumental in achieving conducive environment for trade, Industry and economy. The vision of Hon'ble Prime Minister to be vocal for local and make India self-reliant is crucial at this juncture to attain USD 5 trillion economies in coming years. Going ahead, with a strong focus on promoting indigenization of industry, the importance of new ideas, culture of fostering innovation and developing skills increases manifolds. At this backdrop, PHD Chamber Journal of Ideas and Innovations is initiated to provide a platform to innovative minds to express their ideas for the growth and development of AatmaNirbhar Bharat. I am sanguine that the Journal will contribute significantly through new ideas and innovative insights from various segments of economy.

Shri Saket Dalmia
Senior Vice President

Entrepreneurship and innovation have been supported by several flagship initiatives of the Government for nurturing research and development and generate employment opportunities for the growing young workforce. A robust ecosystem to promote innovation and translate innovative ideas into larger economic and social benefits amid the dynamic global environment is critical at this juncture. Hence, harnessing and facilitating innovative minds through a platform of PHD Chamber Journal of Ideas and Innovations will play a crucial role to promote innovative minds to come up with thought provoking ideas for the growth and development of AatmaNirbhar Bharat. I wish the Journal will accomplish its objective with a great success.

Shri Sanjeev Agrawal
Vice President

New ideas and innovations lead to higher productivity and boost economic growth of an economy. In the present dynamic environment, our country needs new entrepreneurs who can innovate, lead, inspire and reach out beyond the limits to create systems that hold immense potential for holistic development. Further, the ability of an economy and its businesses to generate and imbibe innovative changes has now become a key component of its prosperity and growth. With this backdrop, PHD Chamber Journal of Ideas and Innovations provide right platform to encourage young minds to contribution to growth of the country. I am confident that the Journal will come up with flourishing ideas for achieving AatmaNirbhar Bharat.

Shri Saurabh Sanyal
Secretary General

Building AatmaNirbhar Bharat with a mission to stimulate growth across the sectors of economy is highly encouraging. Attracting investments, infrastructure development and encouraging innovation are of paramount importance at this juncture. Therefore, PHD Chamber Journal of Ideas and Innovations has been initiated with the objective to encourage thoughtful ideas and innovations to contribute to the growth story of our country. I would like to acknowledge and compliment the large number of submissions received in response to the call for research notes/innovative ideas/ articles for the Journal.

From the Editor's Desk

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Research and Development plays a pivotal role in development of an organization. The foremost concern of economy, trade and industry is to produce goods efficiencies, saving in the costs, time and energy. Thus, innovative ideas are indispensable to the growth and development of Indian economy and to become Aatma Nirbhar with a sustainable economic growth trajectory. The essence of the journal is to reach out to a wide range of readers, including businesses, industries, research organisations, consultancies, ministries, and so on. The journal encompasses crisp and practical original manuscripts written by academicians, researchers, students among others for the use of various industries, firms, policy makers etc. Further, the Journal is highly diversified and unique in the sense that it promotes the ideas and innovations insights from academicians, analysts, researchers, industrialists, policy makers, scientists, small, medium and large businesses, young entrepreneurs, startups, women entrepreneurs, rural and urban entrepreneurs, traders, merchants, engineers, scientists, service providers among others.

India is at a crucial juncture to attain a higher growth trajectory. The Covid-19 dampened the India's growth rates during all four quarters of FY 21. India's economy is on track to rebound sharply after two waves of the Covid-19 and also poised to grow at the world's fastest rate. On the back of various reforms announced by the government in last many quarters, economy is expected to attain a higher growth trajectory at around 9.5 percent in FY22, as also envisioned by various national and international forecasting agencies.

The current issue of journal of ideas and innovations contains the ideas related to higher growth trajectory of

India and vision to achieve USD 5 trillion economic size in the coming years. The articles in this journal highlighted that, the immediate containment measures and effective policies of the government, along with the calibrated measures by the RBI, and un-tiring efforts of the industry shifted the path of India's economic growth trajectory to the growing side again. In addition, the policies and reform measures to support the growth of real- estate sector have led to a drastic transformation of the real estate sector in past many years. India's defence sector has also been identified as one of the most promising sectors under the Make in India mission to achieve USD 5 trillion economic sizes. The sector is contributing to external and internal peace and security thereby leading to the strong socio-economic development of the country. Sectors such as Pharmaceutical, Gems and Jewellery, Iron and Steel, Automobiles and Machinery and Electrical equipment are the promising sectors for creating employment. The several suggestions has also been made to tackle the difficult situation due to Covid 19 pandemic. Furthermore, E-commerce market has played a pivotal role and India saw a dramatic rise in the number of 'Unicorn Start-Ups' in the last few years.

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India Poised to attain a higher growth trajectory

- Mr. Pradeep Multani, President,
PHD Chamber of Commerce and Industry

The journey of the Indian economy has been promising as the economic growth trajectory has increased from steady during the 1960s to 1990s to strong in 2000s and fastest in the 2010s. The advent of economic reforms has not only enhanced the socio- economic growth and development, but also provided a conducive and promising business environment. However, the year 2020 was marked as a difficult year for the Indian economy due to the daunting impact of COVID-19 led economic crisis. The pandemic has resulted in severe disruptions in industrial production and growth by severely undermining the supply chains.

Nevertheless, the immediate containment measures and effective policies of the government, along with the calibrated measures by the RBI, and un-tiring efforts of the industry shifted the path of India's economic growth trajectory to the growing side again. The economy witnessed the V-shaped recovery, which was evident at the half-way stage of 2020-21. This reflects the resilience and robustness of country's economic fundamentals.

At this juncture, to further enhance the pace of economic growth and achieve the vision of US$ 5 trillion economic size along with becoming Aatmanirbhar in the coming years, the continuation of bold Government reforms are essential. Further, there is a need to continuously facilitate trade and industry and provide thrust to the growth promising sectors of Indian economy. In this regard, the following measures are suggested for taking Indian economy to a higher growth trajectory, going forward.

It is suggested to increase the manufacturing sector contribution to around 25% in GDP in next five years by 2026-27, as the sector plays a significant role in driving the growth and economic development. Here, improvement in the manufacturing competitiveness of domestic manufacturers and local products becomes a pre-requisite. So, the focus should be on further advancement in ease of doing business and reduction in the cost of doing business, including costs of capital, costs of compliances, costs of logistics, costs of land and availability of land and costs of labour. Also, there is a need to work towards reducing trade costs by providing highly effective and connected transport services, port facilities, communications, energy, financial services and business legislations. Manufacturing competitiveness would also be enhanced by rapid adoption of future technologies, Artificial Intelligence (AI), Blockchain, Robotics, Augmented and Virtual Reality (AR&VR), Internet of Things (IoT).

The agriculture sector has proven its resilience in the COVID-19 pandemic. The sector is a low hanging fruit, which can give fruitful outcomes with the support of the Government measures. To provide a boost to the agriculture sector, it is necessary to increase farmers' income and reduce disguised unemployment. The wastages in the agricultural sector should be reduced from more than 30% to less than 10% in the next five years. Moreover, the exports of agri and food processing products should be increased to US$ 100 billion in the next three years from the current level of around US$ 41 billion (2020-21).

In India, the services sector has witnessed a significant growth trajectory, backed by digital technologies and institutional mechanisms facilitated by the Government. Going ahead, the services sector need to focus on export of financial and professional services targeting the new markets instead of traditional advanced and emerging markets. This transformation would help raise overall value of exports and make economic growth more broad based.

In the recent years, there has been significant progress in liberalizing FDI regime in country. However, there is ample scope to further simplify procedures, improve business environment, and expedite regulatory and other clearances at all levels to translate greater liberalization into higher inflows.

Effective and rationalized taxation system not only raises the necessary funds for the government expenditure, but also contributes to income redistribution, economic stabilization and growth. At this juncture, dual and concurrent levy of GST by the Central and State Government simultaneously should be made as National GST whereby the Central Government will levy GST and share the revenue with State Governments for simplification, uniformity and ease of doing business.

Rising economic growth entails for an efficient and facilitating power sector. This requires uniform power tariffs across the country and therefore, there should be One Nation, One Electricity Tariff norm in the country. At the Centre of all, the approach should be people-centric, aiming towards better accessibility and affordability. Further, the industrial tariffs should not be high enough in order to compensate subsidy in agriculture and domestic use.

The health infrastructure of the country has been brought into a sharp focus amid the pandemic, highlighting the critical position of the public health sector and the need for increased Government spending on public health. Going ahead, India should strive to act as a role model in developing the Hospital infrastructure to avoid causalities during calamity like the Covid Pandemic. Further, education and skill development are necessary to bring in structural transformation in the economic growth.

These reforms will go a long way for making the economic growth trajectory sustainable, with a growth rate of more than 10% and fulfill the vision of attaining an economic size of US$ 5 trillion economy by 2026-27.

About the Author

Mr. Pradeep Multani

Mr. Pradeep Multani, Chairman, Multani Pharmaceuticals Limited is President of the PHD Chamber of Commerce and Industry. Mr. Pradeep Multani, is an Economics & Law Graduate from Delhi University and has more than 40 years of experience in the field of Ayurvedic & Unani Medicines sector and has been Chairman of Eighty One year's young, multi-crore Ayurveda & Unani Company for more than 30 years. Mr. Multani, a stalwart of the AYUSH industry is trying his best to promote Traditional systems of medicines across the world by addressing different seminars and sensitizing various embassies and other international delegates and doing advocacy on different issues on behalf of the Industry. Mr Multani strongly believes that steps taken towards doubling farmer's income would be a significant contributor towards the PM's vision of building an AatmaNirbhar Bharat.

RAHO (Affordable Housing RENTAL Enterprise): A Unicorn to begin with

-Mr. Rajeev Talwar
Former President,
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and former Chief Executive Officer, DLF Ltd.

-Dr. S P Sharma
Chief Economist|DSG
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The real estate and construction sector plays a crucial role in the Indian economy. Various industries, such as cement, steel, paints, and building hardware, have significant direct and indirect linkages with the real estate and construction sector. This not only contributes to capital formation and generation of employment and income opportunities, but also acts as a catalyst for rapid economic growth.

The real estate market in India is the second-highest jobs-producer in the country after agriculture and is considered as the supporting system of the economy. Over the years, there has been an increased influx of digitization in real estate with significant growth in online demand, as developers and buyers adopt products such as virtual tours, drone shoots, video calls and online booking platforms. This has resulted in a shift in the real-estate sector, where technology plays a significant role in property renting, buying and property registration.

Over the years, the Government has undertaken many reform measures to support the growth of real- estate sector in the country ranging from "Housing for All Mission", 'Make in India' Campaign, Pradhan Mantri Awas Yojana, Smart Cities Mission, Real Estate (Regulation and Development) Act [RERA], Real Estate Investment Trusts, Interest Subsidy for the first-time homebuyers and many more. These policies have led to a drastic transformation of the real estate sector since 2014.

Pradhan Mantri Awas Yojana – Urban (PMAY-U), has been one of the major flagship Missions of the Government of India. The scheme was implemented by the Ministry of Housing and Urban Affairs (MoHUA) in June 2015. The Mission addresses urban housing shortage among the EWS/LIG and MIG categories, including slum dwellers by ensuring a pucca house to all eligible urban households by the year 2022. The government has developed an ecosystem to ensure that people have a home and a decent standard of living. The interest rate for the PMAY scheme starts at 6.50% p.a. and can be availed for a tenure of up to 20 years.

The Government is constructing one crore twelve lakh dwelling units of 300 sq. feet carpet area under PMAY, for housing the poor (and perhaps millennials / young couples) who are looking for a "pucca" roof over their heads for their emotional and financial security.

Further, in order to provide access to the urban poor migrants for decent rental housing at an affordable rate at their work sites, the Ministry of Housing & Urban Affairs has introduced a sub-scheme under Pradhan Mantri AWAS Yojana- Urban (PMAY-U) i.e. Affordable Rental Housing Complexes (ARHCs). This aims to ease the living standards of the urban poor population and also to create and utilize the unoccupied housing stock available in urban areas.

There are numerous reasons to favour “affordable renting” as a necessary means of providing housing, such as the lack of sufficient savings to obtain mortgages, its compatibility with labour mobility, the desire to save financial resources that can then be invested in other investments, and, most importantly, to provide access to safe, sanitary housing while reducing risks.

Further, since March 2020, it became apparent that adequate housing and home-related facilities have resulted in improved safety and protection during COVID times. The degree of impact of coronavirus has varied differently for people with different levels of income. The shift towards work from home and the reverse migration has led to increased demand for residential homes both in urban and rural areas. As a result, limited land availability and unaffordable housing prices have made the rental market successful and an attractive alternative.

Apart from providing a sense of safety and security, one primary aim of the PMAY mission should be to reduce the number of slums and unauthorized colony homes by a similar number. Therefore, the total number of homes to be built eventually will be Five to Six crores so that there is no need for slums. Slum clearance is of importance for renewed urban development and transformation of poor and low income settlements into new developments authorized by the government.

In this regard, a method will have to be found that the occupants/allottees do not sell these homes and return to their original slums. It has been observed that most of the housing policies have largely been targeting home ownership with the provision of various incentives, to those poor who cannot afford to buy a house. The reason for this could be attributed to the high upfront cost of buying a house or availing a loan, as well as the operational expenses of living in those homes, travel expenses of commuting to work, and the cost of accessing other social infrastructure such as hospitals and schools. In absence of basic amenities and overall higher cost of living (including upfront cost), relocation leads slum dwellers to either sell their land/houses or give it to relatives and return to more centrally located slums.

To tackle such a situation, it would be best to give these homes on a rental basis, with a full link to Aadhar Cards and Lease Deeds under the Model Tenancy Act. On a suggestive basis, suppose a rent of Rs.50/- per day is charged, it would mean Rs.1500/- per month for a concrete home. This would be 10%-20% of a monthly wage of an unskilled worker, depending on the city or town where the building is located. Further, the daily rental @Rs.50/- per day will mean a total collection of Rs 56 cores for one crore twelve lakh units and the yearly collection could be as high as Rs.20,440 crores.

Key Takeaways

1. Government is constructing one crore twelve lakh Dwelling Units of 300 sq. feet carpet area under the PMAY, for housing the poor (and perhaps millennials / young couples) looking for a "pucca" roof over their heads for their emotional and financial security.

2. One primary aim of this mission should be to reduce the number of slums and unauthorized colony homes by a similar number. Therefore, the total number of homes to be built eventually will be Five to Six crores so that there is no need for slums.

3. A method also will have to be found that the occupants / allottees do not sell these homes and return to their original slums.

4. It would be the best to give these homes on a RENTAL BASIS, with full link to Aadhar Cards and Model Lease Deeds under the Tenancy Act.

5. On a suggestive basis, suppose a rent of Rs.50/- per day is charged, it would mean Rs.1500/- per month for a concrete home. This would be 10%-20% of a monthly wage of an unskilled worker, depending on the city or town where the building is located.

6. The total daily rental @Rs.50/- per day will Rupees 56 cores for one crore twelve lakh Units and the yearly collection could be as high as Rs.20,440 crores !

7. If 5-6 crore such rental homes can be created all over India, it will provide "ease of mobility" to the poor and the young, besides 'finishing' the market totally for slums.

8. The surplus of homes/buildings so constructed would ensure stable rents for many years and add to rapid GDP growth as well as employment.

9. The DATA generated by such an enterprise would have many more uses, some of which are listed below.
    a) For DBT funds that are being disbursed under various schemes.
    b) DBT Funds could also be used for payment of rent so that non-payment does not become a common problem.
    c) Provision of OFC / telecom services so that the buildings make up a SMART CITY promoting DIGITAL services. This by itself would reduce Sub-Leasing.
    d) Metering of Electricity, Gas and Water services would curb large scale theft and make them viable public utilities.
    e) Provision of educational and medical services could be located near such clusters.
    f) The greatest benefit could be to women and girls who could live in a safe and hygienic environment.
    g) All PSU and Private sector companies could directly pay the rentals for their employees who shift into these homes, while ensuring that their earlier shelters in Slums are simultaneously demolished.
    h) Transport and infrastructure services would get a boost.
    i) Government can encourage citizens to live in 8-10 storeyed buildings for the poor, just as the government has made in re-developed government colonies. A new India, a safer and secure India will become a reality. It will mean a very big leap towards a 15-20 trillion dollar Indian economy at the earliest.

If in case 5-6 crore such rental homes can be created all over India, then it will provide “ease of mobility” to the poor and the young, while ‘finishing’ the market totally for slums. Further, the surplus of homes/buildings that are constructed would ensure revenue from stable rents for many years. This will not only add to rapid GDP growth and generate employment but also create investment opportunities for promising sectors from rental income, thus taking the economic growth trajectory at a higher level through a multiplier effect.

Here, a dedicated startup/unicorn for affordable housing (Affordable Housing RENTAL Enterprise) would be able to generate multiple uses of the data, such as tracking the Direct Benefit Transfer (DBT) funds that are being disbursed under various schemes and the DBT funds could then also be used for payment of rent so that non-payment does not become a common problem. This could also help in provisioning of Optical Fiber Cable (OFC)/ telecom services so that the buildings make up a smart city and promote digital services. This by itself would reduce sub-leasing. Further, the metering of electricity, gas and water services would curb large scale theft and make them viable public utilities; provisioning of educational and medical services could be located near such clusters.

The greatest benefit could be to women and girls who could live in a safe and hygienic environment. Through this concept, all PSU and private sector companies could directly pay the rentals for their employees, who shift into these homes, while ensuring that their earlier shelters in Slums are simultaneously demolished. Moreover, the transport and infrastructure services would get a boost. The government can encourage citizens to live in 8-10 storeyed buildings for the poor, just as the government has made in re-developed government colonies.

Going ahead, for cities to prosper, it is imperative that housing for different strata of society are looked at holistically and benefits of planning and development are horizontally spread. Affordable Rental Housing seeks to provide dignified living with necessary civic amenities to urban migrants/ poor, close to their workplace at an affordable rate.

Affordable rental housing will induce investment and promote entrepreneurship in the rental housing sector, which may give rise to organized rental businesses in the country that would create a new business ecosystem in urban areas. This model of affordable housing will provide an ambient ecosystem for technology-led innovation, growth and a sustainable rental market in the country and would also encourage climate-resilient construction. Going ahead, affordable rental housing would support building a new India; a safer and secure India will become a reality. It will mean a very big leap towards a US$ 15-20 trillion Indian economy at the earliest.

About the Authors

Mr. Rajeev Talwar

Mr. Rajeev Talwar was Chief Executive Officer, Whole-time Director of DLF Ltd. Mr. Talwar is an alumnus of St. Stephen's College, University of Delhi, started his career as a Probationary Officer in State Bank of India and was selected for the Indian Administrative Service (IAS) in 1978. He held a number of important positions in the Central, State Governments and Union Territories. He possesses a rich experience of policy-making in crucial economic sectors in addition to management of a number of public sector enterprises and statutory bodies in the transport, tourism and infrastructure sectors. As a Government officer, he is credited with a number of achievements. He was among the pioneers in the formulation, implementation and promotion of India's tourism policy, including their marketing in India and overseas. He is the Former President of PHD Chamber of Commerce and Industry and Director on the Board of several other companies.

Dr. S P Sharma

Dr S P Sharma has around 25 years of diverse experience in the various areas of the economy, trade and industry. He started his career with Government of Punjab and subsequently moved to Government of India, ASSOCHAM, PwC, TATAs. Currently, he is working with the prestigious industry body, PHD Chamber of Commerce & Industry as Chief Economist. He has conducted more than 100 research studies/ papers/ projects etc. with prestigious organizations such as Government of India, State Governments, UNCTAD, European Commission, Industry Chambers/ Associations and corporates. He is member of Editorial Board of Journal Press of India, Advisory Group of Birla Institute of Management and Technology, Indian Institute of Finance, Surya Foundation, Geeta Rattan Institute of Management, Jaipuria Institute of Management, Presidency University Bangalore, among others.

Emerging Scenario in the Defence Manufacturing in India

- Mr Saurabh Sanyal, Secretary General,
PHD Chamber of Commerce and Industry

The development of a robust manufacturing sector continues to be a key priority of the Government. 'Make in India' was launched in 2014 to facilitate investments, foster innovation, building best in class infrastructure, and making India a hub for manufacturing, design, and innovation. The sector has the potential to not only take economic growth to a higher trajectory but also to provide employment to a large pool of our young labour force. The Hon'ble Prime Minister's clarion call for an 'AatmaNirbhar Bharat' envisages policies for the promotion of an efficient, equitable and resilient manufacturing sector in the country. Keeping in view the objective to increase the share of overall manufacturing from 16% to 25% in India's GDP, it becomes crucial that the defence sector should be tapped and explored as one of the major sectors contributing to the growth of manufacturing in the country.

India's defence sector has been identified as one of the most promising sectors under the Make in India mission to achieve USD 5 trillion economic sizes. The sector is contributing to external and internal peace and security thereby leading to the strong socio-economic development of the country. Today, India boasts a well-defined defence procurement policy that provides efficient and expedited procurement of defence technology and equipment, large incentives to the private sector and achieving self-reliance in defence equipment production and acquisition.

Chart: Snapshot of Key Indicators of Defence Sector in India

Defence Export (Data As on 02/09/21) 2021-22 Rs. 2871Cr 2021-22: Target : Rs. 10,000 Cr	**Defence Production** (Data As on 02/09/21) 2021-22 Rs. 13,058 Cr 2021-22 Target: Rs. 90,000 Cr	**Startups in Defence** (Data As on 02/09/21) Startups (Engaged) - 87 Upto 2024 Target: Startups 200
Defence offset (Data As on 02/09/21) Claims disposed: USD 3140.86 million	**IMission Raksha Gyan Shakti** (Data As on 08/09/21) IPRs filed in 2020-21: 3920	**AI in Defence** (Data As on 02/09/21) Projects completed: 21

Source: PHD Research Bureau, PHDCCI, compiled from Ministry of Defence, Government of India.

Self-reliance in defence has been the major foundation of India's defence production policy. The AatmaNirbhar Bharat mission as envisaged by the Government has provided further impetus to realize the goal of self-reliance. Over the years, the Government of India has undertaken continuous reforms for designing, developing and leading to the production of state-of-the-art sensors, weapon systems, platforms and allied equipment for our Defence

Services like arms and ammunition, tanks, armoured vehicles, heavy vehicles, fighter aircrafts and helicopters, warships, submarines, missiles, ammunition, electronic equipment, earth moving equipment, special alloys and special purpose steels etc. Over the years, the Government has established wide ranging production facilities for various defence equipment through the Ordnance Factories, Defence Public Sector Undertakings (DPSUs) and private defence industry stakeholders.

Furthermore, various transparent and streamlined procurement procedures, production policies and 'Make in India' initiatives have boosted demand for indigenous products. Thus, the Indian defence industry, primarily catering to the needs of the armed forces, has evolved rapidly with a diversified product mix and an integrated market. Also, propelled by the recent milestones in exports, India is set to realize its potential as an emerging defence manufacturing hub.

Draft Defence Production and Export Promotion Policy 2020 (DPEPP 2020)

To provide a tremendous impetus to self-reliance in defence manufacturing, multiple announcements were made under the 'Atmanirbhar Bharat Package'. The Ministry of Defence, Government of India has implemented various frameworks to position India amongst the leading countries of the world in defence and aerospace sectors and has formulated the draft Defence Production and Export Promotion Policy 2020 (DPEPP 2020). The policy is envisaged as a guiding document of the ministry to provide a focused, structured and significant thrust to the defence production capabilities of India for self-reliance and increased exports.

Goals and Objectives of Draft DPEPP 2020

To achieve a turnover of Rs 1,75,000 Crores (US$ 25 Billion) including export of Rs 35,000 Crore (US$ 5 Billion) in Aerospace and Defence goods and services by 2025.

To develop a dynamic, robust and competitive Defence industry, including Aerospace and Naval Shipbuilding industry to cater to the needs of Armed forces with quality products.

To reduce dependence on imports and take forward "Make in India" initiatives through domestic design and development.

To promote export of defence products and become part of the global defence value chains

To create an environment that encourages R&D, rewards innovation, creates Indian IP ownership and promotes a robust and self-reliant defence industry.

Government Initiatives for Defence Sector

Furthermore, the Government has taken the following major policy initiatives and reform measures to promote defence manufacturing in India:

- Hon'ble Defence Minister, Shri Rajnath Singh, approved a proposal for the construction of six conventional submarines under the Strategic Partnership (SP) model at an estimated cost of Rs. 43,000 crore (US$ 5.76 billion). It will be a long-term opportunity for infusing the latest technology and weaponry for submarines in India through strategic tie-up between Indian Industry and leading foreign OEM.

- The Government of India has also approved the proposal for capital acquisitions of various equipment for modernization and operational needs of the Indian Armed Forces amounting to approximately Rs 6800 crore.

- The budgetary support of Rs 498.8 crore to Innovations for Defence Excellence (iDEX) - Defence Innovation Organisation (DIO) for the next five years to promote the 'Aatmanirbhar Bharat Abhiyan'. iDEX is aimed at the creation of an ecosystem to foster innovation and technology development in Defence and Aerospace by engaging Industries including MSMEs, Start-ups, Individual Innovators, R&D institutes and Academia and provide them grants/funding and other support to carry out R&D which has potential for future adoption for Indian defence and aerospace needs.

- The Defence Research and Development Organisation (DRDO) has permitted the private sector firms to both develop and produce missile systems such as vertical launched surface to air missile systems programme to promote the local defence industry.

- Providing a big boost for self-reliance in defence, the Ministry of Defence, Government of India has prepared a 'Negative list' of 101 items for which there would be an embargo on the import beyond the timeline indicated against them.

- A new category of capital procurement 'Buy {Indian-IDDM (Indigenously Designed, Developed and Manufactured)}' has been introduced in Defence Procurement Procedure (DPP)-2016 to promote indigenous design and development of defence equipment.

- Simplification of the Make' Procedure of capital procurement has been given a priority along with a provision for funding of 90% of development cost by the

Government to Indian industry under Make-I category. In addition, there are specific reservations for MSMEs under the 'Make' procedure.

- Separate procedure for 'Make-II' category (industry funded) has been notified under DPP to encourage indigenous development and manufacture of defence equipment.

- In 2018, the Government decided to establish two defence industrial corridors to serve as an engine of economic development and growth of defence industrial base in the country spanning across Chennai, Hosur, Coimbatore, Salem and Tiruchirappalli in Tamil Nadu and across Aligarh, Agra, Jhansi, Kanpur, Chitrakoot and Lucknow in Uttar Pradesh (UP).

- The Government has notified a 'Policy for indigenisation of components and spares used in Defence Platforms' in 2019 to create an industry ecosystem that can indigenize the imported components (including alloys & special materials) and sub-assemblies for defence equipment and platform manufactured in India.

- Defence Investor Cell has been created in 2018 in the Ministry to provide all necessary information including addressing queries related to investment opportunities, procedures and regulatory requirements for investment in the sector.

- The Government of India in May 2020 has announced that the FDI limit in Defence Production will be raised to 74% from the existing 49% under Automatic Route as part of the reform in the defence sector to boost self-reliance.

- Offset guidelines have been made flexible by allowing change of Indian Offset Partners (IOPs) and offset components, even in signed contracts.

- Defence Export-Import (EXIM portal) has been created for enhancing the ease of doing business and to streamline Export authorisation procedures.

- Enhancing the role of MSMEs in the defence sector is one of the defining features of Defence Procurement Procedure (DPP) 2016. Cutting down permissible timeframes for various procurement activities and institutionalising robust mechanisms to monitor for probity at various stages of the procurement process are the cornerstones of DPP.

- The DPP 2016 provides greater impetus to the MSMEs, with a certain category of 'Make' projects reserved exclusively for them. There are also other provisions and procedural measures that have been introduced to make the procurement process more efficient and effective.

Measures that May Enhance the Contribution of the Defence Sector

The Defence Production & Export Promotion Policy - DPEPP 2020 and the "Make in India" initiative of the Government will project India's Defence manufacturing to the world and will brand India as a defence exporter of several defence components. Some of the measures that may enhance the contribution of the defence sector to bolster the 'Make in India' initiative and give a significant boost to the AatmaNirbhar Bharat initiative are as follows:

- Identifying key components & systems and encourage global investors to set up a manufacturing base in India by further offering more incentives.
- To leverage Government purchases (Offset Policy) particularly for technology transfer, where applicable.
- To foster innovation and technology development in Defence and Aerospace by engaging industries including MSMEs, Startups, Individual Innovators and R&D institutes.
- To collaborate with engineering/technical colleges and Industrial Training Institutes (ITIs) to ensure that defence relevant technologies and skills are part of the curriculum.
- To effectively forge Research & Development (R&D) labs, industry-academia linkages and collaborations.
- To provide companies and R&D labs as well as academia to the latest global technologies in defence.
- To encourage more investments in the existing defence corridors in the state of Tamil Nadu and Uttar Pradesh.
- To ensure high-quality anchor investors are capable of spurring the growth of associated suppliers (including MSMEs).
- To enhance priority-sector funding and encourage long-term funding mechanisms.
- To prepare a roadmap for making India a significant power of Artificial Intelligence (AI) application in Defence.

Going ahead, India needs more R&D, innovation and the creation of cutting-edge technologies to become self-reliant in defence production in the years to come. Continuous innovation is the key to success for any nation; therefore, technological developments must be deeply promoted in the defence sector. To encourage innovation, the 'Make in India' initiative has ensured that opportunities are given to industries especially MSMEs and Start-up companies. The 'Start-up India' initiative of the Government is also providing a platform for the conversion of new ideas into niche technology and its relevant application. At this juncture, the AatmaNirbhar initiative would provide further momentum to enhance India's defence capabilities and set the stage for India's increased world presence in internal defence & aerospace sectors.

In a nutshell, several steps are being undertaken by the Government to make the defence manufacturing sector self-reliant. The Government is providing all possible support to fuel

Defence Manufacturers indigenously through various initiatives including technology support and testing facilities to promote defence manufacturing in the country. This will significantly step up the stance of the Indian defence sector globally and position it as an international leader in the defence and homeland security scenario of the world.

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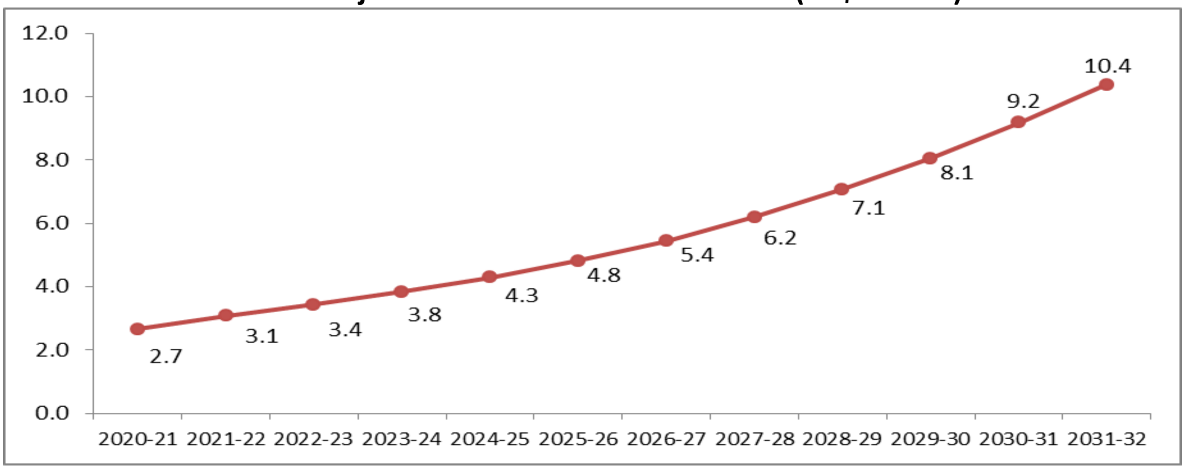
Economy poised to attain a size of US$ 5 trillion by FY 2026-27 and US$ 10 trillion by FY 2031-32

-PHD Research Bureau

The prospect of the Indian economy's revival and resilience seems one of the brightest in the wake of global economic turmoil caused by COVID-19. On the back of meaningful and proactive reforms undertaken by the Government in the last many quarters, India's GDP growth recovered in Q4 FY 2020-21 at 1.6% as compared with 0.5% in Q3, (-)7.4% in Q2 and (-) 24.4% in Q1, thereby taking the overall growth rate for FY 2021 to (-)7.3%. The GDP growth rate further revised upward to 20.1% on Q1 FY 2021-22. This reflects a stronger-than-expected pickup in recovery, improving demand momentum and improving investor sentiment. At this juncture, a double-digit GDP growth trajectory is projected at 10.25% in FY 2021-22, supported by the effective policies of the Government and improved business sentiments. Further, India is projected to become USD$ 100 billion investment destination by FY 2022-23.

Furthermore, the trinity of the Stimulus of Policy, Financials and Confidence instilled by the Government during the last many quarters has built have strengthened the foundation for a higher economic growth trajectory, going forward. Against this backdrop, it is projected that India will be able to attain an economic size of US$ 5 trillion by FY 2026-27 and US$ 10 trillion by FY 2031-32.

Chart: Projections for India's Nominal GDP (US$ trillion)



Source: PHD Research Bureau, PHDCCI Projections

Recently, the Government of India has set a target of USD 400 billion of merchandise exports for FY2021-22 to take advantage of opportunities created in the post-covid scenario, explore new destinations and expand the export basket. This target is achievable as the top exporting partners of India are the leading economies with significant GDP growth rates and are projected to grow at higher rates by IMF in the year 2021 and in coming years, therefore India has the potential to capture the growth of these economies by targeting their demand in the coming future. Further, a study conducted by PHD Chamber has identified 75 potential export products (from 9 most promising Sectors and 31 Chapters) and markets to enhance and increase India's exports to achieve USD 400 billion goods export target in FY2021-22 and USD 750 billion goods exports in the next 75 months by FY2026-27. The sectors include Agriculture; Mineral and Fuels; Chemical and Allied Products; Textile & Footwear; Metal and Non Metals; Machinery and Mechanical Appliances; Transport/Automobiles; Optical Photographic & Cinematographic and; Toys, Games and Sports. Further, the merchandise exports are projected to reach US$ 1 trillion by FY 2030-31.

Table: Economic Projections

	Year	Projections (US$)
FDI	FY 2023	100 billion
Size of GDP	FY 2027	5 trillion
	FY 2032	10 trillion
Merchandise Exports	FY 2027	750 billion
	FY 2031	1000 billion

Source: PHD Research Bureau, PHDCCI projections

Growth Promising Sectors

Amid the COVID-19 pandemic, an opportunity has been created for the Indian economy to participate in global supply chains - to capture buoyant external demand for goods. Also, the infrastructure sector has a huge untapped potential and could be the main driving force for achieving double-digit economic growth, going forward.

Also, the growth of sectors that have strong backward and forward linkages, are likely to have a multiplier effect on the economic growth trajectory of the country. The growth promising sectors for the Indian economy in the coming years include agri & food processing, housing and real estate, infrastructure, automobile sector, IT sector, E-commerce, health and pharma, FMCG and consumer durables, telecom industry, OTT market, the fintech industry, defence manufacturing, toy manufacturing, among others.

Table: Growth Promising Sectors of the Indian Economy

	Growth Promising Sectors	Opportunity in the coming times
1	Agri & food processing	Agriculture sector is one of the most profound domestic growth drivers for the Indian economy. Being the most resilient sector to the COVID-19 pandemic, Agri & food processing industry is the low hanging fruit as we have the opportunity to boost more growth in this industry. With lot of efforts and advanced technology, supported by the relief measures taken by the Indian Government to provide much needed push to farm sector, will lead to further growth of the manufacturing sector of the country and thus spur the overall economic growth trajectory.

2	Housing and Real estate	One of the support systems of the economy is the real estate market in India, which is the second-highest jobs-producer in the country after agriculture. Despite being one of the most stressed industries, yet housing and real estate sector holds great potential for the economy. Since March 2020, it became apparent that adequate housing and home-related facilities have resulted in improved safety and protection during such times. The unpredictable times have brought to the forefront that more people are now seeking to live in homes that are smart, airy and expansive, to make overall household management easier. The future of Indian real estate seems bright and looks forward to benefit from technological innovation.
3	Infrastructure	Infrastructure is a key driver of the Indian economy and offers brighter possibilities and opportunities to strengthen India's global competitiveness. The increased spending on infrastructure, through its multiplier effect, would help revive the aggregate demand in the economy and to mitigate the daunting impact of COVID-19 on the economy. Infrastructure growth would not just help in accelerating growth, but would also support workforce redeployment to construction from the most affected industries. Rs 111 lakh crore investments in the National Infrastructure Pipeline (NIP) will certainly boost the growth trajectory of the country and take the size of the economy to the level of USD 5 trillion by FY 2025-26.
4	Automobile sector	The future holds bright for the automobile industry sector. India has significant cost competitiveness in the global market. India, with a moderately low car infiltration level and great possibilities for growth, is on the path to becoming one of the world's largest passenger vehicle markets. This offers an immense prospect of profitability and development to automobile firms. Furthermore, the rise of electric vehicles is anticipated to boost passenger vehicle production in the coming years.
5	IT sector	The Indian information technology (IT) industry is going through a transitional change now. With the advent of the COVID-enabled lockdown measures, IT companies have most of their employees working from home. At this juncture, Indian IT sectors hold robust promises to fuel the economy's growth.
6	E Commerce	The Indian E-commerce market is expected to grow to US$ 200 billion by 2026 from US$ 38.5 billion as of 2017[1]. The development of this sector has been set off by an expansion in web and smartphone infiltration smartphone penetration, the need for which has risen in view of the pandemic resultant lockdown restrictions. The continuous digital transformation in the nation is expected to increase India's total internet user base. The growth in this sector will increase employment, boost revenues from export, raise tax collection by the government, and offer higher quality products and services to customers in the long

[1] www.ibef.org

		term.
7	Health and pharma	Being a public health emergency, the COVID-19 pandemic has put to forefront the need to have developed the health and pharma sector – thus indicating a great potential for the health sector to grow in the future. Stepping up investments in the sector with further digitisation will help facilitate its growth and contribution to GDP. Further, COVID-19 pandemic has induced insurance agencies to rely vigorously upon their digital architecture. The possibility of hospitalization because of COVID - 19, and high clinical expenses in private hospitals has driven more Indians to pursue private medical coverage. With immense policy support from the government to provide a safety net to vulnerable households, the health insurance sector holds promise to grow further in the coming times.
8	FMCG and Consumer Durables	Amidst the economic crisis as a result of COVID-19 pandemic, food, personal care items, particularly hand sanitizers and disinfectants have emerged as prospering products, registering high sales revenues. This has made the sector record positive growth amidst the coronavirus crisis. Going forward, in the coming years, the FMCG industry is looking forward to carry on with the momentum and sustained revival across categories in rural and urban markets of India.
9	Telecom	Ever since the advent of the COVID-19 pandemic and the resultant lockdown restrictions, the demand for telecom services has increased extensively due to remote working needs. The rising requirement for 'virtual connectivity' has made the worth of telecommunication networks more prominent. The Indian Government's 'Digital India' mission and further policy measures in the last few quarters month enabled India to build a robust mobile broadband infrastructure, along with accelerating the rise of technology start-ups in a short span of time. Thus, the telecom sector is one of the most promising sectors that would fuel the country's growth trajectory through greater employment and income generation.
10	OTT Industry	OTT market grew up in 2020 and the sector is buoyant about their possibilities in the coming years as well. With upgraded networks, more grounded web availability and multimedia service-capable mobiles; the presence of Indian endorsers on over-the-top (OTT) platforms is expanding progressively. The COVID-19 pandemic has proven to be a boon for OTT. The subsequent lockdown has made the stay-at-home environment conducive for the growth of OTT platforms, which has further prompted the ascent of new direct-to-consumer applications and user-generated content formats.
11	Fintech industry	Fintech firms are at the front position particularly, because of the current situation with digital transactions occurring higher than at any other time. Advancements in technology and innovation have crafted new prospects for digital financial services to fast-track and augment

		financial inclusion, amidst social distancing and resultant controlling measures. On the back of the increase of start-ups in the Fintech industry, infiltration of smart mobile-phone users and strengthened fostering of the digital infrastructure by the government of India, the outlook of the Financial technology industry's growth looks bright and promising.
12	Defence Manufacturing	India's defence sector has been identified as one of the most promising sectors under the Make in India mission to achieve USD 5 trillion economic sizes. The Government is providing all possible support to fuel Defence Manufacturers indigenously through various initiatives including technology support and testing facilities to promote defence manufacturing in the country. This will significantly step up the stance of the Indian defence sector globally and position it as an international leader in the defence and homeland security scenario of the world.
13	Toy manufacturing	India is in a very appropriate position to become a toy manufacturing hub given the massive market opportunity, favourable demographic factors and extensive support by the Government. With large-scale investments in infrastructure, increased investments in innovation and research and development (R&D), massive skill development, among others, India's toy Industry can ensure its long-term competitiveness in the international market. India can build a value chain ecosystem of toys in the country instead of importing components and doing assembling activities.

Source: PHD Research Bureau, PHDCCI

About the Author

PHD Research Bureau

PHD Research Bureau; the research arm of the PHD Chamber of Commerce and Industry was constituted in 2010 with the objective to review the economic situation and policy developments at sub-national, national and international levels and comment on them in order to update the members from time to time, to present suitable memoranda to the government as and when required, to prepare State Profiles and to conduct thematic research studies on various socio-economic and business developments.

The Research Bureau has been instrumental in forecasting various lead economic indicators national and sub-national. Many of its research reports have been widely covered by media and leading newspapers. The Research Bureau has undertaken various policy studies for Government of India and State Governments.

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PHD CHAMBER OF COMMERCE AND INDUSTRY

Employment Elasticity of Leading Manufacturing Sectors: Opportunities for employment generation in India

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Abstract

The expansion of manufacturing sectors is critical for placing the Indian economy on a high-growth trajectory, but estimates of employment elasticity have fallen in the last 15 years. With the use of the ASI and Prowess databases, the paper analyses the job prospects and determinants of employment in five major manufacturing sectors (pharmaceuticals, gems and jewellery, iron and steel, electrical machinery, and automobiles). Furthermore, only traditional labor-intensive businesses (tobacco, apparel, footwear, leather products, electrical industries, and iron and steel industries) absorb more labour.

The paper conducted an industry-level data analysis based on ASI data, linked with international trade classification of top exports products, to determine the employment potential of the above-mentioned sector. The paper also attempts to identify areas that are more labour and skill intensive in order to provide employment prospects based on various levels of skill requirement (high skill, low skill, medium and labour intensive manufactures). Within the context of regression analysis, the estimation of employment elasticity is undertaken predominantly at the aggregate level.

Section I

Introduction

Job creation is an important part of economic development, and it has long been a top policy priority for national and international organisations. In many countries, sufficient employment creation remains a big issue. The problem has gotten worse in various nations as a result of a variety of circumstances, including the financial crisis, changes in the labour market structure (from low to high/medium skill intensive) and now the pandemic. Because of the potential tradeoff between full employment and price stability enunciated by Philips curve, it appears that most central banks in the developed and developing nations have abandoned the goal of achieving full employment in favour of price stability (Felipe, 2010). Six employment trends have been observed around the world: I decline in the employment to population ratio, partly due to low female labour participation rates, ii) existence of the informal sector, particularly in developing countries, iii) declining wage share and increasing wage inequality, iv) internationalisation of the production process, v) migration of labour in search of higher wages, and vi) changing pattern of production, as employment shifted from agriculture to manufacturing.

A rapid expansion of the manufacturing sector, aided by restructuring of more labor-intensive businesses, could result in the creation of a huge number of employment. The services sector currently dominates the Indian economy, accounting for more than 54% of the country's total value added. The service sector has risen at a higher rate in recent decades, contributing significantly to job creation, but it requires people to have specific skills and educational backgrounds. As per National Sample Survey Organization (NSSO) for 2017-18, more than 80% of service industry workers have a secondary education or higher.

In contrast to the scenario in the organised services sector, the organised manufacturing sector has a better chance of employing youth with lower skills and education. According to NSSO data from 2017-18, roughly 20% of youth in the organised manufacturing sector have less than a primary education, while just 15% have a primary education. Evidently, the manufacturing sector has a considerably higher potential for supplying jobs to less educated individuals in a very short period of time.

The major purpose of this paper is to investigate the employment elasticity and potential in main manufacturing sectors exporters in East Asia and Latin America. Many studies have looked into the impact of trade, technology, FDI, and other forms of trade openness on employment levels, but only a few have looked into the employment elasticity and export prospects in these two regions (EAP and LAC). In this context, the issue becomes critical to investigate, as the Indian government focuses on a few industries as part of the Make in India initiative.

Section II

Literature Review

The pattern of India’s economic growth during different policy regimes has been compiled in many studies (e.g., Jha, 2015; Krishna, 2016). The remarkable GDP growth rate has been recorded during 2001-2011 at it reached to 7.9 percent as compared to 5.6 percent during the earlier decade of 1991-2001 (Krishna, 2016). For the period 2001-2011, the CAGR for manufacturing sector stood at 8.3 percent however, industrial sector grew at 7.8 percent whereas services registered an impressive annual average growth of 9.4 percent[2]. Therefore, some economists have defined this period as period of service-led growth in India (Ghose, 2015; Das et al., 2015). The relatively faster growth of the service sector to the industrial sector resulted a structural transformation featured by a larger share of services sector in the overall GDP, and several aspects of this structural transformation has been analyzed in the literature (Kochhar et al., 2006; Islam, 2008; Papola & Sahu, 2012; Krishna, 2015; Chandrasekhar, 2015; Erumban et al., 2015). The GDP share of the agriculture sector has declined to 13.94 percent in 2013-2014 (at 2004-05 constant prices) from 29.53 percent in 1990-91[3]. On the other hand, the share of services has been increased from 42.55 percent

[2] Economic Survey 2017-18.
[3] Planning commission 2015.

to 59.93 percent and the share manufacturing sector marginally decreased from 15.08 percent to 14.94 percent. Clearly, the structural transformation has bypassed the secondary sector and has been from the primary to the tertiary sector.

The existing literature mostly covers the studies focusing on either national or international level to understand employment trends and patterns in manufacturing industries and its destinations or effects of trade liberalisation on employment (Deshpande 1992**;** Ghose, 2000; Goldar, 2002; Banga, 2005; Pradhan, 2006; Sen, 2008; Sankaran, et al. 2010; Raj and Sen, 2012; Raj and Sasidharan, 2015; Vashisht, 2015, Francais 2015) exploring the role of trade liberalization policy related factors, industry-specific factors and sectoral features. The studies related to determinants of employment shows that the firm performance in the world market depends largely on its technological characteristics along with micro and macroeconomic factors. (Micheal et al.. 2008; Sengupta 2015; Das et al..2016). Literature related to responsiveness of employment to output growth has suggested that declining labour absorption capacity of output growth (Basu and Foley, 2013; Basu and Das, 2016, 2017; Aggrawal and Goldar, 2019). Against these backdrops it becomes important to identify the opportunities in the leading sectors to increase the exports of India with Latin American Countries (LAC) and East Asia Pacific countries (EAP).

Section III

3.1 Labour and capital intensity in manufacturing sector

India's factor endowment is characterised by an abundance of labour due to its large population, which is represented in a high labour intensity (labour to capital ratio, L/K) for the whole economy, whereas the manufacturing sector has a low and declining labour intensity. According to Das et al. (2015), only 13 out of 52 three-digit manufacturing industries were labour intensive (with an average value more than 0.50) and accounted for about 31% of total manufacturing employment in the 2000s, indicating a decline in employment elasticity. Manufacturing labour intensity fell from 3.34 in the 1980s to just 0.78 in the 2000s, and then to 0.41 in 2013-14. (Das et al. 2015). The literature suggests a probable explanation for India's labor-intensive manufacturing industry's growth restrictions.

i) Infrastructure bottlenecks like; supply of electricity, transport, credit facilities and market.(Panagariaya, 2008)
ii) Low literacy rate and poor skills among unskilled labour.
iii) The nature of trade towards more capital- intensive industries.
iv) The labour legislation in India, especially the industrial Dispute act, which led to increase in employment of contract labour.
v) Reduction in cost of capital in the form of subsidies leads to capital-intensive industries (Unni 2015)

Chandrashekhar (2008) estimated the cost of capital and labour and concluded that there was a negative shift in the price of capital to labour, owing to subsidies based on investment, interest, and other incentives, such as free or subsidised electricity provided by state and federal governments, and low custom duties on machinery imports, among other things. Chandrashekhar also mentioned the unemployment rise in organised manufacturing, as well as the desire for higher-quality, branded products, and capital-intensive businesses, which were assisted by banks' liberal lending policies for personal finances. One of the reasons for jobless growth is the adoption of a "neoliberal" path. Jha et al., 2015. In the international arena, Felipe (2010) added to the list of reasons why many developing countries have struggled to produce enough jobs as a result of capital heavy industrialization. High population growth; industrial strategies that promote capital-intensive industries in order to have a trickle-down effect; limited capital labour substitution; market distortion in the form of high wage rates in modern industries.

Manufacturing activity has grown, as shown in Table 1. (in terms of numbers of factories and gross output). As a result, both labour and capital absorption have grown. The percentage that is actually required for job creation has not been increasing, and as a result, the industrial sector of the Indian economy is becoming more capital-intensive. The capital-output ratio was around 0.43 in the year 2000-01, and then grew to 0.45 in the subsequent year. A gradual decrease in the ratio can be seen for the period 2002-03 to 2008-09. Thereafter a marginal increase may be noted in the succeeding years.

It may be noted that the labor-capital ratio has been falling since 2000-01, according to the most recent data available. In other words, the economy has implemented sophisticated production methods or more mechanical (machines) methods of production. The labour capital ratio was around 0.20 in 2000-01 and has since dropped to 0.05 in 2017-18, which is extremely low when compared to the country's capital output ratio. The overall trend in labor-capital ratio data indicates that the country is becoming less labour intensive and more capital intensive.

Table 1 Capital and labour absorption in India's manufacturing Sector

Capital and Labour Absorption in India's Organized Manufacturing Sector						
Year	No. of Factories	Labour (No. of Workers)	Capital (Rs. Lakh)	Gross Output (Rs. Lakh)	Capital-Output Ratio	Labour-Capital Ratio (L/K)
2000-01	131268	7987780	399.6	926.9	0.43	0.20
2001-02	128549	7750366	431.9	962.4	0.45	0.18
2002-03	127957	7935948	444.7	1130.6	0.39	0.18
2003-04	129074	7870081	473.3	1287.4	0.37	0.17
2004-05	136353	8453624	512.3	1672.5	0.31	0.16
2005-06	140160	9111680	606.9	1908.3	0.32	0.15
2006-07	144710	10328434	715.1	2408.5	0.30	0.14
2007-08	146385	10452535	845.1	2775.7	0.30	0.12
2008-09	155321	11327485	1055.9	3272.7	0.32	0.11
2009-10	158877	11792055	1352.1	3733.0	0.36	0.09
2010-11	211660	12694853	1607.0	4676.2	0.34	0.08
2011-12	217554	13430483	1949.5	5703.6	0.34	0.07

2012-13	222120	12950025	2180.2	6025.9	0.36	0.06
2013-14	224576	13538114	2373.7	6555.2	0.36	0.06
2014-15	230435	13881386	2474.4	6886.3	0.36	0.06
2015-16	233116	14299710	2809.6	6862.3	0.41	0.05
2016-17	234865	14911189	3190.3	7265.5	0.44	0.05
2017-18 (P)	237684	15614598	3293.4	8081.6	0.41	0.05
Author's Calculations Based upon Annual Survey of Industries						

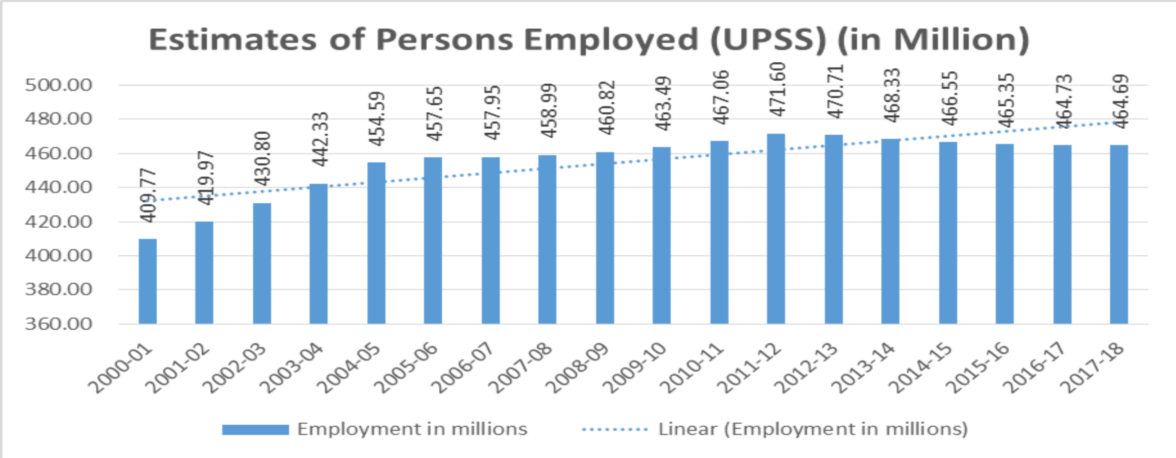
The disaggregated analysis is required to identify the labor-intensity profiles of sub-sectors in Indian manufacturing. The traditional labor-intensive sectors with high labour absorption potential are tobacco, apparel, footwear, sports goods, leather products, etc. for the year 2017-18. The calculated labour intensity is higher with the ratio of 0.76 in industries related to production of tobacco, apparel sector and textiles. On the other hand, industries relating to articles of fur and lighting equipment has the low capital-labor ratio with the value 0.15 and 0.02 respectively in the year 2017-18.

3.2 Employment Trends in the Indian Economy

This section's employment estimates have been taken from RBI (KLEMS) database, which has obtained employment numbers from NSSO surveys of various rounds. In Figure 1, we provide the total number of persons engaged in work for various NSSO rounds. In 2000 -01 there were 409.7 million workers out of a total population of 1.06 billion. The increase in employment was very impressive between 2000-01 and 2004-05 when around 45 million more jobs added with an increase in 91 million, which is around 60 percent of the total increased population.

Economists connected this acceleration in employment to economic reforms, though some scholars doubted the quality of employment. (Chandrashekhar and Ghosh, 2006; Papola,2008; Sarkar and Mehta, 2010; Thomas,2011). In the next five years, the employment generation's acceleration becomes slow and only 9.1 million new jobs added in the economy. The latest period of 2017-18 does not reflect the major increase in number of employees; though output increased, the number of employees has not increased similarly. In 2009-10 there were 463.4 million employees available in the country, which has increased to 464.6 million in 2017-18.

Figure 1: Estimates of persons employed : 2000-01 to 2017-18



Source: NSSO employment and unemployment surveys, various rounds and KLEMS data version 2019.

3.3 Estimation of Employment elasticity in Five Manufacturing sectors

This section finally, focuses on the 5 top manufacturing product categories (selected earlier in Chapter 2) that comprise India's exports to the Asian and Latin American regions. The employment elasticity for these 5 industries (Iron and Steel, Pharmaceuticals, Automobiles, Gems and Jewellery and Electrical machinery) is estimated at the NIC 4-digit level (based on ASI data), using panel data regression over the period 2000-01 to 2017-18. The change in employment elasticity between the pre- and post-financial crisis period is also examined in this context. These results are used to get an idea regarding the employment implications of India's trade with the selected 13 countries.

3.4 The Industry Level Data

The preliminary analysis shows that employment in sectors related to Machinery, chemicals, Transportation and electrical equipment has registered high average growth rates for the period 2000-01 to 2017-18. Therefore it becomes imperative to analyze the employment elasticity and impact of trade on employment by some econometric exercise.

This section attempts to compute the employment elasticities (Point Elasticity) based on regression analysis approach. The main data source for this study is the Annual Survey of Industries (ASI). These data are collected and compiled by Central Statistical Organization (CSO). The data included in the study are the total number of people engaged (000') and output value in terms of rupees lakhs. The monetary values are at current prices, so they are made comparable by deflating them with the wholesale price index at 2004-05 prices of manufactured products. Data on the wholesale price index of manufactured products are collected from RBIs' *Handbook of Statistics on the Indian Economy*.

The employment elasticity is separately estimated for the pre-crisis period period of 2000-01 to 2008-09 and 2009-10 to 2017-18 post crisis period. The NIC 4 digits classification is mapped with ISIC 3rd revision for these five sectors (Iron and Steel, Pharmaceuticals, Automobiles, Gems and Jewellery and Electrical machinery). For pharmaceutical sectors 3 industries related organic chemicals category is taken. Similarly, from the category of base metals for iron and steel a total of 11 industries have been taken.

Besides, industries related to automobile a total 10 industries has been taken from the category of transportation in NIC classification. Machinery and electrical equipment 9 industries selected and from the segment of precious metals, only 4 industries have been classified under gems and jewellery. After considering these important 37 industries, an unbalanced panel for 18 years (2000-01 to 2017-18) has been prepared to perform the analysis. The number of observations are based on clubbing of ISIC 3rd rev. with NIC08 at 4 digit classification and found that all the industries have some missing data values and therefore the total number of observations for each industries are as follows; about 10 industries for automobile sector are dealing with automobile products for 18 years and becoming around 178 observations. Similarly, in electrical machinery (126 observations), iron and steel (192 observations), Pharmaceuticals (54 observation) and gems and Jewellery (58 observations) during the period 2000-01 to 2017-18.

3.5 Methodology

The problem of low employment elasticity in the manufacturing sector is a serious concern of policy makers. The trends show that employment growth has been lagging behind output growth. Employment elasticity is a measure of percent change in employment associated with a one percentage point change in economic growth. It also indicates the ability of an economy to generate employment opportunities for the country's working population. It is an important tool to check the process of development of the country.

Although, it is not free from the criticism and generally two set of criticism enumerated in the literature i) the relationship between employment and output is not uni-directional and ii) the notion of employment elasticity is valid for a given state of technology, wage rate and policies (Mishra & Suresh, 2014). Nevertheless, these criticism and employment elasticity are a convenient way of summarizing the employment intensity of growth or employment sensitivity of output growth (Islam and Nazara, 2000). This can also be used to track the sectoral potential as well as industry potential for generating employment and forecasting the future growth in employment. However, employment elasticity at aggregate level may mislead the results as the workforce's growth rate tends to be almost equal to the growth rate of working age population and hence essentially driven by demographic factors. The employment elasticity in Indian manufacturing has decreased over the period of liberalisation (Mishra and Suresh, 2014) Thus, a period of high growth may well imply a period of jobless growth. (Ghosh, 2015a)

3.6 The Basic Model

Following the available literature on the subject, an empirical model of the following specification is estimated:

$logEmp_{it} = \alpha + \beta_1 Log\_output_{it} + \beta_2 D_{1it} + \beta_3 D_{1it} * log\_output_{it} + \mu_{it}$……………….(1)
Where, Emp= Employment (No. of person Engaged 000')
Output= Output (in Rs Lakh)
Time Dummy or D_1= Dummy variable (D1=0 if year is less than 2008 and '1' otherwise.)
Log_output*Time Dummy= Dummy interaction with Output

The variables are in the natural logarithmic form. Therefore, the estimates of β_s determine the dependent variable's elasticity with respect to the independent variables. EMP here is the total number of person engaged (in 000') in the manufacturing firm. 'Output' in the model refers to the total real output produced by a manufacturing firm in a year. The impact of financial crisis on employment is a dummy variable D_1 (D1=0 if year is less than 2008 and '1' otherwise) has been taken. An interactive dummy D_1*Output has also been used in the model - the coefficient of this term captures the difference in elasticity between the two periods. Since higher output leads to more employment if other things are constant, the output's coefficient is expected to have a positive sign. On the other hand, any shock or crisis is generally considered a negative development for any country; therefore, the dummy variable's expected sign is negative.

3.7 Results and Discussion

Table 2 shows the results for the employment elasticity of the five leading sectors of the economy. The above-mentioned equation (1) is estimated separately for each of the 5 sectors that constitute India's major manufacturing exports to the East Asian and Latin American countries (i.e., Pharmaceutical, Iron and steel, Gems and Jewellery, Automobiles and Electrical machinery industries) for the period 2000-01-2017-18. A joint test has also been carried out to see the impact of dummy and interactive dummy variable is significantly different from '0' and if the null of β2= β3=0 is getting rejected, which means there is an impact of the financial crisis on the dependent variable.

As mentioned above, the number of observations in the analysis are based on clubbing of ISIC 3rd rev. with NIC08 at 4digit classification and found that all the industries have some missing data values and therefore the total number of observations for each industries are as follows; about 10 industries for automobile sector are dealing with automobile products for 18 years and becoming around 178 observations. Similarly, in electrical machinery 9 industries for 18 years with missing data (126 observations), iron and steel (192 observations), Pharmaceuticals 3 industries for 18 years (54 observation) and gems and Jewellery 4 industries for 18 years with missing values (58 observations) during the period 2000-01 to 2017-18. The industries chosen from the NIC classification based on partial involvement in the sector like organic chemical is a huge sector but pharmaceutical sector is a part of that sector and 3 industries at NIC 4 digit classification represent the pharmaceutical sector. Therefore, we have taken these 3 industries to represent pharmaceutical sector and also taken employment based on these three industries. Similar exercise has been done for other sectors and chosen the specific industries based on 4 digit NIC classification.

Table 2: Employment Elasticity in 5 leading Manufacturing sectors of Indian Economy.

Sectors	Organic Chemicals (Pharmaceuticals)	Base Metals (Iron and Steel)	Transport (Automobiles)	(Machinery and Electrical Equipment)	Precious Metals (Gems and Jewelley)
Independent/Dependent Variable	Log_Emp	Log_Emp	Log_Emp	Log_Emp	Log_Emp
Log_output	0.54***	0.50***	0.62***	0.46***	0.48***
std.error	0.03	0.04	0.04	0.07	0.05
Log_output* TimeDummy	-0.96	0.10*	0.09*	-1.7	0.06
std.error	0.42	0.06	0.04	0.06	0.05
TimeDummy	-2.14	-1.5*	-1.43**	-0.12	-1.16
std.error	1.58	0.95	0.61	0.09	0.78
Constant	0.68	3.70***	1.98***	4.21***	4.03***
std.error	1.66	0.63	0.53	0.96	0.79
R-Square (within)	0.63	0.29	0.34	0.23	0.23
R-square(Between)	0.67	0.82	0.95	0.74	0.93
R-Square (Overall)	0.87	0.76	0.9	0.63	0.89
Number of Observations	54	192	178	126	58
P value inferences * p<.10,p<.05,***p<.01**					

Source: Authors' Calculations from ASI data

The panel regression model has been used to see the employment changes in these sectors over the period of time. The results in above table 2 are explaining that in the pharmaceutical sector, if the value of output is increasing by 1 percent then employment is growing significantly by 0.54 percent in the pre-crisis period. The financial crisis is not impacting employment elasticity in this sector as the coefficient of the interactive dummy is negative but not statistically significant. This is the sector which generates employment majorly for the group of high skill intensity workers and the employment elasticity in this sector is also relatively high. The automobile sector is only the sector where employment elasticity is highest due to the availability of low skilled, high skilled and medium skill labour in the industry and declining interest rates of bank worked together to enhance the domestic demand. Also competitive prices have given Indian exports an edge in this sector – all these factors have contributed to relatively high employment elasticity in this sector. The coefficient of the interactive dummy and output is positive and significant in this case, indicating that employment elasticity in this sector has increased (i.e. 0.62+0.09) after the financial crisis – with one percent increase in the value of output associated with 0.71 percent increase in employment. Similarly, the sector related to iron and steel also has relatively high employment elasticity as the output coefficient is positive and statistically significant and here also the employment elasticity in the post-crisis period is found to be higher. The coefficient value of interactive dummy and output shows that one percent increase in output will lead to 0.60 (i.e., 0.50+0.10) percent increase in the value of employment after financial crisis.

The industries related to gems and jewellery are also employment elastic with the statistically significant value of the output coefficient. As the output increases by 1 percent the employment also increase with the 0.48 percent. This is a relatively labour intensive sector, so its capacity to create additional employment at the margin may be limited – this could explain the employment elasticity figures for this sector in comparison to the others. Employment elasticity in this sector was not affected by the financial crisis as the value of interactive dummy is positive but not statistically significant. Finally, the machinery and electrical equipment industry has the lowest employment elasticity in the table (0.46) – i.e., if output increases by 1 percent then the employment will increase by 0.46 percent. In this sector also employment elasticity was not affected by the financial crisis as the value of the interactive dummy is negative but statistically insignificant.

To summarize, the financial crisis impacted employment elasticity in only two sectors (automobiles and base metal) out of these five sectors. The employment elasticity is highest in Automobile sectors and providing highest employment as output increases. The organic chemicals (Pharmaceutical) is the second highest industry in terms of employment elasticity followed by iron and steel, gems and jewellery and electrical machinery and equipment.

Table 3: Contribution of 5 Leading Sectors in Exports w.r.t. EAP and LAC in 2017

Industry/ Region	Employment Elasticity	World in 2017		East Asia Pacific in 2017		Latin America in 2017	
		% Share of Total Exports	% share in 5 Sectors	% Share of Total Exports	% share in 5 Sectors	% Share of Total Exports	% share in 5 Sectors
Pharmaceutical	0.54	7.47	26.43	4.18	17.85	14.10	26.51
Gems and Jewellery	0.48	3.36	11.91	5.85	25.01	2.30	4.28
Iron and Steel	0.50	7.25	25.67	5.90	25.38	8.02	14.88
Electrical Machinery	0.46	2.09	7.42	1.60	7.20	2.10	3.95
Automobile	0.62	8.07	28.57	5.75	24.55	27.10	50.38
Total	**-**	**28.24**	**100 %**	**23.38**	**100 %**	**53.62**	**100 %**

Source: Author's Calculations based on ASI data.

These are the sectors with high employment elasticites and they also have high share in the total export to these regions. However, labour intensity (L/K) has been declining in these industries. The labour intensity in pharmaceutical sector was around 0.38 in the year 2000-01 which is decreased to 0.16 in 2017-18. Similarly labour intensity in iron and steel sector has been decreased from 0.06 to 0.02 for the same period. The other sectors have also decreased in terms of labour intensity. Therefore overall impact on employment will not be high until there is significant output expansion in these sectors.

The negative impact of the financial crisis on employment is evident from the fact that in each of the 5 sectors the coefficient of the time dummy is negative and the sum of the time dummy and the interaction dummy are also negative in each case. This sum captures the difference in average employment (log of employment) in the post- and pre-crisis periods and its value captures a negative impact of the crisis on average employment.

These five sectors contribute around 23 percent of the total exports to EAP countries, more than 53 percent share of the total exports to LAC countries are being covered by these 5 sectors. These sectors are also important from the perspective of ‘Atmanirbhar Bharat’ in which Government of India is aiming to make self-reliant India and these sectors can play a pivot role to achieve this objective given their high share in India’s manufacturing exports to the world as well as to countries in the EAP and LAC regions. The employment elasticity is also high for these sectors, therefore it may be helpful to achieve the twin goals of employment generation and higher exports.

The literature has widely studied the usefulness of imported inputs that feed into manufacturing exports, but not enough has been done to assess India’s capacity as an intermediate exporter. Recent ‘Make in India’ initiative tries to boost India’s competitiveness in exporting manufactured products and the availability of labour can act as an asset to promote the manufacturing exports. The demand for intermediate goods is very high in neighbouring countries like Malaysia, Indonesia, Singapore, Thailand, Vietnam and South Korea. And it can be seen the five leading sectors analysed here are exporting a significant share to these countries as well to countries of Latin American region. These sectors are also contributing a high share of India’s exports to the world. The results of the previous chapters also show that intermediate goods play an important role in manufacturing exports and Indian export basket has ample share of intermediate products. These five sectors consisting of almost 30 percent share in total exports in 2017 may also work as a catalyst in boosting intermediate goods exported by India to the world.

Section IV

Conclusion

The employment elasticity for 5 leading sector shows that India needed reforms in Automobile, Iron and steel, Pharmaceutical and Electrical machinery industries to absorb every type of labour such as; Iron and steel can consume more of unskilled or semiskilled labour however, in Automobile sector high skilled and medium skilled or the less educated worker may be absorb. On the other hand Pharmaceutical and Electrical Machinery industries can employ high skill educated and low –skilled workers may be employed. So, government may focus on MSMEs sector to promote these industries in the form of ease of doing business, ease of availability of land, labour and capital. Also create special economic zone in dedicated areas, subsides on installing a startup among other may be provided.

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India's economic and business fallout in the pandemic

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The coronavirus started in late 2019 and engulfed the whole world with such a rapid speed that in January 2020, the World Health Organization (WHO) declared the coronavirus outbreak a global health emergency. The pandemic affected more than 210 nations including USA, Spain, Italy, France, Germany, among others. Due to this outbreak, various health related concerns had been taken by the countries, which created wider restrictions on the movement of people, goods and services which resulted in fall in the business and consumer confidence, slowing production and widespread disruption in global & domestic supply chains.

The entire economic activity was severely impacted with the closure of offices and shops, disruptions in supply chains and contraction in demand. Businesses had experienced the major impact on their business activities and sustainability. The majority of the businesses have confronted the challenges of keeping their monetary wheels turning because of less business activity, weak demand and low purchaser certainty. Pandemic coronavirus significantly influenced the buying behavior of the consumers as many postponed their larger expenditures such as purchase of vehicles, electronics, among others.

The coronavirus has the same impact on domestic front also, with complete lockdown in country announced on March 25, 2020. With passage of time and subsiding of the COVID cases in the country, the Government decided to exit the lockdown in a graded manner in 2020. On the back of proactive and combative measures undertaken by the Government throughout 2020 to curtail the spread of pandemic coronavirus, the economic indicators started showing positive trajectory and eventually the journey of economic recovery began.

However, February 2021 marked as a start of 2nd wave of coronavirus in India, which aggravated in April 2021. The second wave has struck like a storm throughout the country, with record new cases, active cases and deaths. This time the pandemic entered every household and affected the life of every one. The re-emergence of pandemic situation and resultant partial lockdowns and curfews in many parts of the country impacted the pace of economic recovery with disruptions in supply chains and contraction in demand. Similar to the effect of 1st wave of coronavirus in the country, since the beginning of 2nd wave and announcements of lockdown in various regions, the vast majority of the migrant laborers had moved to their local spots.

Challenges faced by businesses & Economy

Amid this scenario, business faced many challenges such high cost of raw materials, unavailability of working capital, maintaining price-cost margins/profitability, weakening of demand; ability to retaining of the full workforce, meeting the costs of deployed workforce, payment of wages/salaries to workers/employees, repayment of loans/payment of EMIs, among others.

A major issue faced by the businesses has been the sky-rocketing prices of raw materials along with absence of any credit being extended by the raw material suppliers. Due to this, the businesses faced a major revenue gap as they had to sell the finished product with a credit period of more than two months. Increasing prices of raw material severely impacted the price cost margins of the businesses in the difficult pandemic time of coronavirus. High prices of fuel and power significantly increased the input costs of the industry and its competitiveness in the domestic and international markets.

The shut-down of plants, shopping centers, markets, independent ventures, among others antagonistically affected their overall working capital cycle. Amid the drastic fall in the business activities vis-a-vis lower domestic and worldwide deals, the working capital of the organizations have been upset. Further, as MSMEs totally rely upon the working capital for meeting their short-term costs, including buying raw materials, installment of compensations, meeting overhead cost, among others, the working capital interruption because of 2nd wave of COVID became a significant test for MSMEs.

Indeed, even before the beginning of this pandemic, the worldwide economy was confronting turbulence as a result of disturbances in trade flows and lessened development. The circumstance got aggravated by the demand shock that 1st wave of coronavirus perpetrated. And even before the people were completely back on track with respect to their pre-COVID demand levels, the 2nd wave of pandemic hit the country. The business cycles undoubtedly affect the demand for commercial as well as residential spaces in the housing market. Also, pandemic coronavirus significantly influenced the buying behaviour of the consumers as many have postponed their larger expenditures such as purchase of vehicles, electronics, among others.

Due to lockdown in various states, majority of the factories/ businesses/shops were shut with no or little revenue, along with this the export orders got affected and units were unable to repay loans. Due to this, the retention of the full workforce became a major challenge. Also, it became difficult for the businesses to meet the costs of deployed workforce, with lower revenues. Various organizations failed to pay full or even halfway wages/compensations to their laborer/employees. Furthermore, because of temporary shut-down of the business firms, the fixed costs like worker compensation and pay, spiked the expenses of organizations.

Another challenge was the repayment of loans/ payment of EMIs. The stranded business operations, temporarily closed industries & factories, no or low revenue and low demand scenario in the economy, especially for the non-essentials during the lockdown period had severely impacted the ability of businesses and individuals to repay their loans and/ or pay their monthly EMIs.

Further, due to a number of mandatory regulatory compliances, there was a cascading effect on the overall cost of doing business. High cost of compliances worsened the already impacted policy environment in the country for businesses. Due to this businesses were not able to focus on their core business.

Major focus areas of economy and businesses

To tackle the difficult situation, business focused on some key strategic areas, such as vaccination of employees, increasing the sales volume, focus on enhancing competitiveness of business, focus on cut in costs of business operations, focus on innovation, research & development, enhance business operations in the domestic market, reduce the workforce in business operations, among others.

Several organizations, companies, firms and businesses rapidly increased employee enrollment in the vaccination drive. Businesses believed that stepping up vaccinations was a definite way of saving many lives and enhance the spirit of safety, health and wellness among their employees. Also, employee health was of significance to run the businesses and drive the economy to a higher growth trajectory.

Many businesses focused on increasing the sales volume to face the issues and challenges posed by impact of coronavirus. It became critical to chart the new roadmap to engage, encourage and streamline the marketing, sales, pricing, and service teams and processes. It became important to assess the markets scenario and accordingly identify the potential customers who could accelerate the sales to a higher growth trajectory.

Another focus area of the businesses remained on activating the existing industrial units in respective sectors, by making the proposed industrial units operational and to attract new investments. Organizations responded rapidly to maintain continuity and to de-risk their operations to enhance in the competitiveness of businesses.

Business operations were re-strategized and reviewed to include the adoption of automation with technology that could drive a major change in the business operations. For the core operations, businesses increased their reliance on newer technologies. Businesses that are already on path of embracing Industry 4.0 found it easier in the prevailing scenario of business slowdown.

The scenario created by COVID-19 showed the increasing need for innovation, research and development as an essential thing for businesses to stay abreast in competition, meet the consumer demand, boost the sales, increase revenue and profits and minimize the costs among others. Many businesses majorly focused on enhancing profitability and revenue through the way of re-creating the demand, and streamline the sources of supply chains. Many businesses planned to enhance their operations in the international market by reactivating their entire supply chain, even as the differential scale and timing of the impact of coronavirus differed in multiple geographies.

Government response to COVID-19

The Government's response to the pandemic COVID-19 has been through the trinity of the stimulus of policy, financials and confidence level, which has not only taken the Indian economy on its path to recovery but also paved way for sustained growth and put India on a significant position in the world economic system.

In the first wave the Government announced Rs 1.70 Lakh Crore relief package under Pradhan Mantri Garib Kalyan Yojana for the poor to help them to fight the battle against Corona Virus by providing 5 kg wheat or rice and 1 kg of preferred pulses for free every month for the next three months were announced for 80 crore poor people along with insurance cover of Rs 50 Lakh per health worker fighting COVID-19. Moreover, the Government also announced significant investments to the tune of Rs. 15000 crore for 'India COVID-19 Emergency Response and Health System Preparedness Package' to slow and limit COVID-19 in India through the development of diagnostics and COVID-19 dedicated treatment facilities.

The Government outlined the vision to make India a self-sufficient nation (Aatmanirbhar Bharat) in the face of the Covid-19 pandemic, based on five pillars: economy, infrastructure, system (technology-driven arrangements), vibrant demography and demand. Due to the COVID-19 pandemic, an opportunity is created for the Indian economy to participate in global supply chains - to capture buoyant external demand for goods. Under the AatmaNirbhar Bharat Abhiyaan 1.0(May 2020), the Government announced various measures including reforms for MSMEs, especially the provision of collateral free automatic loans, new definition of MSMEs; opening up of all sectors to private sector; reforms for improving ease of doing businesses, employment generation, among others. Under AatmaNirbhar Bharat Abhiaan 2.0(October 2020), the government announced meaningful and calibrated measures to stimulate the consumer demand, boost capital expenditure.

The Government announced bold economic reforms under AatmaNirbhar Bharat Abhiyaan 3.0, such as Aatmanirbhar Bharat Rozgar Yojana, extension of Emergency Credit line Guarantee scheme, Production Linked Incentive Scheme for 10 champion sectors, reduction in the Performance Security on contracts, income tax relief to developers and home buyers, among others. These will have a multiplier effect on the economic growth trajectory through enhanced demand, job creation, increased private investments, escalated exports and growth of sectors that have strong backward and forward linkages.

The Reserve Bank of India has taken the numerous measures to fight the COVID-19 at the financial front which were intended to (i) enhance liquidity support for financial markets so as to revive activity in targeted sectors of the economy with linkages to other sectors; (ii) provide a boost to exports; (iii) regulatory support to improve the flow of credit to specific sectors within the ambit of the norms for credit discipline; (iv) deepen financial inclusion; and (v) facilitate ease of doing business by upgrading payment system services so as to improve customer satisfaction, while supporting growth.

Vaccination drive running in the country

The Government has been committed to accelerate the pace and expand the scope of COVID-19 vaccination throughout the country. The vaccination drive has been ramped up through availability of more vaccines, especially to States and UTs to enable better planning by them and streamlining the vaccine supply chain. As part of the nationwide vaccination drive, Government of India has been supporting the States and UTs by providing them COVID Vaccines free of cost. It is matter of pride that India had launched world's largest vaccination programme with more than 100 crore vaccine dosage completed so far.

Way ahead

On the back of various meaningful reforms undertaken by the Government in last many quarters, the improvement has been witnessed in the key economic and business indicators. This reflects that economic recovery has once again gained momentum. Going ahead, there is requirement of extreme support to MSMEs and Startups. The focus should be on ensuring provision of hassle free disbursements of loans visà-vis enhanced liquidity for MSMEs. There is a need to lower interest rates for consumers and businesses, lesser compliances for MSMEs vis-à-vis ease of doing business at the ground level. The ease of doing business is important for the overall growth and development of commerce and industry in order to strengthen domestic enterprises and attract foreign investors. India's ease of doing business has improved significantly over the years. At this juncture, the Government should focus on reducing the cost of doing business.

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Ms. Kritika Bhasin has around 6 years of work experience in economic research, policy advocacy and market research. As a Senior Research Officer with PHD Research Bureau, PHD Chamber, she works across various domains, including macroeconomic developments in the national and international arena, State developments, banking, and industry. She has worked on several thematic research reports, research papers/ notes, representations, newsletters, articles, speeches, presentations, etc., related to economy, industry and trade. She has worked on various government awarded studies and has the experience of preparing research proposals and presentations for national and international projects. Her works have been published in leading newspapers, magazines and bulletins. She has experience in organizing events, scheduling meetings, preparing highlights and formulating an action plan for the meetings organized.

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The Rise of the Indian Unicorn

3 Case Studies of Indian Unicorn Start-ups and their Implications for the Start-up Eco-system

- Ms. Mahika Dalmia

'Unicorn Start-Ups' are start-ups whose market capitalization is over USD 1 billion. They were considered a rarity in India just 2 decades ago, however, this narrative has drastically changed since. India saw a dramatic rise in the number of 'Unicorn Start-Ups' over the last decade. As of 2021, there are 51 such unicorns in India, 19 of which became so in 2021 itself.

The focus of this paper is to –

1) Assess the major factors that have led to this dramatic growth in the number of unicorns in the country,
2) Provide a case study on 3 such start-ups, namely, Zomato, Flipkart, and Nykaa to assess common themes across unicorns. Parameters for assessment are –
    a. History of the company
    b. Current key focus areas
    c. Scope of future growth

Methodology

1) The data for the paper has been gathered from a mix of secondary and primary research, which were analysed to arrive at a hypothesis,
2) The hypothesis has been validated via primary research.

The expert interviewed for primary research is –

- Senior Executive at the financial advisory division of an MNC. The expert has relevant experience in
    - ✓ Work experience with multiple start-ups (including both operations and fundraising),
    - ✓ Significant work experience with private equity and venture capital firms (in both M&A and performance improvement), and
    - ✓ Expertise across consumer, financial services, technology, and logistics firms.

<u>Summary</u>

India has seen an increasing number of start-ups over the last 5 years. The number of "unicorns" (start-ups with a valuation of over USD 1 billion) has also increased significantly. The two major factors contributing to this increase are:

- Low cost of mobile data – Data costs in India have reduced substantially post the entry of Reliance Jio in 2016. India has one of the cheapest data prices globally, which has led to a drastic increase in the number of internet users.
- Availability of funding – Start-ups typically incur substantial losses till they reach economies of scale. Some of the largest Indian start-ups such as Flipkart, Zomato, Razor Pay, and Dream11 ran significant losses during their initial years. To fund these losses, start-ups rely on private equities and venture capital firms. PEs and VCs have shown significant interest in investing in India over the last decade.

Post analysis of case studies of Zomato, Nykaa, and Flipkart (performed later in the research paper) it can be determined that there are common themes present across many successful unicorns. These themes, typically, have functioned as success factors for these unicorns. Some examples are –

- Revenue diversification – Each of the companies studied exhibited revenue diversification via either organic or inorganic growth methods
    - Zomato – Food delivery, advertisements, subscriptions, events, tie-ups, etc.
    - Nykaa – Diversification into new product segments such as its own beauty care product lines and fashion goods.
    - Flipkart – Acquisition of various businesses in segments such as fashion, travel, foreign exchange, digital payments, and more.

- Dependency on the internet – Each of these start-ups is reliant on easy access to the internet to increase its business. As more customers start shopping online in India, these businesses are expected to increase their customer base.

- Focus on creating demand – Each of these companies focused on creating demand rather than just servicing it
    - Flipkart – Increasing customer trust in online purchases
    - Zomato – Creation of subscription models to increase existing customer sales
    - Nykaa – Setting beauty trends via blogs, tips, influencers, and more

- Focus on profitability post unicorn status – Each of these companies either ran substantial losses or were hardly profitable during their initial years. However, post reaching economies of scale, each business has put increased emphasis on profitability and profit margins.

Factors Driving Start-Up Growth in India

There are numerous factors such as regulation, funding, access to the internet, smartphone penetration, increasing disposable income, better education and infrastructure that have contributed to this growth. The 2 biggest factors, however, are

- Access to the internet (via substantially lower data costs and higher smartphone penetration), and
- Availability of funding via private equity / venture capital firms.

Access to the Internet –

Start-ups, especially tech start-ups derive their sales via the internet. Unicorns in India such as Zomato, Zerodha, Paytm, Nykaa, PayU, and Swiggy can only be accessed by consumers with the internet.

India currently has over 622 million active internet users as of 2020 (Bureau, 2020). This estimate has increased from 51 million active users in 2010 (Singh, 2020) and is forecasted to increase to 900 million by 2025 (Bureau, 2020). (Singh, 2020)

Two major factors in increasing internet penetration have been –

- Increasing penetration of internet-capable smartphones in India, and
- Substantially lower data costs than in the preceding decade.

1) Increase in Smartphone Penetration Rate:

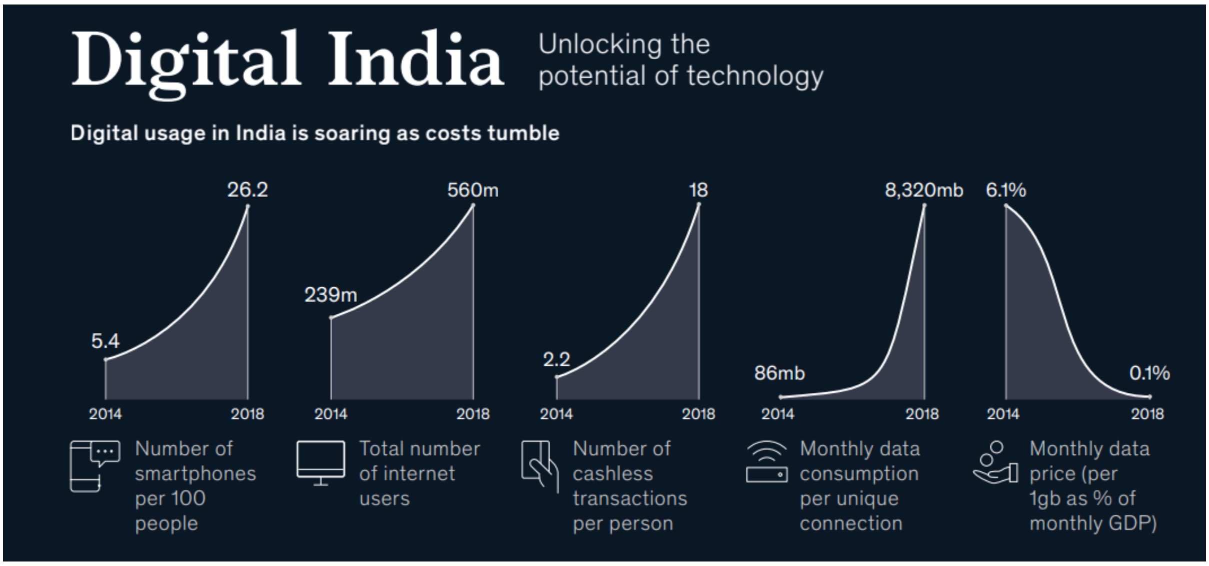
    a. The smartphone penetration rate has risen drastically in India. In 2010, only ~5% of the population (~60 million users) had access to smartphones (Noshir Kaka, 2019). As of 2020, the smartphone penetration rate stands at ~35% (~500 million users) (techdesk, 2021). This is estimated to rise to ~55-60% by 2023 (~830 million users) (techdesk, 2021).

    b. In 2010, 1 in 4 users accessed the internet via a mobile phone while the rest used desktops (Singh, 2020). In 2020, 3 in 4 users use mobile phones to access the internet while 1 in 4 use desktops or other mediums (stat counter, n.d.).
    c. The significant rise in smartphone ownership is present due to the availability of low-cost smartphones. Companies such as Xiaomi, Samsung, Vivo, and Oppo started producing low-cost smartphones designed for sale specially for the Indian market, post detecting the high-volume demand for such smartphones. The average smartphone selling price in India was USD 156 in 2020 (statista, n.d.), which is substantially lower than in developed nations.

2) Low Data Costs:

    a. India has one of the lowest data costs globally. 1 GB of mobile data cost $0.26 in India, compared with $12.37 in the US, $6.66 in the UK, and a global average of $8.53 (Roy, 2019)

b. Data costs were not always lowest in India, only since 2016 have the prices been reduced so significantly. In 2015, 1 GB of data would cost INR 226, however by 2018 the price of 1 GB of data was INR 11.78 (Bhawan, 2019)The reason data prices were slashed is due to the ongoing price war between the telecom companies. Reliance Jio, a subsidiary of the largest company in India (by market capitalization), Reliance Industries, entered the market in 2016 with tariffs that were substantially lower than that of its competitors, in order to gain market share. This move sparked a price war in which all companies reduced data prices.



Source: McKinsey, 2019

<u>Availability of Funding –</u>

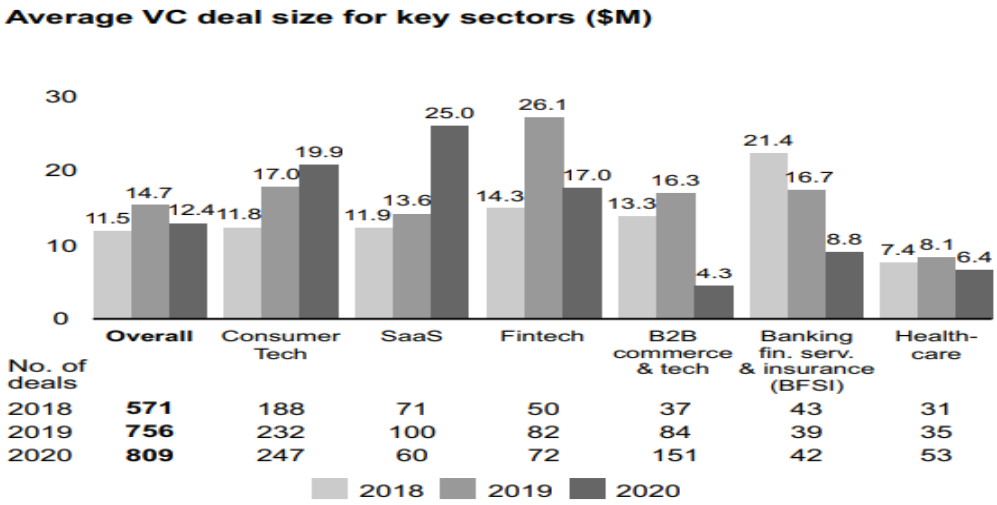
Private equity and venture capital firms act as catalysts in the growth of start-ups. The majority of the start-ups we use in India today, such as Zomato, Flipkart, Razor Pay, Zerodha, and Paytm had to run substantial losses during their initial years to grow to a stage in which they are economically viable businesses that can generate profit for their owners. Some of these companies are loss-making to date. To sustain these large losses, start-ups turn to private equity and venture capital firms to fund themselves. Besides funding, PE and VC firms also bring management expertise and can structurally engineer companies to change their financial and operating structure. This change in structure is, typically, able to create value by removing inefficiencies and reducing the cost of capital.

Over the last decade, there has been substantial interest from PEs and VCs to invest in India. Since 2010, PE/VC investments into the country have grown from USD 8.4 billion to USD 47.6 billion in 2020 at a compounded annual growth rate of over 19% (The rise of Private Equity in India in the last decade, 2021). Cumulative investments over the last decade were USD 234.4 billion, double that of what was recorded in the preceding decade (The rise of

Private Equity in India in the last decade, 2021). The rapid adoption of technology and tech start-up services, due to the pandemic, is only expected to further increase interest of investors in start-ups.

Besides international PE and VC firms such as Blackstone, Sequoia Capital, KKR, Advent International and others increasing their investments into India, there have been a significant number of domestic funds that have opened up as well, further fuelling availability of capital for start-ups.

Sectors that have seen the most traction from these funds are consumer tech, SaaS, Fintech, B2B commerce tech, traditional BFSI, and healthcare.



(India Venture Capital Report 2021, 2021)

<u>Zomato Case Study</u>

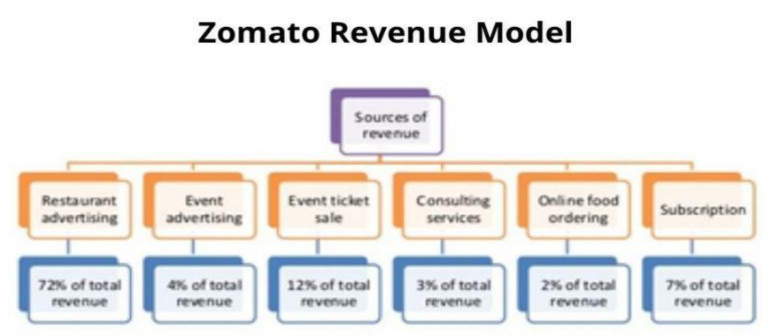
<u>Business Overview –</u>

Zomato is India's largest online food delivery platform by revenue. The business has multiple segments of revenue, major streams of income include –

- Food Delivery Charges – The company charges customers for food delivery
- Restaurant Commissions – Zomato charges restaurants a % commission for every order placed via their platform
- Subscription –
  - ✓ Zomato has its own subscription service known as "Zomato Gold". It charges customers an annual fee for services such as fast delivery, preferential treatment, etc.
  - ✓ Restaurants can pay a subscription fee to Zomato in order to get analytical tools. Zomato has a large database of customer food preferences, favourite restaurants, and what the consumers are searching for. It gathers this

information via cookies. The restaurants then use this tool to flash discount offers on their food.

- Advertisements – Restaurants have the option of paying Zomato to appear above other restaurants in the selection menu
- Multiple other smaller streams of income such a Zomato Kitchens, White Label Access, Live Events are more



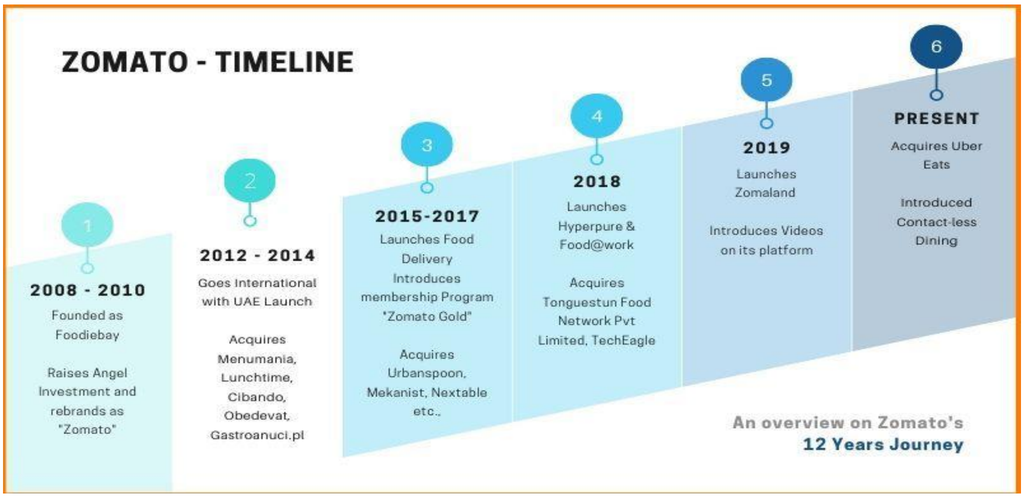
Source – (Rishabh Rathi, 2021) Note – Revenue breakup is of FY19

History –

Zomato, at first named FoodieBay, was started by Deepinder Goyal and Pankaj Chaddah. The two partners started the company while working at the prestigious consulting firm Bain and Company back in 2008. Initially, the business was a food directory provider in which users could access the menus of restaurants. In less than a year post-launch, Zomato was the largest food directory business in India's capital, Delhi.

It soon pivoted into the delivery business and focused on rapidly expanding operations. The company had a mindset of growth at all costs as it focused on expanding to new regions, listing new restaurants, and creating new streams of revenue. To fund this aggressive expansion, Zomato was able to get some of the largest funds, globally, to invest in it. Some of the investor names are Info Edge India, Sequoia, Vy Capital, Singapore-based investment firm Temasek, and Alibaba's Ant Financial.

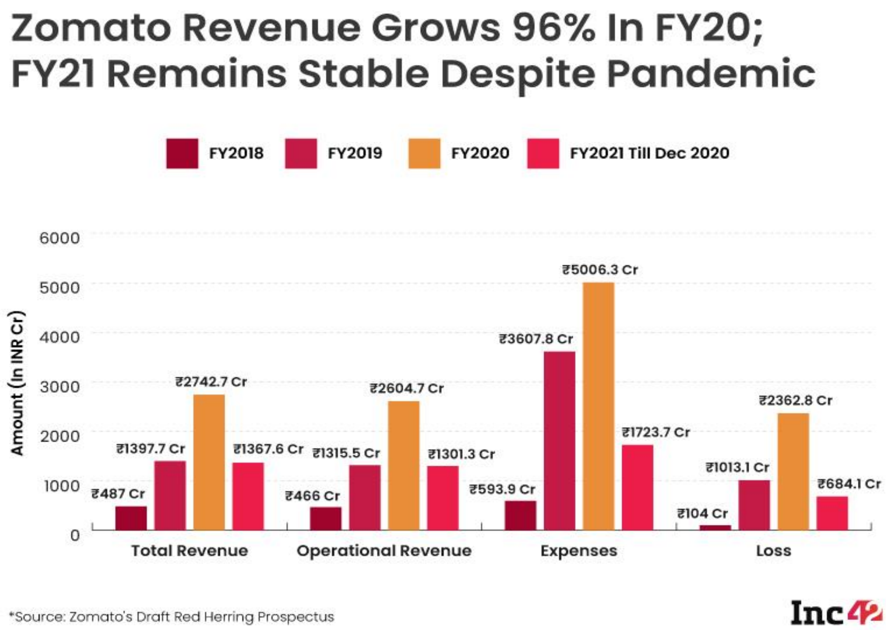
Today, Zomato is the largest food delivery service in India, has operations on a global scale, and recently became a publicly listed company. As of September 2021, Zomato's market capitalization is over USD 12 billion, and the company is one of the top 50 stocks with the largest valuation in India. All this was accomplished by Zomato in ~13 years.



Source- (Rishabh Rathi, 2021)

Current Focus Areas –

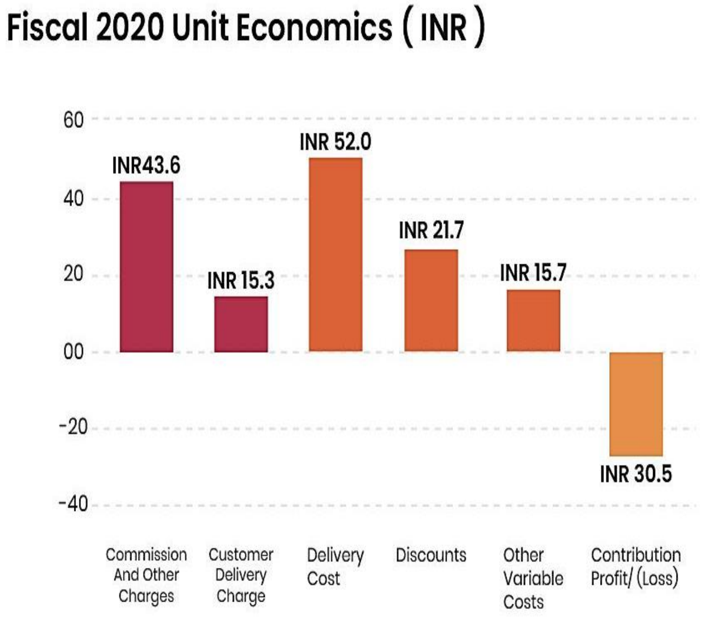
Zomato was recently listed on the stock exchange in India and is worth over USD 12 bn by market capitalization. Despite this, Zomato is not a profitable company, the company actually makes substantial losses. Below are the financials of Zomato.



Credits – ([What The Financials] Zomato Records INR 1,370 Cr Revenue Till Q3 FY21, Hits Positive Unit Economics, 2021)

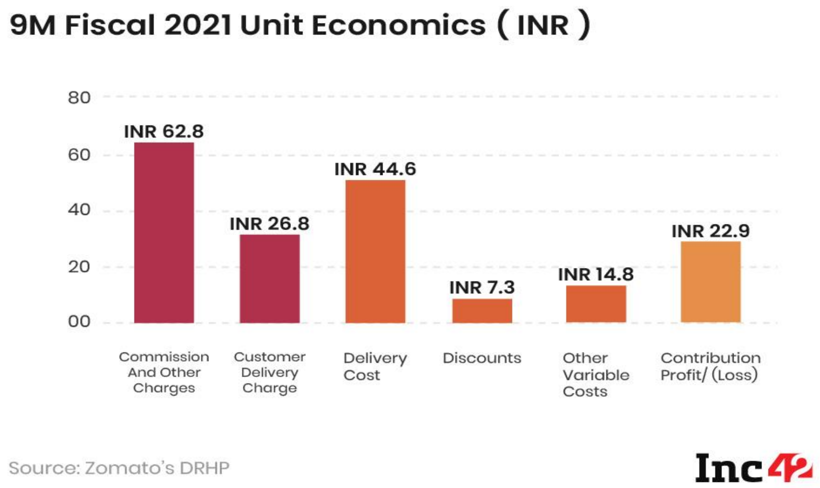
Zomato Figure - 1

The reason for this net loss is the losses it made per delivery (due to extensive discounts). Until recently, Zomato had a negative contribution margin, meaning that its variable costs for delivery of food were lower than its revenue from delivery. Below is the contribution margin from FY20 and FY21.



Credits- ([What The Financials] Zomato Records INR 1,370 Cr Revenue Till Q3 FY21, Hits Positive Unit Economics, 2021)

Zomato Figure - 2



Credits - ([What The Financials] Zomato Records INR 1,370 Cr Revenue Till Q3 FY21, Hits Positive Unit Economics, 2021) Zomato Figure – 3

Until FY21, Zomato had a negative contribution margin, however, in the first 9 months of 2021, the company had a positive contribution margin, which has resulted in a significant decrease in net loss (can be seen in the above in Zomato Figure – 1). This increase in contribution margin took place due to 2 factors –

1) Average order value increased in 2021, after dropping for multiple years. This was largely driven by customers not going out to restaurants and instead ordering home delivery
2) Cost reductions initiatives took place, such as reduction in delivery costs and discounts given to customers

Zomato today, still does not make a profit on a corporate level despite the positive contribution margin (see Zomato Figure – 1). The end goal of a business will always be to generate a profit so that it can pay back its owners who took the risk of investing their money in the business. Zomato's current focus is to further increase its contribution margin, increase revenue to utilize economies of scale and cost reduction measures in order to turn profitable.

Future direction and comparison with foreign firms –

Zomato has scaled significantly over the past 13 years, however, the company still has substantial scope for future growth. Zomato's Chinese counterpart "Meituan" had 628.4 million annual transacting users (Team, 2021) in FY21. Zomato in comparison had 6.8 million monthly transacting users (zomato might see good listing gains, n.d.) in FY21. Despite India and China having nearly the same population, Zomato is behind its Chinese counterparts as the Indian food delivery market is still in its nascency and is underpenetrated.

To grow larger in scale, Zomato does not need to do anything different from what it has been doing currently. The company needs to continue to expand its reach, onboard new restaurants, acquire customers, and focus on turning profitable.

Nykaa Case Study

Business Overview –

Nykaa specialises in beauty and personal care products. The brand had been originally established as an e-commerce medium until it later began setting up various retail outlets across the nation. Nykaa expanded from beauty and personal care products to clothing by opening Nykaa Fashion.

Nykaa's major success factor is its ability to market well. The company tries to integrate itself into every part of the customer lifecycle. Below are some of the marketing initiatives it takes besides traditional marketing –

1) "Beauty advice and blogs" to engage customers interests
2) "Beauty services" (at home or at a salon)
3) "Referral programs" in which customers can entice their family and friends to become Nykaa customers
4) "Rewards program" to ensure high customer retention rate
5) "Ask Nykaa" segment in which customers can post beauty queries

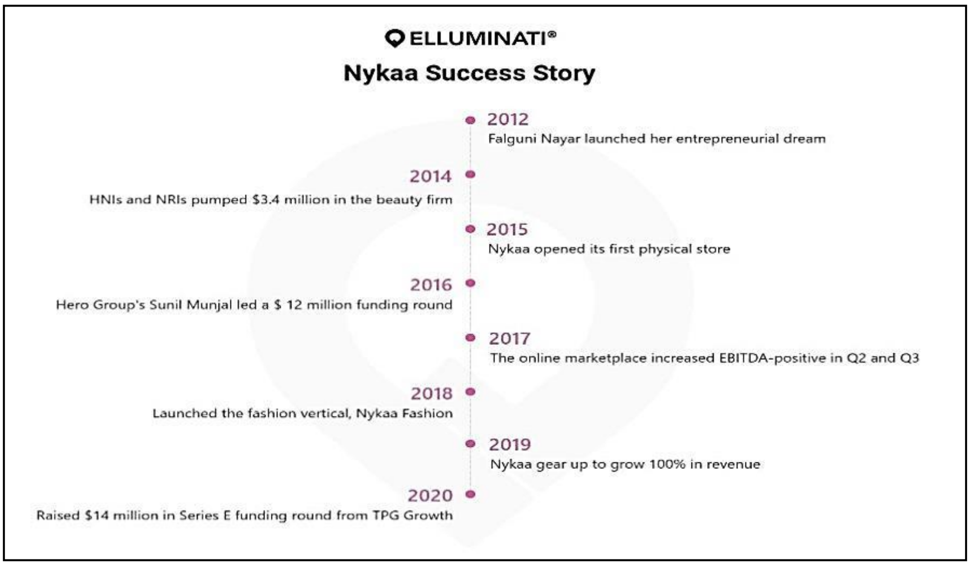
As for traditional marketing, Nykaa uses high-quality content to generate traffic; it uses social media marketing and email marketing for remarketing.

Operationally its biggest success factor has been its inventory model. Nykaa purchases products directly from manufacturers and bargains for aggressive discounts. This tactic permits them to maintain a high profit margin. Unlike most of its start-up peers, Nykaa is actually profitable.

History –

In 2012, Nykaa started out as an ecommerce portal curating beauty product from a range of global brands. The company launched its first offline store in New Delhi and presently has over 68 offline stores across 20 cities in India. In 2015, Nykaa launched its in-house beauty products collection and expanded to the bath and body care category in 2016.

Nykaa has some well-known fund houses backing the company, such as TVS Shriram Growth Fund, Sunil Munjal, Max Group, and TPG Capital. In 2021, Nykaa is about to be listed on the National Stock Exchange and the company has indicated that it will aim to list at a valuation of USD 4.5 billion.



Credits – (Vaidya, n.d.)

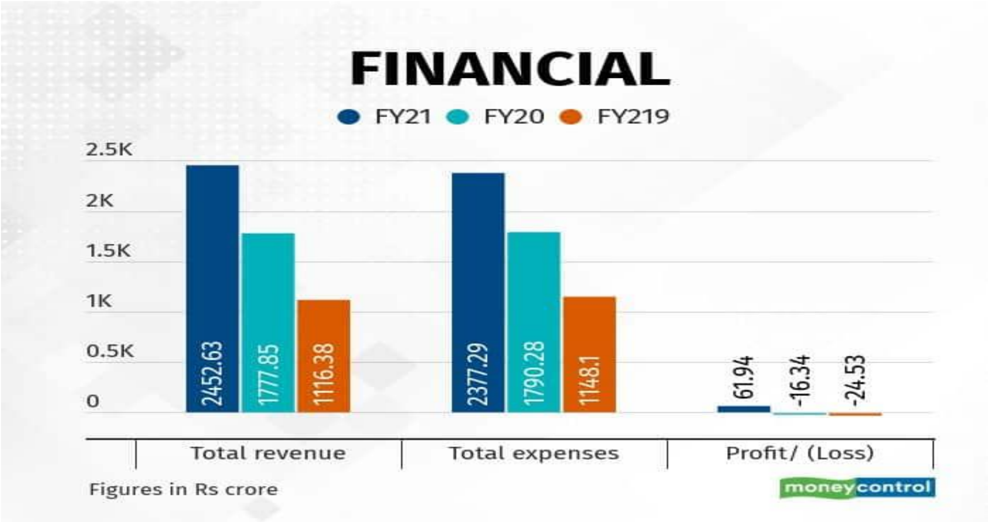
Current and Future Focus Area –

Over the next 5 years, the company needs to continue to focus on what it has been doing well for the last 4-5 years. Nykaa has been focusing on vertical and horizontal integration with other business segments. It has launched Nykaa fashion, introduced its own product lines, and expanded its reach via new product introductions. Despite the success and the profitability, Nykaa has very low profit margins (less than 2.5%) (money control, n.d.).

Going forward Nykaa will have predominantly 3 focuses –

1) Expand its customer base to keep its growth rate intact,
2) Increase its profit margins to sustainable levels, and

3) Introduce new segments to gain market share in segments they are not present in currently.



Credits – (money control, n.d.)

Flipkart Case Study

Business Overview –

Flipkart is an e-Commerce company founded in the year 2007 by Mr. Sachin Bansal and Binny Bansal who are both alumni of the IIT, Delhi. They had previously been working for Amazon.com. Flipkart sells via its website flipkart.com and has over 80 product categories, including toiletries, clothes, books, shoes, furniture, electronics, etc. (Source: Flipkart). Flipkart has diversified its revenue streams via numerous acquisitions. Some of its key acquisitions are (crunchbase.com, n.d.)–

- Myntra – Online clothing e-commerce store
- PhonePe – Digital payments platform based on UPI technology
- ClearTrip – Online travel booking company
- FX Mart – Provides services like buying and selling of currencies, overseas remittances, and related services
- eBay India – Purchased the Indian arm of the eBay business

Revenue streams for Flipkart include –

- Seller Commission – Fee charged to the seller for selling on Flipkart
- Convenience Charge – Fee for faster delivery
- Logistics – The company owns its own logistics arm known as an e-kart. Charges are paid by customers and sellers for delivery
- Advertisements - Flipkart sells advertising space to companies on its website

- Media Buying - Flipkart releases ads for certain brands in popular newspapers, radios, televisions, etc. In doing so, Flipkart charges a sum from the brands that it advertises for
- Subsidiary Revenue – Additional revenue is derived from its subsidiaries (listed above)

In 2018, US giant Walmart purchased a 77% stake in Flipkart for USD 16 billion, hence valuing the company at USD 22 billion in 2018. Walmart plans to list Flipkart on the US stock exchange, however, a timeline for the same has not been determined.

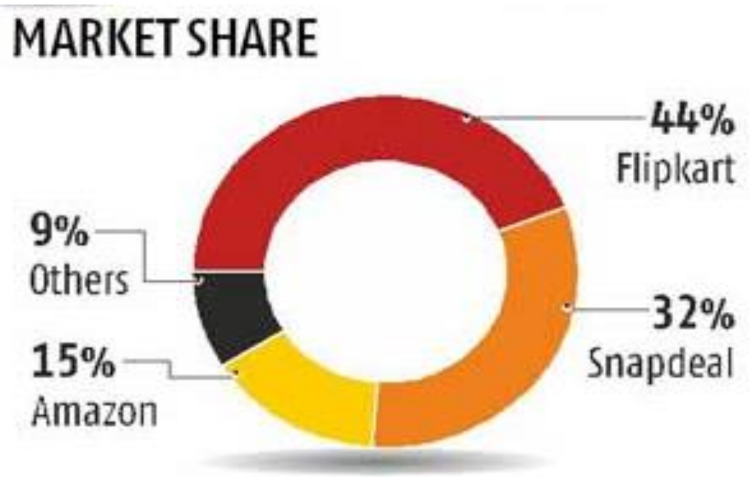
History of Flipkart –

When Flipkart started in 2007, the Indian population was hesitant to purchase products online, especially expensive products, due to a lack of trust. Due to the same, Flipkart started as a website that sold books online, a product with a low cost and a vast customer base. In 2009, Flipkart got its first capital investment of $1 million from Accel Partners, a renowned investment firm. By the top of 2009, the start-up already had over 150 employees and three offices across India. They received an investment of USD 10 million from the prestigious investment firm, Tiger Global in 2010.

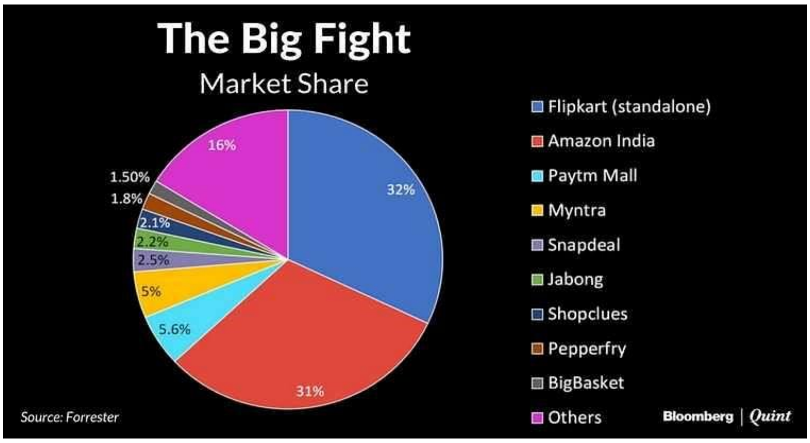
The company started to add more products onto its website in 2010 as it started selling mobile phones. However, due to the lack of trust present among the population, it was difficult to sell such a high-ticket item. To combat this issue, Flipkart introduced a ground-breaking idea known as "Cash on Delivery". Cash on delivery meant that the customer did not have to pre-pay and could inspect the product before accepting it. Alongside cash on delivery, they also introduced a no-questions-asked return policy. These strategies worked very well for Flipkart as its revenue jumped from INR 4 crore in 2009 to INR 75 crore in 2011. In 2013, Amazon entered the Indian market which meant that Flipkart had to compete with a global e-commerce giant to retain its market share. In 2014, Flipkart raised USD 2 billion from existing investors Tiger Global and Accel in order to build its war chest against Amazon. Flipkart successfully managed to keep growing despite the high intensity of competition from Amazon. In 2018, Walmart bought a majority stake in Flipkart and provided the company with significant funding to keep absorbing losses as it grows.

Current Focus –

Since 2013, post the entry of Amazon, Flipkart's focus has been to focus on protecting market share. The revenue of the company has kept growing as more and more customers have started purchasing online. However, a fewer percentage of the people who buy online buy from Flipkart in recent years vs in 2015. See graphs below for market share –

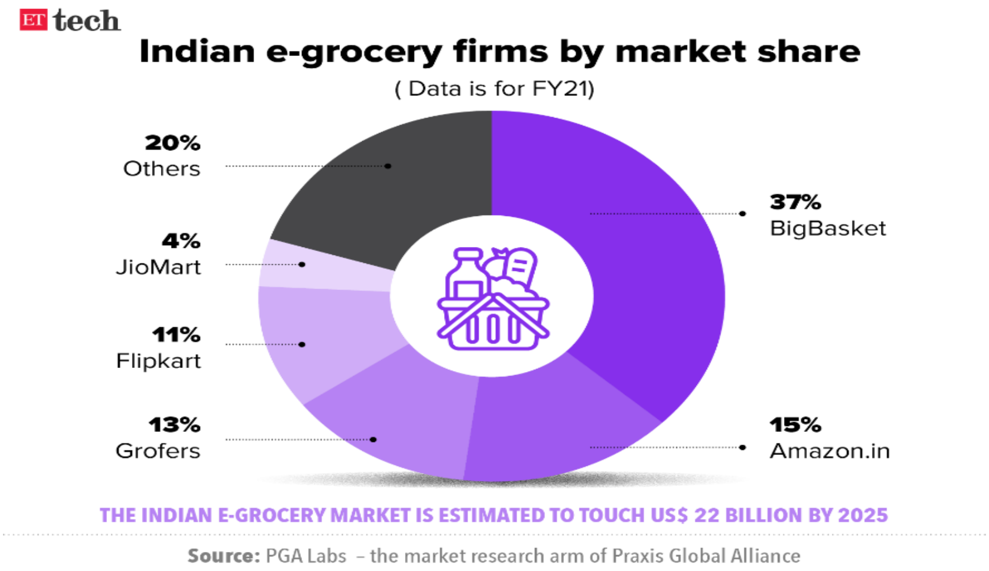


Credits – Business Standard
Year – FY15



Credits – Forrester / Bloomberg Quint
Year – FY19

Increasing share in grocery sales is another priority of the company. India is seeing an increasing number of families using online mechanisms to order groceries. India's online grocery market was in a nascent stage till recently, however, it is estimated to grow from ~ USD 3 billion in FY20 to ~USD 36 billion in FY28 (GVR, 2020). Currently, only a few players control ~80% market share and each firm are trying to gain market share in order to expand its revenue. See graph below –



Credits – Economic Times / PGA Labs

<u>Future Direction –</u>

Besides gaining market share, Flipkart's next focus will be to turn profitable. Despite strong revenue growth, Flipkart has to endure losses due to the push for aggressive growth. The company posted a net loss of INR 3,150 crore in FY20, post earning a revenue of INR 34,610 crore (PTI, 2020).

However financial analysts project that the company can turn profitable in the near future. Hence, in the long run, Flipkart will focus on expanding profit margins, protecting market share, and focus on growing its stock price post listing itself in the US stock market.

<u>Expert Interview</u>

To verify the secondary research, a primary interview was conducted with an industry expert.

Designation – Senior Executive
Company – An MNC focused on financial advisory
Specialization – Fund raising, M&A strategy, PE investment analysis

Q) What are some of the biggest factors leading to the start-up boom in India?

Ans) "India in terms of volume is a very large economy. There are over a billion people living in the country. Most of the consumer-based industries present in India are significantly under-penetrated, which presents a big opportunity for start-ups to create new markets and earn revenue. Some of the largest enablers in India have been –

- Potential size of the market
- Availability of funding, largely via private equity and venture capital firms
- Easy and cheap access to mobile data for customers
- Under-penetrated industries

India's start-up industry has a bright future and we should see a lot more unicorns coming up in the next few years"

Q) What are your views on Zomato? How is the company currently positioned and what direction do you see it taking in the future?

Ans) "Revenue-wise Zomato had a tough year due to COVID-19. Customer orders slowed due to worries by customers over food delivery. However, the silver lining for Zomato is that despite lower delivery volumes, its average order value increased. This means that people who were ordering, started ordering more food and placed larger value orders. This enabled Zomato to turn profitable on a per delivery basis for the first time in years. We are yet to see if this positive contribution margin will sustain post the pandemic, but it does seem likely. In the future I expect Zomato to continue to focus on increasing revenue organically and inorganically. I also expect Zomato to put more focus on turning profitable as it is now a listed company and Indian investors are notorious for wanting their portfolio companies to be profitable."

Q) What are your views on Nykaa? How is the company currently positioned and what direction do you see it taking in the future?

Ans) "Nykaa is a very unique business. The company's biggest advantage is its ability to effectively engage customers online. The company focuses on engaging with customers at every level of the customer life-cycle. It uses different measures such as beauty tips, blogs, hiring influencers and more in order to set trends. It then uses these trends to sell its products. Hence, Nykaa is not only servicing a market that exists, but actively creating demand for new products, this is a feat only a few companies have accomplished, globally. Nykaa is also a profitable start-up, which is very rare. Its profitability is due to its high gross margins and its use of an effective inventory model. In the future I expect Nykaa to enter into new product segments as it did in fashion a few years ago. Since Nykaa will soon be listed, I also expect them to put increased emphasis on increasing profit margins.

Q) What are your views on Flipkart? How is the company currently positioned and what direction do you see it taking in the future?

Ans) "The crown jewel of Indian start-ups, Flipkart is one of the most successful start-ups in India's history. Flipkart, when it started, operated in a market in which consumers did not trust online shopping. Furthermore, internet use by Indians was substantially lower than it is today. Despite everything working against them, Flipkart managed to scale its business and is worth over USD 37 billion today. Some of its biggest feats are –

- Change the perception of Indian customers towards online shopping
- Compete with a company as large as Amazon and still retain the highest market share in the industry
- Diversify its business into payments, travel and others
- Expand its logistic reach to tier 3 and 4 cities in India

Flipkart can still grow much larger as more and more people start shopping online. Flipkart has reached a scale where it can turn profitable, however since it is now owned by Walmart, even if it wanted to run losses in order to grow revenue faster, it can do that."

Conclusion

The analysis has determined the major external factors for the growth of the Indian start-up industry, these factors are –

- Easy and cheap access to the internet,
- Availability of private funding, and
- Opportunity due to under-penetrated markets.

The case study for each business also showed common themes, which are

- Dependency of the start-ups towards customers purchasing online: Since more and more customers are now using the internet, these companies can keep growing revenue at high rates.
- Focus on creating demand rather than just servicing it: We have seen how Nykaa, Zomato, and Flipkart have engaged customers to create trust and set trends, which fuels demand for their products.
- Focus on diversification: Each company has added new revenue streams to grow faster and thus reach economies of scale.
- Future focus on profitability of companies that have gained the unicorn status.

About the Author

Ms. Mahika Dalmia

Mahika Dalmia is a senior at the Vasant Valley School in New Delhi, India. Receiving the highest grades in her class 10 CBSE Board Examinations, and highest in her economics and history final examinations for class 11, Mahika is an exceptional student gifted with an entrepreneurial mind. Her internship with the Secretary General at the PHDCCI fueled her appetite to research unicorn companies. After extensive research, she published The Rise of Indian Unicorns: Billion Dollar Startups in 2021. This insightful work outlines growth factors by following three companies and analyzes the keys to success on online platforms.

PHDCCI JOURNAL OF IDEAS AND INNOVATIONS

Gluten Free Market in India

- Mr. Deepak Kumar
Associate Vice President,
Karvy Insights

-Ms. Aarushi Sharma
Pursuing Post graduation diploma in Management
Ex intern in E&Y

Celiac disease is a less talked about topic in India, irrespective of the number of patients rising at a spurring rate in an upward trend and now the number ranging in millions. It is uncommon not only in India but also in Asia. According to All India Institute of Medical Sciences experts, celiac disease affects close to six to eight million people in India. Therefore, a need is there to manage the disease. The best way to manage celiac disease in a better way is to ensure consuming a strict gluten-free diet that includes gluten-free products. The present research paper attempts to understand the current condition of gluten-free product markets in India and future trends. In this research, we gather information from different stakeholders and present the results based on that information. The primary data is gathered from respondents of north Indian cities, and secondary information is collected from several journals and research papers.

KEYWORDS: Gluten-Free Products, Celiac disease, Cereals, Nutrition, Awareness

INTRODUCTION:

Celiac disease is an autoimmune disorder (immune-mediated disorder); it is also known as Gluten enteropathy, which is related to an allergic reaction within the small intestine's inner lining. It is an immunological allergy to Gluten, a protein present in wheat, rye, barley, and, to some extent, in oats. This disease has a characteristic that exists by chronic inflammation of the small bowel's mucosa and submucosa.

This inner linings destruction reduces the absorption of dietary nutrients and leads to nutritional, vitamin, and minerals deficiencies. This disorder is a protean systemic disease, rather than merely a pure digestive alteration, Contrary to common belief. Celiac disease is also associated with the genes that code HLA-II antigens, mainly of the DQ2 and DQ8 classes. Previously, it was considered a rare childhood disorder but is regarded as a frequent condition, present at any age, which may have multiple complications. Celiac disease is an emerging health issue. A need for creating awareness and educating people about the disease is needed for controlling the disease. Celiac disease increases the rates of several diseases, including iron deficiency anemia, osteoporosis, dermatitis herpetiformis, several neurologic and endocrine diseases, persistent chronic *hypertransaminasemia* of unknown origin, various types of cancer other autoimmune disorders. Approximately 6-8 million Indians are suffering from celiac diseases. As per the estimation, every one in 100 people have celiac disease globally.

Symptoms of this allergy vary as Infants and children tend to have digestive problems and may show signs of malnourishment because Celiac disease prevents the absorption of essential nutrients in the human body. It also causes the expansion of stomach thin and the buttocks flat type thighs. At the same time, teens might show symptoms of delayed puberty, growth problems, and diarrhea. The body loses the ability to absorb sufficient calcium essential to keep the bones strong, leading to osteoporosis in adults. The low red blood cell count, which causes Anemia, may also follow due to iron deficiency, leading to infertility and miscarriages.

Gluten intolerance is a widespread disease, a public health problem, and clinical suspicion and increased awareness level are prerequisites for diagnosing this disease and maintaining health standards globally. It poses a massive problem in developing countries like India, where gluten-free products (commercial products) are not/ rarely available and are very expensive and challenging to acquire in others.

LITERATURE REVIEW:

After doing a systematic review of articles available on various websites (Links are in references), we have found that the global scenario of this disease has been found out to be highly common, and this market touches a billion figures with a CAGR of roughly 10%. Initially, it was considered a rare malabsorption syndrome of childhood; celiac disease is now a common condition that can be diagnosed at any age, affecting many organ systems.

The gluten-free diet was discovered in the 1940s when World War II had wreaked havoc across Europe. Most of the Children became malnourished, with limited access to fruits, vegetables and especially wheat. While that lack weakened the health of most, it seemed to strengthen those with celiac disease. In addition, in the 1970s, Scientists uncovered the first signs that celiac disease could be an autoimmune disorder instead of an allergic one. As per the report published on one portal, the prevalence of celiac diseases was unknown amongst the majority of the population before 2000. It could have been easily misdiagnosed for some other digestion-related problem.

According to a report, in 2019, the market size of gluten-free products was USD 21.61 billion. In addition, it is expected to expand at a CAGR of 9.2% during the forecasted period from 2020 to 2027. Another report from the Press release content from Wired Release, U.S., said that the global gluten-free products industry was estimated at $4.3 billion in 2019 and is anticipated to hit $7.5 billion by 2027. This will be registering a CAGR of 7.2% from 2020 to 2027. While, globally, the gluten-free products market size is USD 5.6 billion in the year 2020 and can go up to USD 8.3 billion by 2025, at a CAGR of 8.1%.

Another study named "Global Prevalence of Celiac Disease: Systematic Review and Meta-analysis," published in 2017, states that the global prevalence of celiac disease was 1.4% of the worldwide population. This study also highlights that celiac disease has more effect in developing countries than in developed countries of the Western World. The myth that celiac disease primarily affects Europeans and Americans has been eliminated since, according to a study, the prevalence of celiac disease was observed to be the highest in Asia (1.8%) and lowest in Africa (1.1%).

Celiac disease in Asia:

The epidemiology of Celiac disease is different in different parts of Asia due to the heterogeneity of people, genetics, economic condition, and dietary habits. As per the systematic review of research reports, the pooled prevalence is based on serological tests (IgA anti-tissue transglutaminase (TTG) antibody [Ab] and anti-endomysial antibodies [E.M.A.]) of Celiac disease in Asian countries was 1.6% among 47 873 participants. The pooled prevalence of biopsy-proven Celiac disease was 0.5% in 43 955 individuals.

Map of Asia showing population prevalence of the Celiac disease across Asia.

(*Source: Journal of Neurogastroenterology and Motility)*

Celiac disease in India:

Once it was considered a western disease only, wheat intolerance has become an impending intolerance/epidemic in India, say, health experts.

Researchers from India and U.S.A. say that India has the largest population of people living with celiac disease in the World, whose numbers range in millions, and correspondingly the number of gluten-free products available to the masses are very limited or fall short of supply. According to celiac India, the disease is more prevalent in Northern India, where wheat is eaten as a staple diet and primarily grown there. A study published in 2010 revealed that the prevalence of celiac disease in India (in the northern community, to be specific) is 1 in 96 persons. There is an increasing incidence of this disease in India. Another study published in *the international archives of Allergy and Immunology* found around 22% of the patients testing positive for food allergies in the Indian city Kolkata. They showed a positive response to wheat allergens. The prevalence pool of Celiac Disease is estimated to be 6-8 million in the country. In the national capital region, a study conducted by Makharia et al. reported the prevalence of Celiac Disease and positive anti-transglutaminase antibodies as 1.04% (1 in 96) and 1.44% (1 in 69), respectively. In addition, higher age groups have been found to have a high prevalence, but no age is immune to the disease.

The disease has commonly been reported in Punjab, Haryana, New Delhi, Rajasthan, Uttar Pradesh, Bihar, and Madhya Pradesh. It has been attributed to a high prevalence of required haplotypes in the population's genetic composition residing in these areas and wheat as a staple diet.

Hence, companies are manufacturing a line of gluten-free products and marketing them globally. They experience a buoyant demand from consumers facing gluten-intolerance issues and other health-related problems caused due to Gluten. As per a previously published report, India produced 7.55 kilos tones of gluten-free food compared to its potential of 2347 kilos tones. The main reasons can be the lack of awareness about celiac disease, the difference in taste preferences among consumers, enormously high prices, low quality of local products, inefficient value chain, and others. It certainly shows that India has considerable potential for producing such products, as there is a large market to be tapped and served.

All these briefly tell the emerging trends that will witness in the FMCG sector owing to the rapidly increasing gluten-free market. Few factors drive the market, such as the rising prevalence of diseases occurring due to unhealthy lifestyles being adopted by adults. Other factors are increased awareness regarding their healthy diets and prevention of other health disorders, such as heart diseases, diabetes, obesity, and chronic pulmonary disease.

An issue that came into the limelight was regarding the labeling of gluten-free products. The government issued some rules regarding the same,

On August 2, 2013, F.D.A. issued a final rule defining "gluten-free" for food labeling, which is helping consumers, especially those living with celiac disease, be confident that items labeled "gluten-free" meet a defined standard for gluten content,

On August 12, 2020, the F.D.A. issued a final rule on the gluten-free labeling of fermented or hydrolyzed foods covering foods such as yoghurt, sauerkraut, pickles, cheese, green olives, beers, wines and hydrolyzed plant proteins that are used to improve flavor or texture in processed foods such as soups, sauces, and seasonings.

Dated back in 1976, Codex Alimentarius Commission of the World Health Organization (WHO) and Food and Agricultural Organization (F.A.O.) for the first time adopted the term "gluten-free" for food labels, which was later reviewed and amended in 1983 and 1990.

Another point of consideration is the adulteration of gluten-free products. Adulteration of these foods can happen anywhere in the chain from farm to fork (with Gluten). It may occur during milling, processing, and preparing commercial food products, at retail outlets and in households. Gluten-free food product adulteration has been common in mills where gluten-containing and gluten-free grains are carried out in the same equipment and done without proper cleaning. During the processing of raw products in factories, a typical production line is implicated in most instances of adulteration.

Further, during the preparation of commercial food products, specially packaged items, Gluten is added as fillers, stabilizing agents, or processing aids. At retail outlets such as grocery stores, the use of the same spatula to pick gluten-containing and gluten-free grains/flours is every day. Furthermore, while eating out, thickeners or fillers/binders are added, which contain Gluten. At the household level, the use of everyday utensils for storage, cooking, and handling (rolling pin, surface griddle, dusters, and oil for frying) is the attributable risk factor for contamination and adulteration.

The present Food Safety and Standards Regulations (FSSR), which came in the year 2011, states a ray of hope for Celiac Disease patients by including prevention of food contamination with Gluten and labeling of gluten-free items under the existing regulatory framework. As per the definition, "gluten-free" includes food items containing <20 ppm of Gluten. In addition, C.D.F. Medical Advisory Board supports the < 20 ppm of gluten standard for gluten-free labeling. Dr Peter Green of Columbia University stated, "The Level of Gluten which patients with celiac disease tolerate is 20 ppm. These guidelines are from the U.S.A. and Canada. The stated regulations also provide the reference point for physicians, manufacturers and Celiac Disease patients. It also ensures the easy availability, accessibility, and identification of "gluten-free" food items. This step forward by the Government of India constitutes the first comprehensive step taken toward managing the disease.

In addition, the FSSAI is developing directives on the labeling of gluten-free products to correct the lack of information on gluten allergy in India. As per the C.E.O. of FSSAI, many producers are currently labeling their products as "low gluten "to increase their sales, which is a complete distortion to the health protocols directed by physicians/ doctors. What precisely a wheat allergy patient has to have is a purely Gluten-free diet, it cannot have low Gluten, and so the FSSAI is proposing to ban such labeling. As per his statement, FSSAI is also planning to conduct surprise inspections to verify whether producers are selling Gluten-free products totally or not when using the claim. Another mandate to adhere to stricter notice is to ensure no cross-contamination while preparing gluten-free products.

Another study that evaluates the extent of gluten contamination in gluten-free food available in India revealed that among the 360 samples of gluten-free labeled products, 10.1% products, 11.8% among the 354 non-labeled or naturally gluten-free products had gluten content more than 20mg/kg, whereas, as per the Codex Alimentarius and Food Safety and Standard Authority of India, "gluten-free" labeled products must not contain > 20 mg/kg of Gluten. Eighty different units of gluten-free products were imported; none among them had Gluten more than recommended limits. Such contamination levels in labeled and unlabeled Indian products were primarily seen in cereal and their derivatives (flours, coarse grains, pasta/macaroni, and snack foods), pulse flours, spices, and bakery items.

METHODOLOGY:

We have followed both quantitative and qualitative approaches to collect the required data for the research. The primary research data is collected from the general population, the consumers of gluten-free products, sufferers of celiac disease, dietitians researching with people dealing, etc., using a structured questionnaire. The qualitative input is collected using the direct interview method from the doctors treating the celiac disease patients, the retailers selling the gluten-free products.

The secondary data are collected from journals, research papers, magazines, articles, blogs etc. we were able to gather data from people residing primarily in north Indian cities. The research aims to understand the various trends of how viable gluten-free products are acceptable and find answers to questions such as awareness about the products, buying behavior, price range available, affordability, recommendation, diagnosis of the problem, and supply chain. The structured questionnaire was administered online platforms and social media to a defined group of participants to collect desired data for analysis and further find answers to the above-stated questions.

Some of the questions included in the primary quantitative survey had the Level of awareness about celiac disease based on different parameters. How many are wholesale and retail outlets present in a particular area? The extent of gluten-free products made in India? How efficiently is the capacity to produce such products being utilized? Also if any progress or solution to this problem found until now.

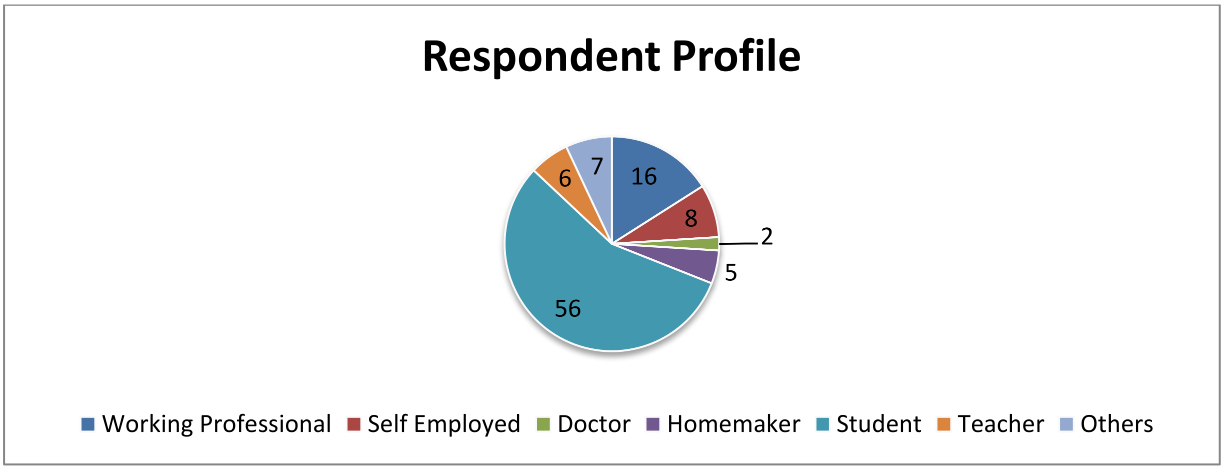
The Direct interviews with five doctors and some consumers /sufferers were conducted to collect accurate data. Retailers dealing in such products were scrutinized to get first-hand data to investigate the gluten-free products demand and other related parameters. Lastly, a detailed analysis to understand the scope of progress in this sector.

Preparation of a valid questionnaire to achieve the study's objective and reliable analysis went through three iterations. This primary survey focused on a homogenous group of people and was contacted/targeted via WhatsApp groups, LinkedIn posts, personally contacting, via mail etc. We circulated the questionnaire to 250 people but got hold of 62 accurate responses from a diversified range of people (professionally). The maximum respondents were the public, a part of whom were celiac intolerant. This survey ran for 15 days. The pool of responses was from students, catering to 56% of the answers, which is a good figure since this explicitly gives the viewpoint or analysis from the younger population, which exhibits reliable and real-time analysis. It was followed by working professionals catering to 16% of the whole population. Others included doctors, teachers, unemployed people, self-employed people and homemakers. The male population was dominant among the survey responses, while females were recessive with only 27% share. First-hand data were analyzed using the SPSS tool by adopting the methodology of statistical data analysis.

To add more value to the study, Direct interviews with doctors dealing with this disease and retailers selling in and not in such (Gluten-free) products were conducted to gauge their viewpoints and understand the current market scenario regarding this less talked about problem.

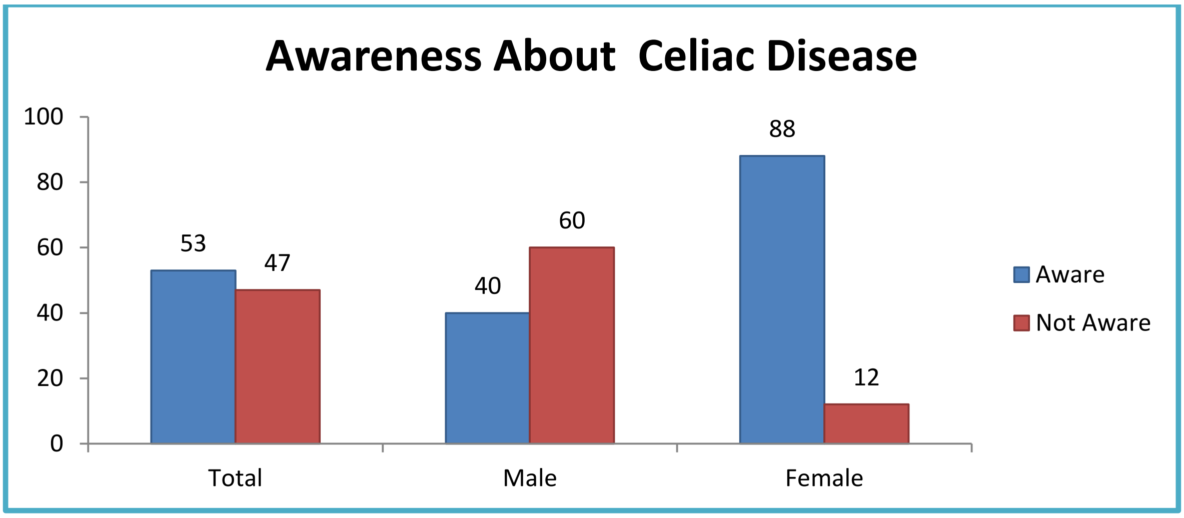
DATA ANALYSIS:

The actual burden of Celiac disease is much more than reported or diagnosed. It remains largely unrecognized in clinical settings, and the age-old adage of the iceberg phenomenon applies aptly to celiac disease. Routinely, only those patients with typical signs and symptoms undergo screening. At present, no public service units are manufacturing screening kits in India. Multiple factors, including atypical presentations, contribute to delaying or the lack of diagnosis.



Figures are in percentage (%)

62 participants became a part of this research. Of them, 73% were male, while the rest, 27%, were females. Respondents majorly accounted from the northern city of India from the states of Punjab and Haryana and some from Indian in Canada as well. Their contribution also helped us gauge the shift in thoughts/perspective about the study from India to abroad. Analysis showed that 53% were aware of celiac disease among the respondents, while shockingly, 47% were unaware of this untalked problem. Out of the 53% of the population aware of celiac disease, 97% were knowledgeable about Gluten-free products.



Figures are in percentage (%)

The products produced explicitly for the celiac intolerant population contain no or below the danger level gluten that the patient can easily digest and does not incite any harmful reactions.

Among the participants who have heard about celiac disease, 21% or 7 of them are celiac intolerant; females hold a significant share of being Gluten intolerant, with a contribution of 72%. In addition, 60% of the intolerants are still students, which show the higher prevalence of the disease among the younger population in India.

The availability of Gluten-free products in our society is a very uncommon thing in most stores/shops. A lack of awareness supports only a handful of store sellers are stocking such items for sale due to less demand and higher prices. Those dealing in such products sell only the essential things, namely Atta and the others (the monopolist). Those who deal exclusively in other gluten-free products are selling varied varieties of such products at lavishing skyrocketing prices, exploiting the customer to the maximum Level they can, at five times the cost of the non-gluten product of the same category. Analyzing this from the customers perspective, approximately 75% of the respondents (celiac intolerant) prefer not paying 5x the amount of a standard product for the gluten-free product.

In comparison, 15% were not sure if they should pay such a hefty amount for these products while 10% were willing to pay for them. Since Gluten, intolerant customers have no choice but to pay for many higher-priced products, the retailers exploit them. In addition, the retailers have almost no competition in the market.

Furthermore, among those who are not celiac intolerant but know about celiac disease, around 60% neglect paying such a higher price for a nominal product or are not sure whether it is worth paying for such a specific product or not. Other potential customers are health conscious and have the likeability and pocket to pay for such limited and hefty products. Comparing a single variety of Gluten-free bread available in India with 40 different types of such in New Zealand, the price, quality and variety can readily be accessed, superior to those available in India. Such projects hold a prominent position in terms of different parameters (price, quality, variety etc.). Why aren't companies in India manufacturing such lavishing wide varieties of Gluten-free products (or bread to take an, e.g.) to regulate the price and demand situation? It majorly owns towards lack of awareness about such products and their health benefits, which spurs the price of limited demand in the economy.

Since most of the customers of gluten-free products are willing to pay such hefty amounts for these products, further analysis revealed the satisfaction level of customers (celiac intolerant) regarding the current variety of these products available. Among those celiac intolerant, 58% are not sure and include those who are not satisfied by the range of gluten-free products available. These are the ones who are not willing to pay 5x the amount asked for such products. It explains that these customers are not satisfied by the range of products available and the ones available to the end consumers Arnt helping them to the maximum potential and hence are not willing to spend so much on those products. Desires for improvement in quantity, base, texture, taste etc., makes the customer unsatisfied, adding the lack of variety of a specific product. Taking the example of gluten-free cakes, one in hundred bakery shops would be producing a variety of products that are too costlier than the presented item's ability and not marking the customers' expectations. Considering the customers' response about the price they are shelling, nobody was satisfied with the price demanded by the seller, where 72% completely neglected their satisfaction level. At the same time, the rest were unsure and showed neutral responses concerning these products. When we analyze from the customers' point of view, 87% genuinely believe that there is not much awareness about this disease in society, while 13% are unsure about the prevailing scenario. Secondary data reports also reveal that many states or poor areas of India would be having enormous people suffering from this problem. At the same time, such a diagnosis remains a far-fetched mystery there.

The primary location of the survey Chandigarh, Punjab India has a limited line of retailers dealing in Gluten-free products. Only one such retailer sells 100-150 gluten-free products and has 6-7 sub-variants of each class, e.g., flour biscuits, dry cakes, noodles, bread, buns, etc. Other retailers dealing in such products are restricted to essential product categories, i.e., flour (not exclusively Gluten free, but ragi, soya, etc.). The shortage of demand for gluten-free products in the market and less shelf life leads to retailers' losses, only by-products accumulation and storage. The solo retailer started dealing in such products around eight years ago; previously owning a flourmill, he began manufacturing such products only out of curiosity. Everything they stock is sold as he is catering to a fixed pool of people and his products remain in demand throughout the year. His customers feel that the products are overly priced, and the quality does not match the price at any cost. Some issues they face include shorter shelf life, bulky products, less soothing taste, among others.

In contrast, the variety in each product category is also average and not much superior or satisfactory. The retailer is stocking products mainly imported from Noida, Delhi side, and some are imported from foreign countries. Essential products like flour are manufactured locally only.

As per his perspective, the market scope for gluten-free products is less since he believes that only one in 1000 people suffers from a gluten allergy, and the price is too high. Correspondingly, the awareness level is shallow, and demand is on the lower side. Primarily those who are celiac intolerant are his customers, very few who seemingly are health conscious. He saw this concept in New Zealand, where these products are available very cheap with a huge variety in each product line. E.g. Bread itself is available in 40 types (Gluten-free), indicating that people also prefer these products.

Apart from retailers and customers, doctors were also surveyed. A few of the senior doctors were contacted working in Post Graduate Institute of Medical Education & Research, Chandigarh, INDIA (P.G.I.) as well as in some private clinics. The doctors in the pool of respondents have been diagnosing this disease for the last 7-9 years, where 10-15 patients approach them on an average per month for advice/ diagnosis (current figure). Doctors also believe that only health educated persons are aware of this disease and approach the respective practitioners for diagnosis and further treatment. These people are the only ones who work out to maintain apt health standards to prevent themselves from different allergic reactions. Others assume this a general allergic reaction to a particular food or other products. The experience of doctors says that only anti-histaminic and anti-allergic educational awareness is there in patients, in many doctors also, who otherwise treat major allergies (like gluten allergy) as typical intolerance and prescribe anti allergies. Doctors strongly believe that there is an enormous scope of research and disease management in India. In addition, people should be aware of this intolerant disease. The educational awareness camps can help in doing so at derma and skin clinics.

RECOMMENDATIONS:

Before analyzing the conclusions of the research survey, let us hear out what public opinion is. Participants of this survey also feel that conducting such surveys is of great importance. Such severe and un talked topics should be deeply studied, surveyed and openly discussed with the masses. Respondents think that an ordinary man does not know its prevalence and how harmful it can be if ignored for too long. There is no awareness among the public about the repercussions, and further what precautions should be taken regarding its control and prevention should be openly discussed with the public at large. This lack of awareness costs people's lives, too, as shared by a respondent from a well-off family whose sister suffered from the same disease since childhood (the family had seen signs since childhood). Still, they stayed in the dark till she turned 20, and things went tropical as her blood vessels dropped below the bare minimum when they finally got it recognized, although it was too late. To spread awareness about celiac disease and gluten-free products through a suitable medium, FMCG should focus on proper branding and their benefits to the public; also, respondents believe that there should be trusted companies in the market like I.T.C. to resolve such issues. Talking about the satisfaction level of consumers about price, some believe that gluten-free products are better in terms of health benefits. Subsequently, 2x would be reasonable to pay, unlike the current 5x, which is too costly. 5x prices Arnt appeals to consumers while the other side believes that the product is healthier costlier it will be. Still, paying this much hefty is not apt on the claims of nutritional products. Even after being a bit expensive (but reasonable), these products can catch a massive market by proper marketing and advertisement. Since such efforts also make a huge difference to make, such prices feel worth it to consumers.

Analysis from first-hand research shows that 7 in 62 people are celiac intolerant, the overall prevalence being 11.3%. This problem is more common than it is recognized in India, and extensive epidemiological studies should address the actual burden of the disease. In addition, the awareness level is so low that people (patients) misinterpret celiac disease as any other typical allergy until this reaches a higher stage and has caused many internal damages. This problem should be addressed at a national level wherein government (health ministry) should take the initiative to educate people regarding this disease and its repercussions if not diagnosed and treated.

Participants and doctors suggested spreading the word about this among the public and advancements in this field of study. Private hospitals and clinics should also work out camps or seminars to inform the masses about this disease.

The successful management of the celiac disease is primarily dependent on a combination of factors that involves mainly the patient's understanding of the disease and following the prescribed dietary restrictions. Early diagnosis and treatment and regular follow-up visits with a dietitian are necessary to ensure nutritional adequacy and prevent malnutrition while adhering to the gluten-free diet for life. There is a shortage of trained dietitians in India to adequately counsel these patients. Due to this absence, physicians need to know more about the practical aspects of prescribing a gluten-free diet. It includes not just restriction of foods but also advising a well-balanced diet tailored to each patient. The gluten-free diet is complex, and patients need comprehensive nutrition education from a skilled dietitian. Therefore, it is considered a need of the hour, and workable measures need to be taken to skill the medical staff. There is also a need for reliable gluten-free food in the food supply chain and legislation for maintaining quality control of gluten-free food in the Indian food industry.

Apart from this, spreading awareness will not serve the purpose; potential patients need to be well educated. People who follow the gluten-free diet must be appropriately counseled on balancing their diets and avoiding cross-contamination. They should be taught how to read food labels properly and given tips for dining out or travelling. Regular follow up with patients is also required for assessing the compliance and monitoring growth and the status of recovery.

CONCLUSION:

While Celiac disease is emerging in many Asian countries, there is very limited preparedness to handle these patients in Asia. In the Indian context, awareness is the key. At present, even the number of patients is high, but a fraction of them is diagnosed currently. Since the health care providers are spreading the awareness, an increase in patients is expected. As found in our research, people are willing to buy and purchase gluten-free products, which is essential for managing the disease. The subsidized manufacturing process and affordable pricing can be the game-changer for these products. Apart from the availability, the advertising also plays an important role. The health care providers are doing a remarkable job in making people aware of the products and subsequent benefits.

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